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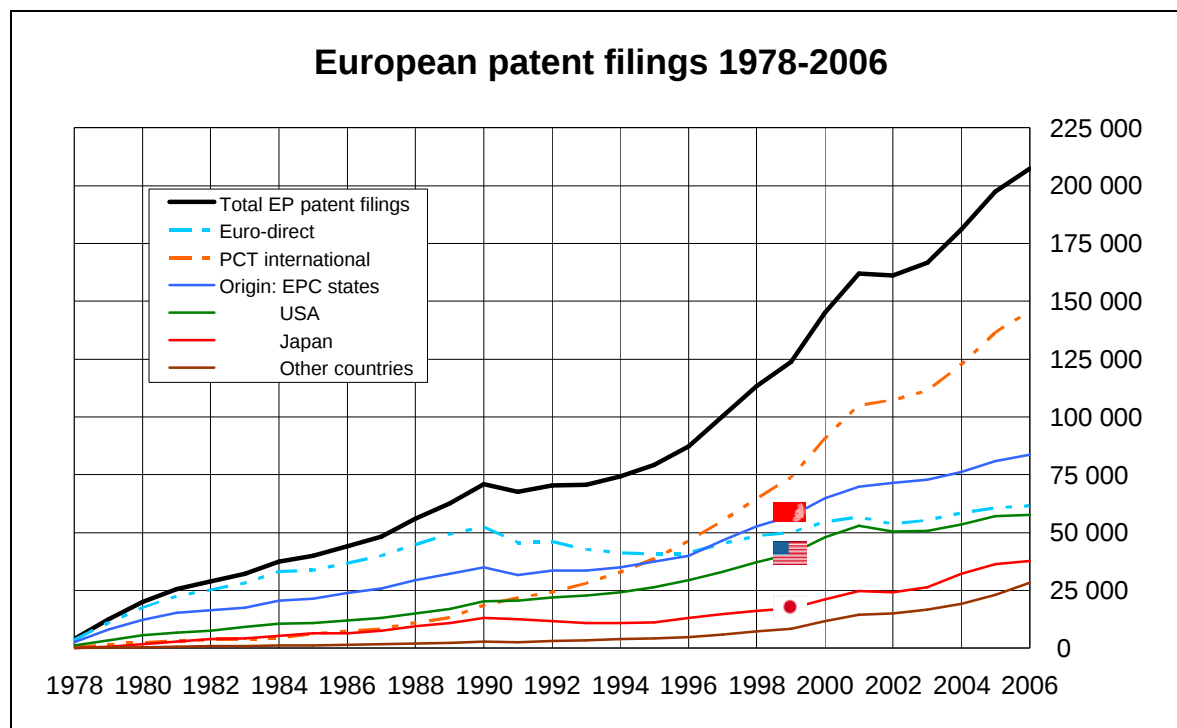
APPLICANT PANEL SURVEY 2006

OF INTENTIONS FOR FILING PATENT APPLICATIONS AT THE EUROPEAN PATENT OFFICE AND OTHER OFFICES

Munich, February 2007

Commentary by the European Patent Office

Numbers of filings at the European Patent Office continued on an upward trend in 2006. Various kinds of regression analysis suggest further growth for the future.



Each year, the EPO carries out a survey of filing intentions by applicants for European patents, in order to confirm likely trends. This report concerns the latest survey that was carried out in summer 2006 by the market research firm Synovate. The main purpose of the survey is to provide information on likely filing developments for the EPO's annual forecasting exercise for budgetary planning purposes. The survey was executed in mid-2006, some months before the forecasting exercise in January 2007.

Unfortunately, the survey predicts almost unchanged levels of filings for 2006 compared to 2005, while in fact we already know that there was a considerable increase. There is a reasonable degree of optimism among applicants with regard to future numbers of patent filings, with growth rates averaging about 6% per year from 2006 to 2007 and from 2007 to 2008. It should be appreciated that the results of the survey are liable to fairly large degrees of statistical error, summarised by 95% confidence intervals on the forecasts.

In this report, there is a description of the survey set-up and execution, then a presentation of the results. Firstly, some descriptive statistics are presented. Improvements have been made in the current survey to the method of reweighting results, in order to be able to make inferences about distributions of factors among the EPO's population of applicants. The report then concentrates on estimating future inputs for the main workload items at the EPO: Direct European route filings (Euro-direct), PCT international phase filings (PCT-IP) and Euro-PCT regional phase filings (Euro-PCT-RP). There is an assessment of current results in comparison to those from previous surveys. In the annexes there are further analyses of the filing trends for applications in other national patent systems (particularly Japan and the United States, but also France, Germany and the United Kingdom), as well

as descriptions of applicants' R&D budgets, the numbers of patentable inventions, researchers and first patent filings within each of the 14 main technology joint clusters that exist at the EPO. Findings are also presented on the time length between initial R&D expenditures and patenting.

The survey asks about filing intentions for three years only (in the current exercise 2006, 2007 and 2008). The set of forecasts that is identified as being most appropriate is in **Table 18**, and is based on a random sample after taking account of the main blocs of residence of the applicants.

Further analytical developments are included in this report via the trimming of outliers, the testing of the validity of variance formulae via bootstrap analysis, the inclusion of a finite population correction, and an analysis of the variability of results. The last two techniques are expanded upon in Annex VII of the report.

As mentioned above, a problem with the findings of this survey is that the estimated total filings for 2006 are somewhat lower than the out-turn as already known. This could be because a large enough number of new applicants recently entered the system and overcompensated for filings fatigue by those applicants in 2005 who were eligible for participation in the survey. It is difficult to evaluate this in case large numbers of new PCT-IP applicants appeared in 2006, since database records for their applications do not fill completely until over two years after filing. However we can test for this effect by looking at the turnover of the applicants that were used to construct the samples for the survey.

The sampling scheme for the 2006 survey was made using database records of filings (Euro-Direct & Euro-PCT-RP) in 2005 as the base year. The table below shows results for the most recent two years for which data can be expected to be complete. It gives the sizes of the applicant populations and their numbers of filings in 2004 and 2005, considered in terms of Euro-direct and Euro-PCT-RP filings, with breakdowns by blocs of residence¹.

Total filings analysis (Euro-direct + Euro-PCT-RP), gains and losses

Bloc	2004			2005			2004 not 2005			2005 not 2004			Net gains	
	# filings	# cases	Average # filings per applicant	# filings	# cases	Average # filings per applicant	# filings	# cases	Average # filings per applicant	# filings	# cases	Average # filings per applicant	# filings	# cases
EPC	61 224	18 221	3.36	63 738	18 714	3.41	15 164	12 109	1.25	16 753	12 602	1.33	1 589	493
Japan	20 610	2 448	8.42	21 457	2 622	8.18	1 690	1 225	1.38	2 257	1 400	1.61	567	175
US	32 573	8 522	3.82	32 725	8 841	3.70	7 084	5 133	1.38	7 893	5 452	1.45	809	319
Other	9 399	3 907	2.41	10 852	4 184	2.59	3 684	2 932	1.26	4 925	3 209	1.53	1 241	277
Total	123 806	33 098	3.74	128 772	34 361	3.75	27 622	21 399	1.29	31 828	22 663	1.40	4 206	1 264

Most importantly, the table shows counts of filings by applicants who were active in 2004 but not active in 2005, and applicants who were not active in 2004 but active in 2005. (Here "active" means that at least one filing was made during the year). When considered by bloc, the table shows that net differences in filings scale reasonably closely between the three main blocs (EPC contracting states, Japan, USA), when considered as proportions of total filings from the blocs. However the "Others" bloc shows more net gains than expected on average, which is consistent with new players like China emerging on the scene.

¹ From the EPO database (EPASYS), status November 2006. Applicants are defined in terms of applicant numbers as recorded in the database.

The table gives a net difference of 4 206 filings between "new-born" applicants (applicants in 2005 that did not file in 2004) and "dead/dormant" applicants (applicants in 2004 that did not file in 2005). This figure could be used as a conservative upward correction factor for matching forecasts for total filings from the panel survey. It is considered a *conservative* figure because:

1. The transition for 2005/2006 and for following years can be expected to be at least as large as that seen in 2004/2005. Preliminary data in fact suggest a net difference of about 6 200 for 2005/2006, though this can not be confirmed until the database stabilises later on.
2. Total filings (Euro-direct + PCT-IP) are forecasted in the survey. This is a greater number than the count of filings used for the sampling (Euro-direct + Euro-PCT-RP). For Euro-direct + PCT-IP, the birth/death effect for which the correction factor could be calculated is greater.
3. Rules for the PCT system were changed in January 2004. All PCT-IP filings throughout the world now automatically designate the EPO as well as the other eligible countries and regions. Some of these PCT-IP filings will be from new clients and will have resulted in Euro-PCT-RP applications in 2006. However such applicants could not have been selected for the panel sample if they had not made any Euro-PCT-RP filings in 2005.

The known counts for total filings in 2005 are about 197 000 (ED + PCT-IP) and 129 000 (ED + Euro-PCT-RP). Since PCT-IP filings are more volatile and are likely to yield a higher rate of net gains than Euro-PCT-RP filings, this suggests an upward correction factor for 2006 total filings of at least $(197 / 129) \times 4\,206 = 6\,423$, which raises the forecast for 2006 total filings in Table 18 of this report from 196 402 to 202 825. This is still lower than the perceived reality (about 207 000 in 2006), but the confidence limits will be centred closer to the actual figure. Upward corrections of at least 6 423 can also be suggested with regard to the filings forecasts from the survey for 2007 and 2008.

Annex VI shows the results from the survey on R&D investment activities, inventions and usage of the patent system for such inventions.

We are happy to be associated with this report and hope that you will enjoy reading it. Please do not hesitate to provide us with feedback on any of the issues that are discussed. This will help us to improve future surveys.

European Patent Office
Munich
controlling@epo.org

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1 Summary

1.1 Background

Since 1996, the European Patent Office (EPO) has carried out an annual "Applicant Panel Survey". This time, patent applicants were surveyed with the main objective of predicting the number of patent filings for the years 2007 and 2008. The EPO uses the predictions as one of the ways of allocating resources, in order to ensure a high service level when processing future patent filings.

The design of the 2006 survey resembled the design of the preceding panel surveys since 2001 with a comparable sample size of approximately 2 000 applicants. Synovate, Munich, (formerly Roland Berger Market Research) has carried out the data collection and the data entry since 2001. For the third year in succession, Synovate was again in charge of the data analysis and interpretation in 2006.

1.2 The 2006 survey

Applicants were selected in two groups: the Biggest group and the Random group. The total number of applicants involved was 2 098², with most of the Biggest group also appearing in the Random group. The survey covered applicants for about 31% of the applications at the EPO. In the first stage, valid addresses were found for 2 003 applicants, and contact details were established for 1 524 applicants. Questionnaires were sent out in June 2006, with interviews being completed by early September. The questionnaire contained a full matrix of questions on patent filings broken down by first and subsequent filings, not only at the EPO, but also in other main worldwide patent systems. Furthermore, questions were asked to elicit information on R&D expenditures and filings by joint cluster (roughly equivalent to industry segments). Descriptive information was also collected on company type and size in terms of persons employed and in terms of sales. The total useful response rate was 38.2% of the valid addresses (772 out of 2 003), which is slightly above the 36.9% calculated for last year's survey.

A group of 43 among the 2 098 applicants included in the survey were deliberately added because they were of special interest to the EPO. For statistical reasons, these additional applicants have not been included in the analyses reported here. Also a few late returned responses were not included.

Using additional data obtained from the questionnaire that was filled in by the applicants, information was obtained about the size distribution of the applicant population in terms of numbers of employees and worldwide sales. Furthermore, information was obtained on research and development (R&D) expenditures as well as numbers of first patent filings worldwide, all broken down by activities in the 14 joint cluster speciality areas that are relevant to EPO operations.

² Numbers reported in this subsection include deliberately added applicants, in contrast to the overview given in Section 4.

1.3 Analysis of results on patent filings

The survey approach involved establishing forecasts from basic filing types and residence blocs of the applicants. The basic filings types at the EPO are first and subsequent filings, Euro-direct and PCT international phase filings (PCT-IP), and PCT applications entering the regional phase (Euro-PCT-RP). At other offices there are national filings and PCT applications entering the national phase (PCT-NP). The specific responses regarding future expectations for applicants' total filings at the EPO (Euro-direct + PCT-IP) were subject to several analyses. Based on the Random group broken down by residence bloc, growth rates (compared with 2005) can be estimated at about -0.5% in 2006, 6.7% in 2007 and 12.7% in 2008. For the Biggest group, the results are even less optimistic. The growth rates obtained are -2.5% for 2006, -1.0% for 2007 and 2.4% for 2008.

Comparing the predictions to the actual filings for the year 2006 shows that in general the intentions for filing patent applications as expressed in the survey appear to be more pessimistic than the actual filing behaviour. The total number of actual filings increased from 197 294 in 2005 to 207 440 in the year 2006 implying an average growth of about 5%. Comparing this year's predictions with those from the 2005 panel, the forecasts using different methods are more volatile and confidence limits are generally wider with no change in methodology. This implies that the variability of the forecasted figures received from the respondents is higher. One contributing factor is a shift in filing route from Euro-direct to PCT-IP as observed in particular for some US applicants. Various breakdown scenarios are introduced to single out any distorting one-time effects.

As in previous reports, forecasts are also broken down by joint clusters used at the EPO for organisational planning. Growth rates are calculated for each joint cluster, as well as on an overall basis, by combining the results for each joint cluster. Compared with surveys from the last two years, the overall forecasts are less optimistic. The figures should be interpreted cautiously as a multiple choice option was included for the joint clusters in order to make it convenient for applicants to describe the scope of research activities.

It was also possible to analyse the questions on PCT filings entering the regional phase at the EPO. For the Biggest group, growth rates (compared with 2005) can be estimated at 3.7% in 2006, 8.2% in 2007 and 8.0% in 2008. For the Random group, growth rates can be estimated at -2.0% in 2006, 10.8% in 2007 and 11.0% in 2008. It is interesting that the relative degrees of optimism between Biggest group and Random group seem to be reversed here compared to the main results on total filings at the EPO.

1.4 Forecasts of future filings at the EPO

The recommended forecasts are those from the Random group with breakdown by residence bloc and including companies with qualifying comments. This forecasting method is selected based on the trade-off between smaller confidence intervals and confidence intervals encompassing the actual number of filings. **Table 18** summarises the forecasts.

The **overall forecast for total filings in 2006 is 196 492**, with approximate 95% confidence limits of 178 298 to 214 506, resulting in a deviation of $\pm 9.2\%$ and

encompassing the actual number of filings of 207 440. The estimated percentage of Euro-PCT-IP filings among total filings for 2006 is 70.6%.

This forecasting method **predicts total filings of 210 436 in 2007** (approximate 95% confidence limits of 187 051 and 233 821) **and 222 271 in 2008** (approximate 95% confidence limits of 196 847 and 247 694). There is a considerably increased degree of variability in the results of the current survey, compared to previous surveys.

2 Introduction

In 2006, the European Patent Office (EPO) organised its eleventh annual "Applicant Panel Survey" on intentions regarding future numbers of patent filings. The survey was carried out via telephone and mail interviews with pre-established contact persons. The interviews, data collection and data analysis were undertaken by Synovate (formerly Roland Berger Market Research), providing the EPO with the benefit of joint experience gained previously in similar surveys from 2001 to 2005. The design of the 2006 survey was to a large extent similar to that of the previous years, using a comparable sample size.

The primary aim of the survey was to calculate quantitative forecasts of patent filings at the EPO and other patent offices by various filing routes and applicants' residence blocs (EPC³, Japan, USA, Others). A secondary aim was to explore technological areas of patenting in order to make more detailed forecasts and to explore the relationship between R&D expenditures and patent applications. This was done on the basis of 14 joint clusters, broken down according to the technology-based classes of the patent applications and corresponding to the structure in which the EPO has organised its search, examination and opposition departments.

3 The 2006 survey

More than 2 000 applicants were approached regarding their expectations for patent filings for the coming three years, in this case for 2006, 2007 and 2008.

The parent population for the survey comprises applicants who filed a patent application at the EPO in 2005. These applicants are mainly companies, but there are also some organisations and private inventors. The applicants come from all over the world, but mostly from Europe, the US and Japan.

The EPO provided two gross samples of applicants drawn from the EPO database of applications:

- **"Random"**: This sample includes 1 973 participants and is designed to represent all applicants of the parent population. It was obtained from a simple random sample of applications, with the effect of over-weighting large applicants due to their larger numbers of applications.
- **"Biggest"**: This sample comprises 405 participants and is designed to represent large applicants separately (excluding deliberately selected addresses).

All gross sample data were taken from the EPO application database (EPASYS) and considered Euro-direct and Euro-PCT regional phase filings only (PCT-IP filings were ignored for the sampling due to a lack of timeliness). The EPO also added another 43 deliberately selected addresses that were of special interest. For statistical reasons, however, these were not included in the investigations reported here. Both samples were drawn separately and contain an overlap of 323 large applicants who belong to both

³ European Patent Convention (EPC) contracting states

groups. Without the overlap, the gross sample includes a total of 2 098 different applicant addresses (including deliberately selected addresses). Both samples should adequately represent the three regions of Europe, the US and Japan.

The questionnaire that was used for data collection is attached as **Annex I**. It covers the following key topics:

- Current and future filings (**Section B**), split by
 - o first and subsequent filings
 - o different procedures: Euro-direct, PCT international and national/regional phase, and national procedures
 - o different countries: Germany, the UK, France, Japan, the US and other countries
- Research and development activities, split by the 14 joint cluster organisational groupings used for examinations at the EPO; including total number of inventions considered for patent applications, number of full-time researchers (**Section C**)
- Average time between initial R&D expenditure and the first patent filing, use of the services of a patent attorney, and statements on patenting behaviour (**Section D**)
- Company details, such as organisation type and number of employees, approximate size of sales, whether part of a national or international group of companies (mainly in **Section E**)

The questionnaire was broadly similar to that used in 2005. The main parts of the questionnaire remained unchanged to allow comparisons. However, one minor topic (percentage of R&D budget that was spent before the point of decision on patenting) was removed. Also, some changes in questions occurred - in part C, the 2006 questionnaire asked for the number of inventions considered for patent application on a total level. Moreover, information on the number of full-time researchers and on the proportion of inventions that were patented was requested. Also, categories of statistical questions in part E were added to get more clear-cut answers identifying individual inventors or applicants from public sectors. The question asking for countries of operation changed to information on whether part of a group of companies. Furthermore, in part D, questions on patent behaviour and external attorney usage were added (results are not part of this report and will be published elsewhere).

Participants were given the opportunity to make general comments at the beginning of the questionnaire (**Section A**). A selection of the comments received is included in **Annex II**.

The main question (in **Section B**) asked for the numbers of filings already made in the base year (2005), as well as estimates for future filings for the years 2006, 2007 and 2008. An option was provided to give information in the form of growth rates rather than actual numbers. Growth rates on a year-by-year basis were a permitted alternative because previous experience showed that the interviewees had difficulties calculating growth rates from a single base year. However, for the results in the report, we have adopted the convention of indicating growth rates with respect to a base year (in this case 2005).

The questionnaire was accompanied by an official letter of recommendation from the EPO, signed by the President of the EPO, in order to motivate respondents to participate. This letter contained information on the background of the study, the target group and data protection, a contact person at the EPO in cases of doubt, and stated that the results

would be published on the Internet. In addition, a cover letter from Roland Berger Market Research (now Synovate) provided information on the survey procedure.

Both the letters and questionnaires were personalised, i.e. the company name, the address, the name of the contact person and the identification number were printed on each questionnaire and reference letter. The letters and questionnaires sent were written in English, French, German or Japanese.

Since the questionnaire was largely identical to the one used in 2005, no pre-test interviews were conducted. The main interviews took place from June to early September 2006. Most questionnaires were completed by the respondents themselves. Substantive telephone interviews were required in only about 5% of cases (36 interviews). In total, 772 interviews were completed in 2006, exceeding the high response level of the previous year (747 interviews).

4 Response rates

An account of the execution of the survey is provided in the methodology report, from which the following information has been extracted. The EPO provided lists containing a total of 2 098 selected applicants. The researchers strove to identify contact names, addresses and telephone numbers, and 2 003 addresses were confirmed. Of these, contact was established with 1 524 applicants (adjusted sample) for survey purposes. As mentioned in **Section 3**, the overall sample contained 43 applicants deliberately added by the EPO. Since they are not considered in the statistics presented in this report, they will be left out from here on in.

Table 1 shows the total number of applicants that were selected for the survey, the number that dropped out for various reasons, and the final number of responses received.

Item	Number	Percentage
Total gross sample	2 055	100.0
Addresses not found	93	4.5
Addresses found	1 962	95.5
Addresses found	1 962	100.0
Dropouts (1)	472	24.1
Adjusted sample	1 490	75.9
Dropouts (2)	740	37.7
Total responses	750	38.2

- (1) Company was identical to another already identified in the sample; company could not be reached; contact was sick/on vacation; an appropriate contact was not found; company being restructured, etc.
- (2) Questionnaire not returned though promised; no time available for dealing with the matter; no interest in filling out the questionnaire; data too confidential; company policy; returned questionnaire too late; participated in other EPO surveys, etc.

Table 1: Sample and responses received (excluding deliberately selected addresses)

Table 2 shows the distribution of the applicant population in 2005, broken down by residence bloc (applicants for Euro-direct and PCT-IP, see also **Annex VIII**).

Residence bloc	Applicants (population)	%
EPC countries	23 119	43.2
Japan	4 335	8.1
USA	16 147	30.3
Other countries	9 885	18.4
Total	53 486	100.0

Table 2: Population size (applicants for Euro-direct and PCT-IP)

Table 3 shows the same information as **Table 1**, but additionally broken down by the applicants' residence bloc. Compared with the previous survey, the overall response rate is around the same (38.2% in 2006 compared with 37.0% in 2005).

Residence bloc	Applicants selected (sample)	%	Addresses found	Adjusted sample	Responses	Response rate [%]
EPC countries	1 024	49.8	1007	823	424	42.1
Japan	280	13.6	275	205	109	39.6
USA	553	26.9	529	354	169	31.9
Other countries	180	8.8	151	108	48	31.8
Total	2 055	100.0	1 962	1 490	750	38.2

Table 3: Total sample (Biggest and Random groups, net numbers, excluding deliberately selected addresses)

Table 4 and **Table 5** describe the two samples, "Random" group and "Biggest" group (including their overlap), drawn by different sampling methods, in greater detail.

Residence bloc	Applicants selected (sample)	%	Addresses found	Adjusted sample	Responses	Response rate [%]
EPC countries	176	43.5	176	147	90	51.1
Japan	106	26.2	106	73	48	45.3
USA	100	24.7	99	67	44	44.4
Other countries	23	5.7	23	9	4	17.4
Total	405	100.0	404	296	186	46.0

Table 4: Biggest group sample (including overlap, excluding deliberately selected addresses)

Residence bloc	Applicants selected (sample)	%	Addresses found	Adjusted sample	Responses	Response rate [%]
EPC countries, thereof:	1004	50.9	969	790	403	41.6
- France	123	6.2	122	90	24	19.7
- UK	84	4.3	79	69	42	53.2
- Germany	370	18.8	363	305	155	42.7
- Italy	99	5.0	93	61	25	26.9
- Netherlands	51	2.6	50	42	24	48.0
- Switzerland	81	4.1	79	63	34	43.0
Japan	260	13.2	255	195	102	40.0
USA	531	26.9	508	340	159	31.3
Other countries	178	9.0	149	106	48	32.2
Total	1 973	100.0	1 881	1 431	712	37.9

Table 5: Random group sample (including overlap)

Table 5 shows a response rate of 53% for British applicants. Compared to 2005 (42%), the response rate increased considerably. **Annex VIII** provides an alternative breakdown of the samples, showing the coverage proportions of the underlying populations in terms of both applicants and applications.

The researchers checked the plausibility of the responses received (**Annex III**). In cases where possible difficulties were identified, a follow-up interview was conducted to verify the responses.

After finishing fieldwork, there were eight late returned responses that were checked for a potential influence on the results. Since the late responses did not have any significant effect on the results, they were excluded from further analysis.

5 Respondent profile

In **Sections C** and **E** of the questionnaire, respondents were asked to indicate the profile of the company, including company/organisation type, the number of persons employed and the joint clusters that best describe the applicants' business.

5.1 All respondents

These findings represent the totality of responses to the survey, but they are nearly the same as the results for the Random group. Since the Random group represents a probabilistic sample from the applicant population, it is considered appropriate for the main forecasting exercise of this report to analyse and report results separately for the Biggest and Random groups, and not to provide combined results for all respondents.

5.2 Respondents from the Biggest group

The majority of respondents in the Biggest group are classified as private enterprises, accounting for more than 96% of the sample. Public sector organisations account for 3%, with government-performed R&D at 1.8% and educational institutions and other public organisations each at 0.6%. Less than 1% are classified as other (non-public) organisations. In terms of numbers of employees, the majority of respondents in the Biggest group have 1 000 or more employees, accounting overall for more than 90%. Summarising the respondent profile, most of the applicants from the Biggest group are private enterprises and employ at least 1 000 persons.

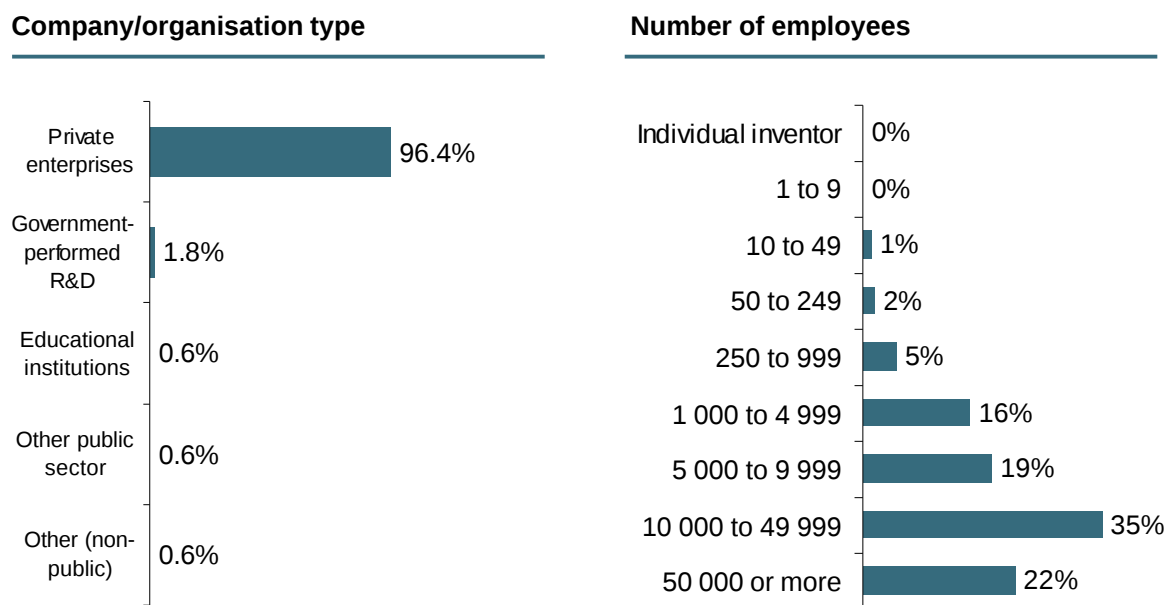


Figure 1: Biggest group by company/organisation type and numbers of employees

Broken down by residence bloc, the distributions are as shown in the following two tables:

Biggest group
By type of company/organisation
Total and breakdown by residence bloc

Residence bloc	Private enterprises	Government-performed R&D	Educational institutions	Other public sector	Other (non-public)	Grand total	No. of cases
Total	96.4%	1.8%	0.6%	0.6%	0.6%	100%	169
EU	95%	2%	0%	1%	1%	100%	82
JA	96%	2%	2%	0%	0%	100%	45
OT	100%	0%	0%	0%	0%	100%	4
US	100%	0%	0%	0%	0%	100%	38

Table 6: Biggest group by type of company/organisation and residence bloc

Biggest group
By number of employees
Total and breakdown by residence bloc

Residence bloc	Individual inventor	1 to 9	10 to 49	50 to 249	250 to 999	1 000 to 4 999	5 000 to 9 999	10 000 to 49 999	50 000 or more	Grand total	No. of cases
Total	0%	0%	1%	2%	5%	16%	19%	35%	22%	100%	165
EU	0%	0%	2%	4%	7%	12%	19%	33%	24%	100%	85
JA	0%	0%	0%	0%	2%	29%	31%	29%	9%	100%	45
OT	0%	0%	0%	0%	0%	25%	25%	25%	25%	100%	4
US	0%	0%	0%	0%	3%	6%	0%	52%	39%	100%	31

Table 7: Biggest group by number of employees and residence bloc

5.3 Respondents from the Random group

The distribution of respondents from the Random group by type of company/organisation shows a similar profile to the Biggest group distribution. Almost 92% of the random applicants are private enterprises. Educational institutions are ranked second with a percentage of 4.5%. Government-performed R&D accounts for 2.6%, other public and non-public institutions account for around 1%.

In terms of the numbers of employees, most companies in the Random group are in the range of 1 000 to 5 000 employees, accounting for 21% of the sample. However, the profile regarding the number of employees is more evenly distributed compared to the Biggest group distribution. It is clear that the Random group contains a larger proportion of small companies than the Biggest group does.

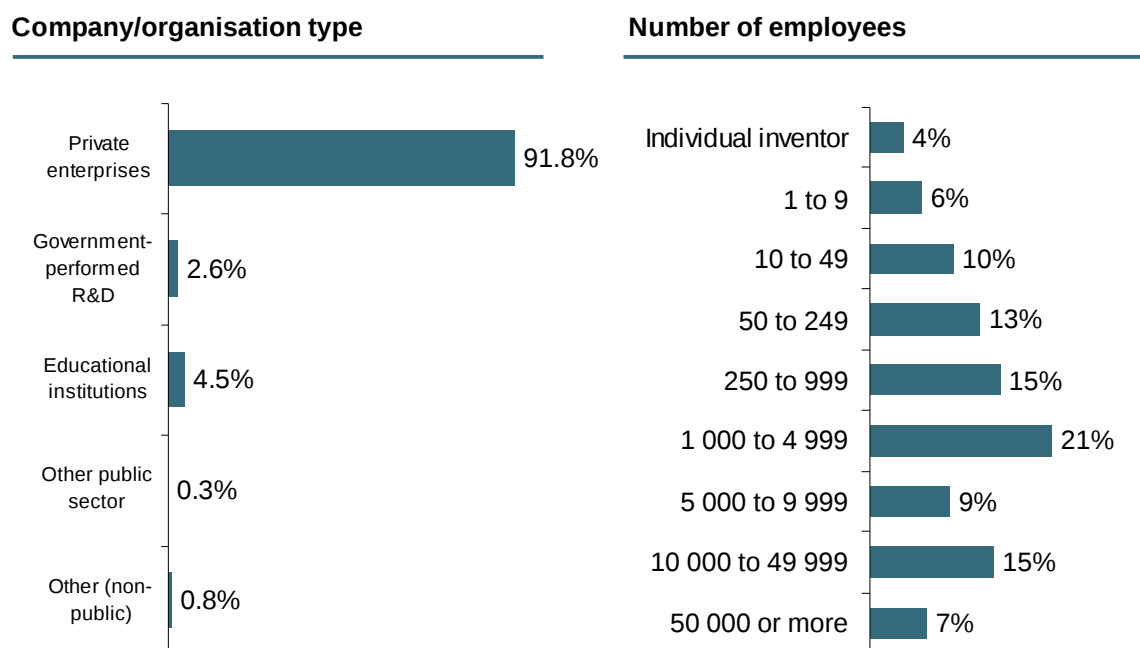


Figure 2: Random group by company/organisation type and number of employees

Noteworthy regarding the breakdown of the distributions by residence bloc is the dramatic decrease in the proportion of governmental R&D organisations compared to the 2005 panel survey. The percentages drop from 19% in 2005 to 1% in 2006. This effect can mostly be attributed to a change in the questionnaire, whereby the public sector category was rephrased as governmental R&D. As mentioned in the 2005 report, US respondents partially understand "public" as meaning "listed" rather than "state-owned". This ambiguity seems to be clarified with the change in the questionnaire.

Random group

By type of company/organisation

Total and breakdown by residence bloc

Residence bloc	Private enterprises	Government-performed R&D	Educational institutions	Other public sector	Other (non-public)	Grand total	No. of cases
Total	91.8%	2.6%	4.5%	0.3%	0.8%	100%	661
EU	93%	3%	4%	0%	1%	100%	375
JA	98%	0%	2%	0%	0%	100%	98
OT	78%	11%	9%	0%	2%	100%	46
US	89%	1%	6%	1%	1%	100%	142

Table 8: Random group broken down by company type and residence bloc

Random group

By number of employees

Total and breakdown by residence bloc

Residence bloc	Individual inventor	1 to 9	10 to 49	50 to 249	250 to 999	1 000 to 4 999	5 000 to 9 999	10 000 to 49 999	50 000 or more	Grand total	No. of cases
Total	4%	6%	10%	13%	15%	21%	9%	15%	7%	100%	638
EU	5%	8%	10%	15%	18%	18%	9%	10%	6%	100%	368
JA	0%	0%	3%	4%	9%	37%	18%	24%	4%	100%	98
OT	4%	7%	30%	13%	9%	24%	4%	7%	2%	100%	46
US	4%	6%	6%	15%	13%	17%	6%	22%	11%	100%	126

Table 9: Random group broken down by persons employed and residence bloc

5.4 Estimated composition of the population of EPO applicants

Due to the sampling method, the Random group remains skewed towards larger applicants. The actual applicant population contains a much larger proportion of small organisations in terms of the number of patent applications filed than the Random group does. Presumably, this also holds true for the number of employees. In the *Applicant Panel Survey 2005 report*, reweighted distributions of the company/organisation type and number of employees were introduced to counteract this sampling bias.⁴ The weights were obtained by dividing the population probability of applicant size by the sample probability of applicant size, where the population probability is taken from EPO statistics and the sample probability as the Poisson weight without multiplying by numbers of applications. The structural weight is applied for estimating distributions of the company/organisation type and the number of employees. However, as validations of the results in the 2005 report have shown, the proportion of smaller applicants still seems to be underestimated using the structural weight as described. Therefore, the structural weight is extended by a further factor, dividing each weight by the sample response rate. This approach is based on evidence of some reduction in response rates for smaller-sized applicants when compared to the large-sized applicants. To smooth out the obtained sample response rates the respondents are grouped in eight size classes.⁵ The sample response rate for a class

⁴ cf. Applicant Panel Survey 2005 report: p. 19.

⁵ Size classes are based on the total number of Euro-direct and Euro-PCT-RP applications. Response rates for respondents with 1, 2 or 3 applications are calculated without grouping. Groups are defined for respondents with 4 to 5, 6 to 9, 10 to 19, 20 to 39 and 40 or more applications.

is calculated by dividing the number of applicants that responded by the number of applicants asked. The formula for the extended structural weight (SW) is as follows:

$$SW = PopProb_j \cdot \frac{1}{1 - e^{-n^+ \cdot A_j / A}} \cdot \frac{1}{SRSS_j},$$

where $PopProb_j$ is the probability of existence in the population of applicants making A_j filings, n^+ is the number of extractions, A is the total number of filings, and $SRSS_j$ is the sample response rate by size class. The actual A_j value for the exact number of base year filings is used everywhere in the formula except for the term $SRSS_j$, where class value is used. Extended structural weights are applied for estimating distributions for the applicant population by company/organisation type and the number of employees, giving the following results:

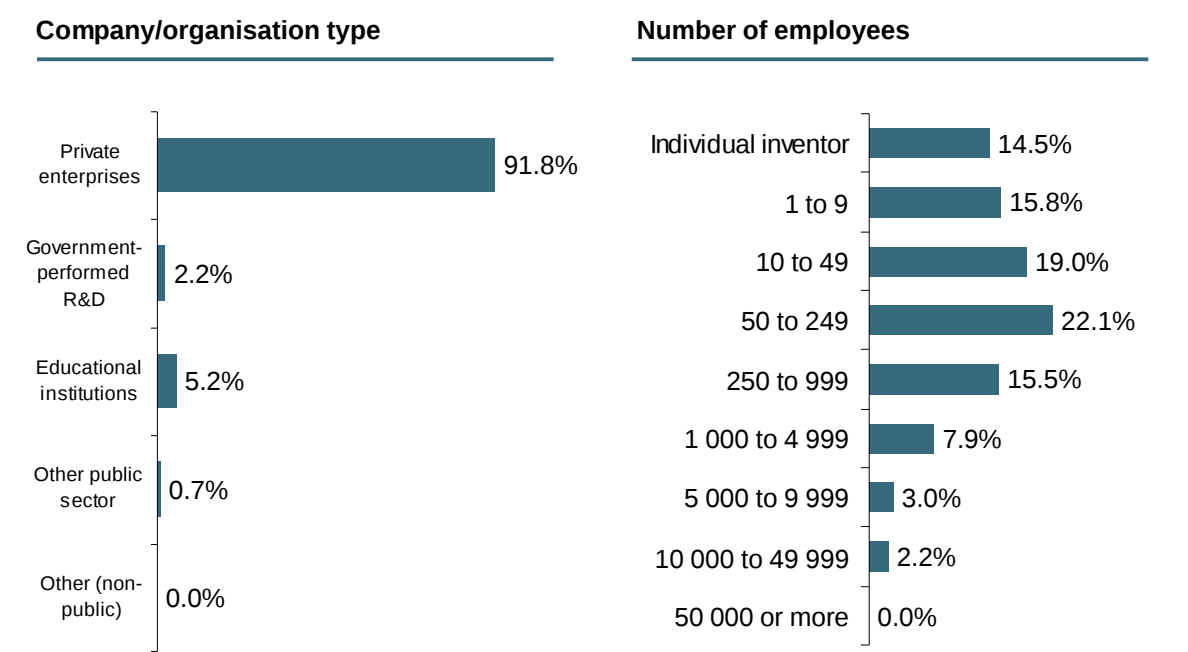


Figure 3: Estimated distribution of the EPO applicant population by company/organisation type and number of employees

The percentages are considerably shifted towards smaller companies, as expected, and to a larger extent than in last year's estimation. For example, the proportion of individual inventors is boosted. Comparing the results with other sources of information on applicants by number of employees leads to the conclusion that the applied structural weight improves the estimates compared to previous reports⁶. Estimated distributions incorporating the structural weight broken down by residence bloc are presented in **Table 10** and **Table 11**. The distributions are similar across residence blocs with the only exception being applicants from the Japanese residence blocs showing a high proportion of educational institutions and a bimodal distribution of size by number of employees.

⁶ cf. Frietsch, R. in Hingley, P. & Nicolas, M., eds (2006), *Forecasting Innovations*, Springer, page 170.

However, as case numbers for this breakdown fall in a low single digit range variations in the distribution should be interpreted with caution.

Estimation incorporating structural weights
By type of company/organisation
Total and breakdown by residence bloc

Residence bloc	Private enterprises	Government-performed R&D	Educational institutions	Other public sector	Other (non-public)	Total
Total	91.8%	2.2%	5.2%	0.7%	0.0%	100%
EU	95.5%	1.1%	3.4%	0.0%	0.0%	100%
JA	62.3%	0.0%	37.7%	0.0%	0.0%	100%
OT	86.1%	13.8%	0.1%	0.0%	0.1%	100%
US	84.8%	0.0%	11.6%	3.6%	0.0%	100%

Table 10: Estimated distribution of EPO applicants by type of company/organisation

Estimation incorporating structural weights
By number of employees
Total and breakdown by residence bloc

Residence bloc	Individual inventor	1 to 9	10 to 49	50 to 249	250 to 999	1 000 to 4 999	5 000 to 9 999	10 000 to 49 999	50 000 or more	Total
Total	14.5%	15.8%	19.0%	22.1%	15.5%	7.9%	3.0%	2.2%	0.0%	100%
EU	15.5%	16.3%	15.4%	24.2%	18.5%	5.7%	3.3%	1.0%	0.0%	100%
JA	0.0%	0.0%	41.4%	3.6%	8.8%	45.8%	0.0%	0.4%	0.0%	100%
OT	13.5%	8.0%	43.2%	20.4%	7.5%	7.3%	0.0%	0.1%	0.0%	100%
US	12.5%	20.3%	16.5%	16.7%	9.2%	12.5%	4.0%	8.3%	0.0%	100%

Table 11: Estimated distribution of EPO applicants by number of employees

5.5 EPO joint clusters

All applicants in the survey were asked to describe themselves in terms of membership of one or more of the EPO joint clusters (questionnaire **Section C**).

Figure 4 shows the number of responses per joint cluster in the Biggest group and **Figure 5** in the Random group.

Number of responses per joint cluster (Biggest group)

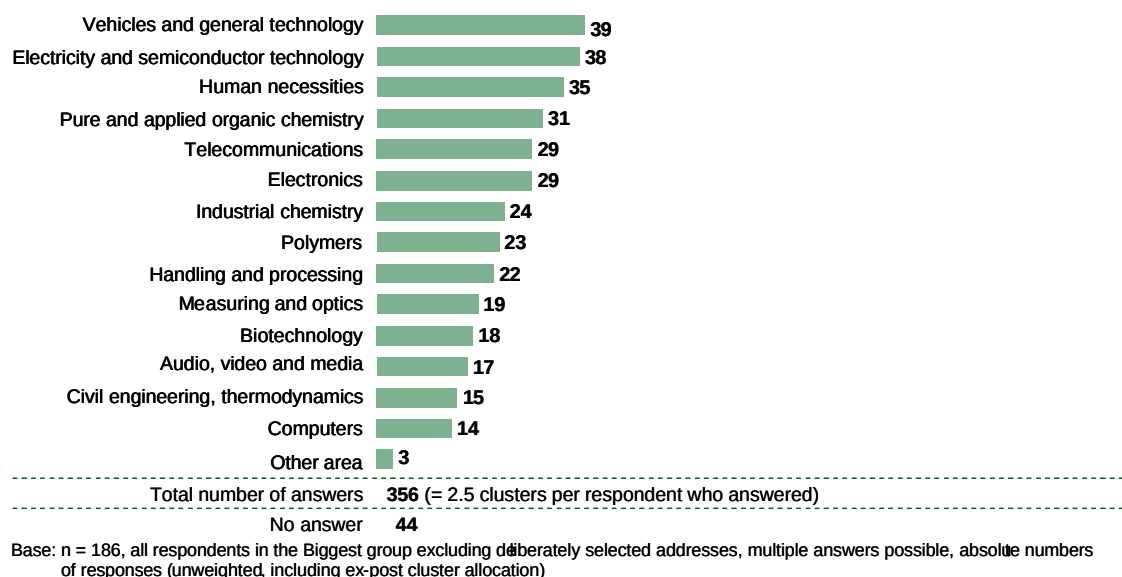


Figure 4: Number of responses per joint cluster (Biggest group)

Number of responses per joint cluster (Random group)

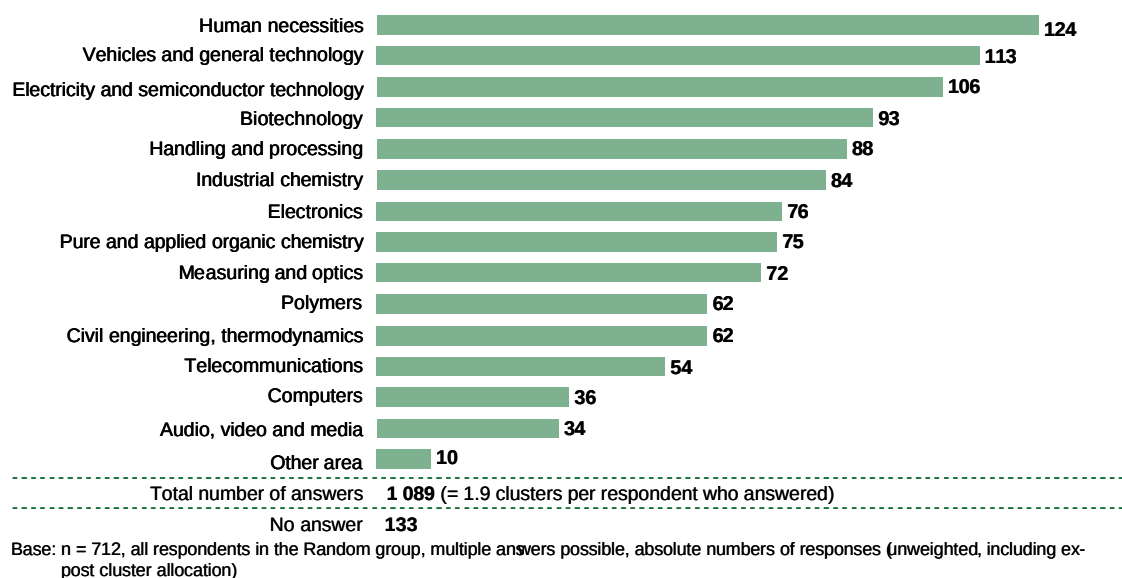
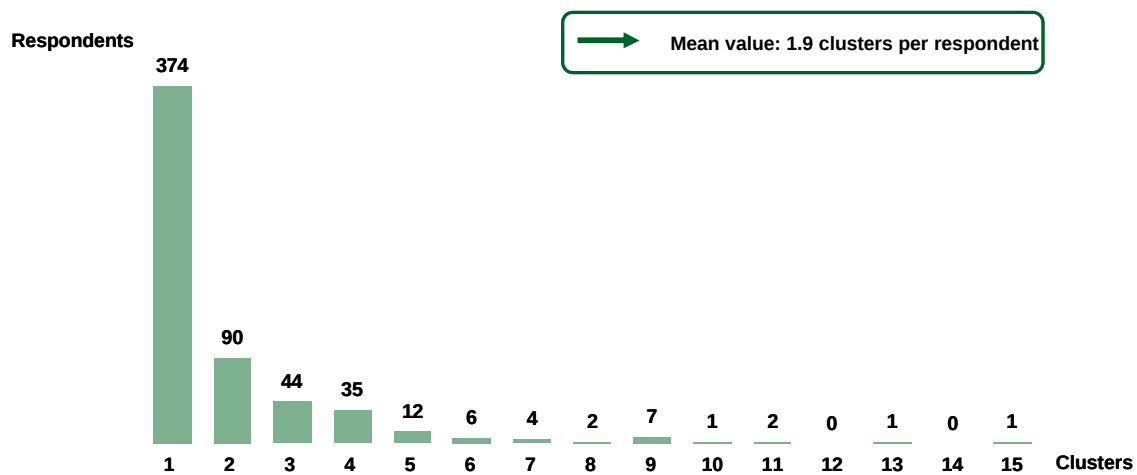


Figure 5: Number of responses per joint cluster (Random group)

Figure 6 shows the distribution of responses in the Random group by the number of clusters chosen. **Table 12** below indicates which combinations of clusters are cited most frequently. It shows a two-way matrix describing the joint cluster combinations selected by the interviewees of the Random group. On average, the interviewees reported data for 1.9 joint clusters, the same as in the 2005 survey.



Base: n = 579, all respondents who provided cluster information, absolute numbers of respondents (unweighted, including ex-post cluster allocation)

Figure 6: Numbers of joint clusters selected per respondent (Random group)

Number of responses per joint cluster combination
(Two-way matrix, Random group)

Joint cluster	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Other areas
1. Audio, video and media	34	4	4	12	17	15	6	7	5	8	6	5	20	6	2
2. Biotechnology	4	93	10	10	19	13	6	32	19	20	20	38	6	7	3
3. Civil engineering, thermodynamics	4	10	62	9	18	11	7	12	18	13	13	11	6	19	3
4. Computers	12	10	9	36	18	17	9	10	11	14	7	11	16	6	1
5. Electricity/semiconductor tech.	17	19	18	18	106	36	18	18	21	31	18	19	25	19	3
6. Electronics	15	13	11	17	36	76	11	16	15	28	14	14	28	19	2
7. Handling and processing	6	6	7	9	18	11	88	13	7	14	8	9	9	13	1
8. Human necessities	7	32	12	10	18	16	13	124	19	18	18	28	10	9	3
9. Industrial chemistry	5	19	18	11	21	15	7	19	84	20	30	25	10	12	5
10. Measuring and optics	8	20	13	14	31	28	14	18	20	72	14	17	14	15	3
11. Polymers	6	20	13	7	18	14	8	18	30	14	62	25	9	12	4
12. Pure/applied organic chemistry	5	38	11	11	19	14	9	28	25	17	25	75	8	12	4
13. Telecommunications	20	6	6	16	25	28	9	10	10	14	9	8	54	12	2
14. Vehicles and general technology	6	7	19	6	19	19	13	9	12	15	12	12	12	113	5
Other areas	2	3	3	1	3	2	1	3	5	3	4	4	2	5	10

Base: n = 579, all respondents in the Random group who provided cluster information, absolute numbers of respondents (unweighted, including ex-post cluster allocation)

Table 12: Number of responses per joint cluster combination (two-way matrix, Random group)

6 Methodology and Structure of Results

The main part of the survey covers the predictions of future patent filings and was carried out in the same way as in the previous three years. For a detailed description of the methodology please refer to the *Applicant Panel Survey 2003 report*. The survey data from the main questions in **Section B** of the questionnaire are used to measure patent growth rates. For the Biggest group, growth rates are calculated as a **composite index**.⁷ Growth rates in the Random group are calculated as a **Q-index**.⁸

To address the skewness of the Random group towards larger applicants due to the sampling method used, a specific **weighting factor** is incorporated in the calculations of the Q-index. This takes account of the probability that each applicant was drawn randomly for the sample.

A natural logarithmic transformation was applied to the data before calculating the Q-index.⁹ In order to provide a more realistic forecast for a range of possible values, approximate 95% confidence intervals were calculated. This year for the first time, a finite population correction (fpc) has been included when calculating the confidence limits for forecasts of total patent filings. Details of the finite population correction are provided in **Annex VII**.

When analysing data subsets, e.g. breakdowns by residence blocs or joint clusters, cases arise where the sample size falls below a critical threshold of five or less respondents. In such cases, both the composite index and Q-index are replaced by an average growth value taken from the corresponding analysis on the next available level of aggregation. In the results tables, the replacement of growth indices with average values is marked with an asterisk (*).

Once the growth indices were calculated based on the survey results, they were multiplied by the actual numbers of filings in the base year 2005 in order to generate explicit forecasts. Data on Euro-direct, PCT-IP and Euro-PCT-RP filings for 2005 and 2006 were supplied by the EPO on January 10, 2007, and reflect the state of knowledge as of that date. The reporting of PCT-IP filings by respondents exceeds the number of PCT-IP filings in the EPO database for the same respondents to some extent (see **Annex VIII**).

The patent filing predictions are presented in various **breakdown scenarios**, e.g. with forecasts by residence bloc or joint cluster. Based on the resulting forecasts by breakdown, an overall growth forecast is derived for each year. Of particular interest for the EPO are filing predictions on the level of the 14 joint clusters. As the Random group constitutes a simple random sample across applications, the responses can be disaggregated by joint cluster as an alternative to the breakdown by residence bloc. A breakdown of the responses by both factors simultaneously is not provided, as there would not have been enough data in the subdivided groups to allow for reliable growth estimates.

In many cases, the responses on growth forecasts in the questionnaire (**Section B**) made it necessary for the researchers to validate the responses, usually by conducting a clarifying conversation with the respondent. In some cases, more substantial **qualifying comments**

⁷ cf. Applicant Panel Survey 2001 report: Annex III.

⁸ cf. Applicant panel Survey 2002 report: Section IV.1, Annex IV.

⁹ cf. Applicant panel Survey 2002 report: Annex IV.

were given for the interpretation of the results. These cases are specifically marked for the data analyses in order to forecast growth estimates including and excluding the respective responses.

As a means of analysing and reducing distortions by outliers, the **winsorisation** technique was applied in a similar way as was described in last year's report.¹⁰ Thereby, the data were adjusted by replacing growth indices after logarithmic transformation. Indices that fall below the 5% percentile and indices that lie above the 95% percentile are replaced by the respective percentile. The adjusted data are then used for carrying out Q-index calculations according to the various breakdown scenarios. The winsorisation analyses show that no single outlier is distorting the results. Overall, the exercise supports the growth forecasts obtained. However, as the resulting tables do not contribute further insights they are not included in this report.

This year for the first time, as another supplementary method to validate the stability of the forecast results obtained, the resampling technique of **nonparametric bootstrapping** was applied to estimate growth indices and respective standard errors. 1 000 datasets were simulated with a sample size identical to the original dataset.¹¹ The bootstrapping results further support the forecasts obtained, yielding low single digit percentage deviations from the estimated growth indices. The simulated standard errors mainly lie in the 10% range of the estimated errors before applying the finite population correction. This acts to confirm the validity of the analytic formulae that are routinely used throughout the report. Due to limited further insights, the bootstrapping analysis results are not included in the report.

Even though the overall response rate to the Applicant Panel Survey has been very positive, it is still the case that more than 60% of the applicants approached decided not to respond (based on the adjusted sample). It is possible that a propensity to not respond may be correlated with a pessimistic outlook for future filings. However, as a counter effect to this bias in the results due to non-responses, it can be argued that new applicants extend the population each year, constituting a non-surveyed element that acts as a source of extra applications beyond the forecasts from the survey. This is due to "birth and death" effects among the applicant population, and was discussed in the commentary at the beginning of this report.

In the survey, the principal questions of interest for the EPO concern forecasts of future Euro-direct filings, PCT-IP filings, total filings (Euro-direct and PCT-IP), and Euro-PCT-RP filings. Forecast results for the first three types of filings at the EPO are presented in **Section 7**. Results on forecasts of Euro-PCT-RP filings are covered in **Section 8**.

Section 15 comprises the analysis on the approximate size of the R&D budget used for working activities that might lead to patent applications per joint cluster, including an indication of the percentage of the R&D budget that was spent before the point of decision on patenting. In addition, findings on the time lag between initial R&D expenditure and the first patent filing are presented. In this section, structural weighting is applied in the manner described in **Section 5.4** above.

¹⁰ cf. Applicant Panel Survey 2005: Section 7.5.

¹¹ For details on the applied nonparametric bootstrapping method cf. Davison A.C. & Hinkley D.V.(1997): *Bootstrap Methods and Their Applications*, Cambridge University Press: pp. 14-19.

7 Forecasts for patent filings at the EPO

A comprehensive overview of the main results on the forecasts for patent filings is given in **Section 7.1**. In **Sections 7.2** and **7.3** which follow, results for the Biggest group and the Random group are presented respectively. Detailed results for both samples broken down by joint cluster are discussed in **Section 7.4**. An assessment of the results presented and a comparison with previous panel surveys is provided in **Section 7.5**. For all tables in the following sections, corresponding tables with details on the numbers of cases can be found in **Annex IV**.

7.1 Overview of predicted growth rates and patent filing numbers

Forecasts for patent filings were obtained from the survey data using different forecasting methods. Overviews of the main results are given in **Table 13** and **Table 14**.

		Year					
Group	Breakdown	2006		2007		2008	
		Growth rate	Deviation*	Growth rate	Deviation*	Growth rate	Deviation*
Biggest	None	-2.5%		-1.0%		2.4%	
Biggest	Residence bloc	-2.4%		-0.6%		3.2%	
Random	None	-3.1%	6.8%	0.0%	9.5%	4.7%	10.2%
Random	Residence bloc	-0.5%	9.2%	6.7%	11.1%	12.7%	11.4%
Random	None (Euro-direct and PCT-IP filings combined)	-5.3%	4.6%	0.7%	4.7%	7.7%	4.6%
Random	Residence bloc (ED and PCT-IP filings combined)	-3.0%	5.2%	3.0%	6.3%	10.4%	6.4%
Random	Residence bloc (ED and PCT-IP filings combined for US residence bloc only)	-5.0%	3.3%	-0.7%	5.3%	5.1%	5.8%
Random	None (excluding companies with comments)	-3.7%	7.6%	-0.9%	10.4%	3.9%	11.2%
Random	Residence bloc ("Other" incorporated in EPC, excluding companies with comments)	-0.5%	11.3%	5.2%	13.8%	11.2%	14.2%
Biggest	EPO joint cluster	-1.5%		0.0%		2.6%	
Random	EPO joint cluster	-1.8%	9.7%	2.5%	11.8%	8.7%	11.8%

*) **Deviation** corresponds to the distance from the forecasted filings to the lower 95% confidence limit (as % of the forecasted filings)

Table 13: Predicted growth rates for Euro-direct and Euro-PCT-IP filings by forecasting methods

Comparison of forecasts: Predicted total filings
Euro-direct and PCT-IP
LCL/UCL indicates lower/upper 95% confidence limit

		Year								
		2006			2007			2008		
Group	Breakdown	Predicted filings	LCL	UCL	Predicted filings	LCL	UCL	Predicted filings	LCL	UCL
Biggest	None	192 442			195 328			202 094		
Biggest	Residence bloc	192 494			196 156			203 649		
Random	None	191 215	178 179	204 250	197 344	178 579	216 109	206 595	185 533	227 658
Random	Residence bloc	196 402	178 298	214 506	210 436	187 051	233 821	222 271	196 847	247 694
Random	None (Euro-direct and PCT-IP filings combined)	186 846	178 232	195 461	198 591	189 220	207 962	212 525	202 700	222 350
Random	Residence bloc (ED and PCT-IP filings combined)	191 372	181 455	201 290	203 157	190 355	215 958	217 893	203 898	231 888
Random	Residence bloc (ED and PCT-IP filings combined for US residence bloc only)	187 466	181 299	193 633	195 858	185 484	206 231	207 413	195 333	219 494
Random	None (excluding companies with comments)	190 050	175 643	204 457	195 446	175 191	215 700	204 941	182 062	227 820
Random	Residence bloc ("Other" incorporated in EPC, excluding companies with comments)	196 294	174 081	218 507	207 483	178 830	236 136	219 318	188 275	250 361
Biggest	EPO joint cluster	194 407			197 304			202 359		
Random	EPO joint cluster	193 691	174 973	212 410	202 320	178 384	226 256	214 463	189 186	239 740
Actual Filings		207 440								

Table 14: Predicted total numbers of Euro-direct and Euro-PCT-IP filings by forecasting method

7.2 Biggest group

The Biggest group is based on a sample of 405 selected applicants for Euro-direct filings and Euro PCT-RP filings, of which 186 responded to the Applicant Panel Survey 2006.

It was considered appropriate to calculate growth rates for the Biggest group as a composite index (CI).¹² The forecasts for the absolute number of both Euro-direct and PCT-IP filings are illustrated in **Figure 7**. The numbers of patent filings are based on the forecasts with no subsidiary breakdown. Detailed information on the forecasts by filing type and route are shown in **Table 15**. **Table 16** below shows the forecasts by residence blocs of the applicants. No confidence limits are given for the estimates as this is a survey of the intentions of the Biggest applicants and not a random statistical sample.

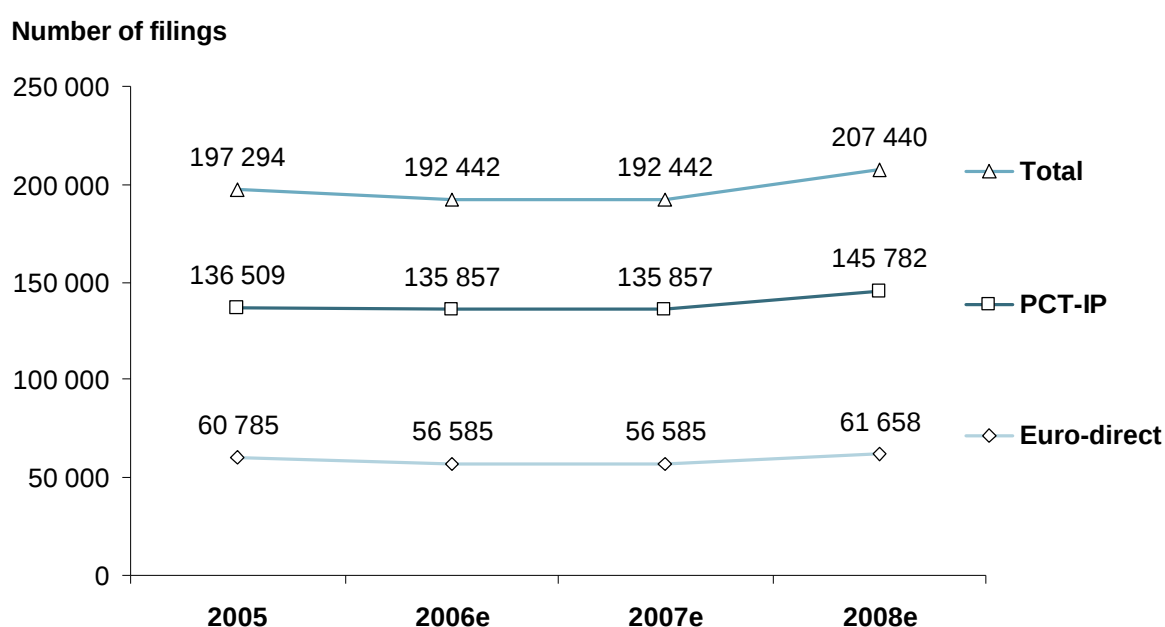


Figure 7: Forecasts for EPO filings – Biggest group with no subsidiary breakdown

¹² cf. Applicant Panel Survey 2001 report: Annex III.

Biggest group
No subsidiary breakdown
Composite indices

			Year							
			2005	2006		2007		2008		
Filing type	Filing route	Res. bloc	Actual filings	Index 06	Predicted filings	Actual filings	Index 07	Predicted filings	Index 08	Predicted filings
First	Euro-direct	Total	16 878	0.9701	16 374	18 518	0.9013	15 212	0.9420	15 899
	PCT-IP	Total	9 025	1.0196	9 202	9 594	1.0390	9 376	1.0685	9 643
Subsequent	Euro-direct	Total	43 907	0.9158	40 211	43 140	0.9910	43 511	1.0068	44 206
	PCT-IP	Total	127 484	0.9935	126 655	136 188	0.9980	127 229	1.0381	132 347
All	Euro-direct	Total	60 785		56 585	61 658		58 723		60 105
	PCT-IP	Total	136 509		135 857	145 782		136 605		141 989
Grand total		Total	197 294		192 442	207 440		195 328		202 094
Growth from 2005					-2.5%			-1.0%		2.4%
Implied % PCT-IP			69.2%		70.6%	70.3%		69.9%		70.3%

Table 15: Forecasts for EPO filings – Biggest group with no subsidiary breakdown

Biggest group
Breakdown by residence bloc
Composite indices

*) Average growth rate of forecast without subsidiary breakdown due to critical sample size

			Year							
			2005		2006		2007		2008	
Filing type	Filing route	Res. bloc	Actual filings	Index 06	Predicted filings	Actual filings	Index 07	Predicted filings	Index 08	Predicted filings
First	Euro-direct	EP	14 354	0.9533	13 684	15 769	0.8392	12 045	0.8647	12 412
		JA	271	0.9701 *	263	307	0.9013 *	244	0.9420 *	255
		OT	1 123	0.9701 *	1 089	1 358	0.9013 *	1 012	0.9420 *	1 058
		US	1 130	1.0403	1 176	1 084	1.1502	1 300	1.2280	1 388
		Total	16 878		16 212	18 518		14 602		15 112
First	Euro-PCT-IP	EP	3 118	0.9805	3 057	3 272	0.9995	3 116	1.0654	3 322
		JA	2 030	1.0605	2 153	1 957	1.0613	2 155	1.0613	2 155
		OT	2 393	1.0196 *	2 440	2 977	1.0390 *	2 486	1.0685 *	2 557
		US	1 484	1.0409	1 545	1 388	1.1037	1 638	1.1227	1 666
		Total	9 025		9 194	9 594		9 395		9 699
Subsequent	Euro-direct	EP	19 071	0.9829	18 744	18 626	1.0402	19 838	1.0756	20 513
		JA	11 338	1.0034	11 377	10 766	0.9894	11 218	1.0053	11 399
		OT	4 223	0.9158 *	3 868	5 068	0.9910 *	4 185	1.0068 *	4 252
		US	9 275	0.6737	6 248	8 680	0.9536	8 845	1.0000	9 275
		Total	43 907		40 237	43 140		44 085		45 438
Subsequent	Euro-PCT-IP	EP	44 249	0.9445	41 791	46 076	0.8886	39 319	0.9148	40 478
		JA	22 809	1.0655	24 303	24 810	1.1366	25 926	1.1981	27 328
		OT	15 209	0.9935 *	15 110	18 801	0.9980 *	15 179	1.0381 *	15 789
		US	45 217	1.0095	45 646	46 501	1.0538	47 652	1.1014	49 804
		Total	127 484		126 850	136 188		128 075		133 399
All	Euro-direct	EP	33 425		32 428	34 395		31 883		32 924
		JA	11 609		11 640	11 073		11 462		11 654
		OT	5 346		4 957	6 426		5 197		5 310
		US	10 405		7 424	9 765		10 144		10 663
		Total	60 785		56 449	61 658		58 686		60 551
All	Euro-PCT-IP	EP	47 366		44 848	49 349		42 435		43 799
		JA	24 840		26 456	26 767		28 081		29 483
		OT	17 602		17 550	21 778		17 664		18 346
		US	46 701		47 191	47 889		49 290		51 471
		Total	136 509		136 044	145 782		137 470		143 098
Grand total	Total	EP	80 791		77 276	83 743		74 318		76 724
		JA	36 449		38 096	37 839		39 543		41 137
		OT	22 948		22 507	28 204		22 861		23 655
		US	57 106		54 615	57 653		59 434		62 134
		Total	197 294		192 494	207 440		196 156		203 649
Growth from 2005					-2.4%			-0.6%		3.2%
Implied Euro-PCT-IP					70.7%	70.3%		70.1%		70.3%

Table 16: Forecasts for EPO filings – Biggest group, broken down by residence bloc

7.3 Random group

The Random group is based on a sample of 1 973 selected applicants for Euro-direct filings and Euro PCT-RP filings, of which 712 responded to the survey.

For responses from the Random group, the Q-index method was used following logarithmic transformation of the data.¹³ The resulting forecasts for numbers of patent filings calculated for the Random group broken down by residence bloc are illustrated in **Figure 8**. The corresponding **Table 18** shows details on the forecasts by filing type and route. Hereby the four residence blocs Europe (EPC), Japan (JA), Other (OT) and the US are differentiated. Additionally, all result tables for Random group analyses show Q-indices with their standard errors and the 95% confidence intervals based thereon.

Number of filings

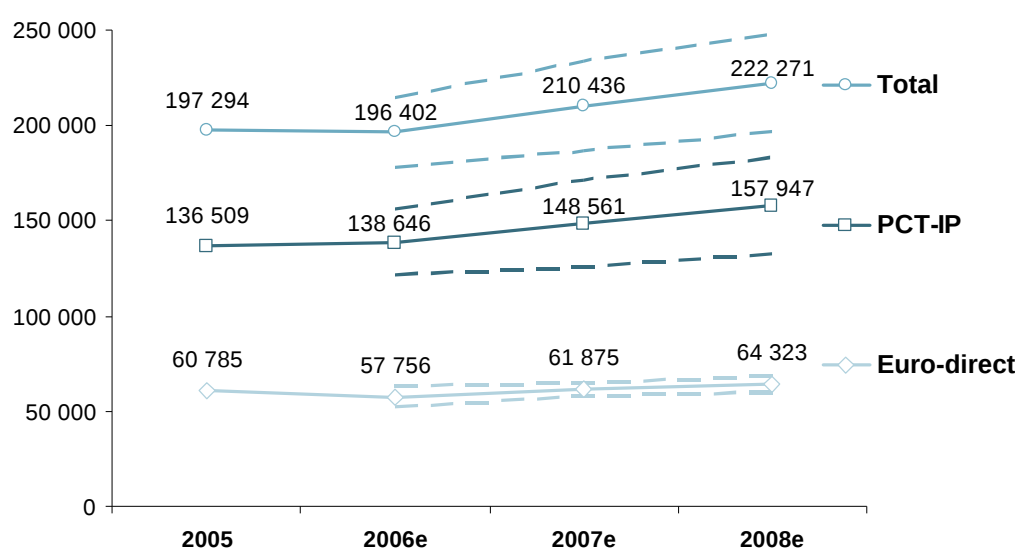


Figure 8: Forecasts for EPO filings – Random group broken down by residence bloc (dotted lines illustrate 95% confidence limits)

Various forecasts for EPO filings based on the Random group sample are presented, resulting from different residence bloc breakdowns, combinations of Euro-direct and PCT-IP filings and the inclusion/exclusion of respondents with qualifying comments (cf. **Section 6**). **Table 17** shows the EPO filings forecasts based on an analysis with no subsidiary breakdown. The corresponding analysis was used for the recommended filing forecasts in the 2005 report. This recommendation was based mostly on the narrower confidence interval of the forecasts compared to the analysis broken down by residence bloc. Comparing the width of the confidence intervals shown in **Table 17** (analysis with no subsidiary breakdown) and **Table 18** (analysis with breakdown by residence bloc) this holds true for this year's predictions once again. However, for two reasons the forecasts with breakdown by residence bloc are preferred to the forecasts with no subsidiary breakdown:

Firstly, comparing the predicted filings to the actual filings for the year 2006 shows that in general the intentions for filing patent applications as expressed in the applicant panel survey appear to be more pessimistic than the actual number of filings. The total number of

¹³ cf. Applicant Panel Survey 2002 report: Section IV.1, Annex IV.

actual filings increased from 197 294 in 2005 to 207 440 in 2006 which implies average growth of about 5%. Both analyses underestimate the growth rate for 2006, giving a growth estimate of -3.1% without and -0.5% with breakdown by residence bloc. The gap between forecasted and actual filings is smaller when using the analysis with the breakdown by residence bloc and the given confidence interval encompasses the actual number of filings in 2006.

Secondly (and related to the first point), looking at the residence bloc level analysis the volatility of growth estimates in particular for the US residence bloc is much higher compared to the results in the previous years. By means of single-case outlier analyses it is apparent that some companies (mostly in the high-technology sector) are switching from Euro-direct to Euro-PCT-IP filings. To a large extent this explains the lower Q-index for subsequent Euro-direct filings compensated by the higher Q-index for the subsequent Euro-PCT-IP filings in 2006 for the US residence bloc. This also explains why the respective standard errors are significantly higher for the US residence bloc estimates compared to the other residence blocs. When calculating the growth rates on a residence bloc level, a *shifting effect* of different filing routes can be isolated that mostly affects the forecasts for the US residence bloc and has less impact on the overall growth forecasts. Presumably, the shifting of filing routes in this order of magnitude is a one time effect. However, this supports the recommendation to calculate forecasts on a residence bloc level.

To address the shifting of filings between different filing routes, alternative breakdown scenarios have been analysed and are presented in **Table 19** to **21**. **Table 19** and **Table 20** show the resulting growth forecasts when Euro-direct and Euro-PCT-IP filing routes are combined with and without breakdown by residence bloc respectively. The forecasts given in **Table 21** are based on an analysis where Euro-direct and Euro-PCT-IP filings are combined for the US residence bloc only. The three analyses combining Euro-direct and Euro-PCT-IP filings are effective as they result in narrower confidence limits compared to the previous two analyses. However, none of the confidence intervals encompass the actual number of filings in 2006.

As in previous applicant panel survey reports, a further analysis was carried out with no subsidiary breakdown, but after excluding cases in which researchers made qualifying comments (**Table 22**). The confidence intervals are wider than before excluding the cases but still do not encompass the actual number of filings in 2006. The analysis excluding cases with qualifying comments was repeated with a breakdown by residence bloc combining the residence blocs "EP" and "Other" to account for the critical sample size of the "Other" category (**Table 23**). As in the first analysis with a breakdown by residence bloc, the resulting confidence limits cover the actual number of filings in 2006. However, the confidence limits are wider than those before excluding commented cases and combining the "EP" and "Other" residence blocs.

Evaluating the various breakdown scenarios, it can be concluded that higher level combinations of residence blocs and filing routes, particularly when isolating the US residence bloc, reduce the standard error and hence the widths of the 95% confidence intervals. However, higher level combinations of data do not necessarily reduce the gap between the actual and the forecasted number of filings for 2006. Based on the trade-off between smaller confidence intervals and confidence intervals encompassing the actual number of filings, it is recommended to use the forecast for EPO filings calculated for the Random group broken down by residence bloc (**Figure 8** and **Table 18**).

Random group
No subsidiary breakdown
Q-Indices

S.E. indicates standard error of logarithm
LCL/UCL indicates lower/upper 95% confidence limit
Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year										
			2005	2006				2007			2008		
Filing type	Filing route	Res. bloc	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings
First	Euro-direct	Total	16 878	1.0620	0.0489	17 924	18 518	1.0504	0.0928	17 729	1.0906	0.1017	18 407
		LCL				16 202				14 482			14 710
		UCL				19 647				20 975			22 104
First	PCT-IP	Total	9 025	0.9776	0.0820	8 823	9 594	0.8840	0.1431	7 978	1.0727	0.0784	9 681
		LCL				7 398				5 706			8 186
		UCL				10 247				10 249			11 176
Subsequent	Euro-direct	Total	43 907	0.9152	0.0894	40 182	43 140	1.0151	0.0265	44 569	1.0481	0.0316	46 019
		LCL				33 098				42 250			43 164
		UCL				47 265				46 887			48 874
Subsequent	PCT-IP	Total	127 484	0.9749	0.0439	124 286	136 188	0.9967	0.0728	127 069	1.0393	0.0785	132 489
		LCL				113 574				108 874			112 005
		UCL				134 998				145 264			152 972
All	Euro-direct	Total	60 785			58 106	61 658			62 297			64 426
		LCL				50 816				58 308			59 755
		UCL				65 396				66 286			69 097
All	PCT-IP	Total	136 509			133 109	145 782			135 047			142 170
		LCL				122 302				116 711			121 631
		UCL				143 915				153 383			162 708
Grand total		Total	197 294			191 215	207 440			197 344			206 595
		LCL				178 179				178 579			185 533
		UCL				204 250				216 109			227 658
Growth from 2005						-3.1%				0.0%			4.7%
Implied % PCT-IP			69.2%			69.6%	70.3%			68.4%			68.8%
Deviation in % of forecast						6.8%				9.5%			10.2%

Table 17: Forecasts for EPO filings – Random group with no subsidiary breakdown

Random group
Breakdown by residence bloc
Q-indices

S.E. indicates standard error of logarithm
LCL/UCL indicates lower/upper 95% confidence limit
Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year																	
			2005	2006				2007				2008								
Filing type	Filing route	Res. bloc	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings							
First	Euro-direct	EPC	14 354	1.0372	0.0495	14 888	15 769	0.9842	0.0939	14 127	1.0125	0.1031	14 533							
		JA	271	1.0971	0.0857	297	307	1.2468	0.1070	338	1.3120	0.1173	356							
		OT	1 123	1.0620 *	0.0489 *	1 193	1 358	1.2933	0.1195	1 452	1.0906 *	0.1017 *	1 225							
		US	1 130	1.1743	0.1470	1 327	1 084	1.3743	0.1884	1 553	1.4715	0.1791	1 663							
		Total	16 878			17 705	18 518			17 470			17 776							
First	PCT-IP	LCL				16 201				14 764			14 746							
		UCL				19 209				20 176			20 807							
		EPC	3 118	0.9322	0.0943	2 906	3 272	0.7979	0.1577	2 488	1.1297	0.0581	3 522							
		JA	2 030	1.1691	0.0757	2 374	1 957	1.2379	0.0761	2 513	1.2495	0.0764	2 537							
		OT	2 393	1.2375	0.0914	2 961	2 977	1.2278	0.1485	2 938	1.2554	0.2082	3 004							
Subsequent	Euro-direct	US	1 484	1.0732	0.0602	1 593	1 388	1.1128	0.0622	1 651	0.7638	0.3470	1 134							
		Total	9 025			9 833	9 594			9 590			10 196							
		LCL				8 974				8 344			8 577							
		UCL				10 692				10 836			11 816							
		EPC	19 071	1.0498	0.0397	20 021	18 626	1.0511	0.0304	20 046	1.0679	0.0298	20 366							
Subsequent	PCT-IP	JA	11 338	0.9406	0.0392	10 664	10 766	0.9585	0.0680	10 868	0.9851	0.0882	11 169							
		OT	4 223	1.0181	0.0600	4 299	5 068	1.0166	0.1189	4 293	1.2307	0.1339	5 197							
		US	9 275	0.5463	0.4239	5 067	8 680	0.9917	0.0426	9 198	1.0582	0.0540	9 815							
		Total	43 907			40 051	43 140			44 405			46 547							
		LCL				34 894				42 134			43 687							
All	Euro-direct	UCL				45 209				46 675			49 407							
		EPC	44 249	0.9194	0.0372	40 681	46 076	0.8819	0.0784	39 023	0.9037	0.0855	39 988							
		JA	22 809	1.0136	0.0269	23 121	24 810	1.1015	0.0343	25 124	1.1579	0.0443	26 412							
		OT	15 209	0.9725	0.1035	14 791	18 801	1.2009	0.1515	18 265	1.3409	0.1586	20 394							
		US	45 217	1.1106	0.1661	50 219	46 501	1.2508	0.1890	56 558	1.3481	0.1883	60 957							
All	PCT-IP	Total	127 484			128 812	136 188			138 971			147 751							
		LCL				111 545				115 888			122 724							
		UCL				146 079				162 054			172 778							
		EPC	33 425			34 909	34 395			34 173			34 899							
		JA	11 609			10 961	11 073			11 206			11 525							
All	Euro-direct	OT	5 346			5 492	6 426			5 746			6 422							
		US	10 405			6 394	9 765			10 751			11 477							
		Total	60 785			57 756	61 658			61 875			64 323							
		LCL				52 384				58 343			60 156							
		UCL				63 128				65 408			68 490							
All	PCT-IP	EPC	47 366			43 587				41 511			43 510							
		JA	24 840			25 494				27 638			28 949							
		OT	17 602			17 752				21 203			23 398							
		US	46 701			51 812				58 209			62 091							
		Total	136 509			138 646	145 782			148 561			157 947							
Grand total	Total	LCL				121 357				125 444			132 868							
		UCL				155 934				171 677			183 026							
		EPC	80 791			78 497				75 684			78 409							
		JA	36 449			36 456				38 844			40 474							
		OT	22 948			23 244				26 948			29 820							
Grand total	Implied PCT-IP	US	57 106			58 205				68 960			73 568							
		Total	197 294			196 402	207 440			210 436			222 271							
		LCL				178 298				187 051			196 847							
		UCL				214 506				233 821			247 694							
		Growth from 2005				-0.5%								12.7%						
Deviation in % of forecast						70.6%	70.3%			70.6%			71.1%							
														9.2%			11.1%			11.4%

Table 18: Forecasts for EPO filings – Random group broken down by residence bloc

Random group

No subsidiary breakdown

Q-Indices

Euro-direct and PCT-IP filings combined

S.E. indicates standard error of logarithm

LCL/UCL indicates lower/upper 95% confidence limit

Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year										
			2005	2006				2007			2008		
Filing type	Filing route	Res. bloc	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings
First	All	Total	25 903	1.0301	0.0561	26 682	28 112	0.9580	0.1072	24 814	1.1723	0.0559	30 366
		LCL				23 740				19 553			27 032
		UCL				29 624				30 075			33 700
Subsequent	All	Total	171 391	0.9345	0.0258	160 164	179 327	1.0139	0.0228	173 777	1.0628	0.0259	182 159
		LCL				152 067				166 022			172 917
		UCL				168 261				181 532			191 401
Grand total		Total	197 294			186 846	207 440			198 591			212 525
		LCL				178 232				189 220			202 700
		UCL				195 461				207 962			222 350
Growth from 2005						-5.3%				0.7%			7.7%
Deviation in % of forecast						4.6%				4.7%			4.6%

Table 19: Forecasts for EPO filings – Random group with no subsidiary breakdown (Euro-direct and PCT-IP filings combined)

Random group

Breakdown by residence bloc

Q-indices

Euro-direct and PCT-IP filings combined

S.E. indicates standard error of logarithm

LCL/UCL indicates lower/upper 95% confidence limit

Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year											
			2005		2006				2007			2008		
Filing type	Filing route	Res. bloc	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings	
First	All	EPC	17 472	1.0287	0.0703	17 973	19 041	0.8946	0.1165	15 631	1.1449	0.0756	20 003	
		JA	2 301	1.0999	0.0475	2 531	2 264	1.1727	0.0600	2 699	1.1905	0.0635	2 740	
		OT	3 516	2.1779	0.3062	7 657	4 335	1.4913	0.1536	5 243	1.5727	0.2614	5 529	
		US	2 614	0.9236	0.0794	2 414	2 473	1.1366	0.0667	2 971	1.2080	0.0820	3 158	
		Total	25 903			30 576	28 112			26 544			31 430	
		LCL				25 037				22 566			27 171	
		UCL				36 115				30 522			35 689	
Subsequent	All	EPC	63 320	0.9319	0.0407	59 008	64 702	1.0074	0.0322	63 785	1.0373	0.0349	65 683	
		JA	34 147	1.0082	0.0216	34 428	35 575	1.0653	0.0310	36 378	1.1205	0.0398	38 261	
		OT	19 432	1.0552	0.1367	20 505	23 869	1.2885	0.1998	25 038	1.3877	0.1956	26 966	
		US	54 492	0.8599	0.0381	46 855	55 181	0.9435	0.0493	51 411	1.0195	0.0545	55 554	
		Total	171 391			160 797	179 327			176 613			186 463	
		LCL				152 570				164 446			173 132	
		UCL				169 024				188 780			199 795	
Grand total	Total	EPC	80 791			76 981	83 743			79 416			85 686	
		JA	36 449			36 960	37 839			39 077			41 001	
		OT	22 948			28 162	28 204			30 281			32 495	
		US	57 106			49 269	57 653			54 382			58 711	
		Total	197 294			191 372	207 440			203 157			217 893	
		LCL				181 455				190 355			203 898	
		UCL				201 290				215 958			231 888	
Growth from 2005						-3.0%				3.0%			10.4%	
Deviation in % of forecast						5.2%				6.3%			6.4%	

Table 20: Forecasts for EPO filings – Random group, broken down by residence bloc (Euro-direct and PCT-IP filings combined)

Random group

Breakdown by residence bloc

Q-indices

Euro-direct and PCT-IP combined for US residence bloc

S.E. indicates standard error of logarithm

LCL/UCL indicates lower/upper 95% confidence limit

Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year										
Filing type	Filing route	Res. bloc	2005	2006				2007			2008		
			Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings
First	Euro-direct	EPC	14 354	1.0372	0.0495	14 888	15 769	0.9842	0.0939	14 127	1.0125	0.1031	14 533
		JA	271	1.0971	0.0857	297	307	1.2468	0.1070	338	1.3120	0.1173	356
		OT	1 123	1.0620 *	0.0489 *	1 193	1 358	1.2933	0.1195	1 452	1.0906 *	0.1017 *	1 225
		Total \ US	15 748			16 378	17 433			15 917			16 114
		LCL				14 925				13 276			13 143
		UCL				17 831			18 559			19 084	
First	PCT-IP	EPC	3 118	0.9322	0.0943	2 906	3 272	0.7979	0.1577	2 488	1.1297	0.0581	3 522
		JA	2 030	1.1691	0.0757	2 374	1 957	1.2379	0.0761	2 513	1.2495	0.0764	2 537
		OT	2 393	1.2375	0.0914	2 961	2 977	1.2278	0.1485	2 938	1.2554	0.2082	3 004
		Total \ US	7 541			8 241	8 206			7 939			9 063
		LCL				7 403				6 709			7 681
		UCL				9 079			9 168			10 445	
First	All	US Total	2 614	0.9236	0.0794	2 414	2 473	1.1366	0.0667	2 971	1.2080	0.0820	3 158
		LCL				2 037				2 581			2 648
		UCL				2 792				3 361			3 668
Subsequent	Euro-direct	EPC	19 071	1.0498	0.0397	20 021	18 626	1.0511	0.0304	20 046	1.0679	0.0298	20 366
		JA	11 338	0.9406	0.0392	10 664	10 766	0.9585	0.0680	10 868	0.9851	0.0882	11 169
		OT	4 223	1.0181	0.0600	4 299	5 068	1.0166	0.1189	4 293	1.2307	0.1339	5 197
		Total \ US	34 632			34 985	34 460			35 207			36 732
		LCL				33 151				33 070			34 068
		UCL				36 818			37 343			39 397	
Subsequent	PCT-IP	EPC	44 249	0.9194	0.0372	40 681	46 076	0.8819	0.0784	39 023	0.9037	0.0855	39 988
		JA	22 809	1.0136	0.0269	23 121	24 810	1.1015	0.0343	25 124	1.1579	0.0443	26 412
		OT	15 209	0.9725	0.1035	14 791	18 801	1.2009	0.1515	18 265	1.3409	0.1586	20 394
		Total \ US	82 267			78 593	89 687			82 413			86 793
		LCL				74 182				74 070			77 180
		UCL				83 004			90 756			96 407	
Subsequent	All	US Total	54 492	0.8599	0.0381	46 855	55 181	0.9435	0.0493	51 411	1.0195	0.0545	55 554
		LCL				43 355				46 430			49 602
		UCL				50 355				56 392			61 505
Grand total	Total	EPC	80 791			78 497	83 743			75 684			78 409
		JA	36 449			36 456	37 839			38 844			40 474
		OT	22 948			23 244	28 204			26 948			29 820
		US	57 106			49 269	57 653			54 382			58 711
		Total	197 294			187 466	207 440			195 858			207 413
		LCL				181 299				185 484			195 333
		UCL				193 633			206 231			219 494	
Growth from 2005						-5.0%				-0.7%			5.1%
Deviation in % of forecast						3.3%				5.3%			5.8%

Random group

No subsidiary breakdown (excluding companies with qualifying comments)

Q-indices

S.E. indicates standard error of logarithm

LCL/UCL indicates lower/upper 95% confidence limit

Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year										
			2005	2006				2007			2008		
Filing type	Filing route	Res. bloc	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings
First	Euro-direct	Total	16 878	1.0696	0.0553	18 052	18 518	1.0573	0.1057	17 845	1.0976	0.1150	18 526
		LCL				16 090				14 118			14 309
		UCL				20 015				21 572			22 742
First	PCT-IP	Total	9 025	0.9709	0.0879	8 762	9 594	0.8627	0.1490	7 785	1.0530	0.0865	9 503
		LCL				7 243				5 474			7 883
		UCL				10 280				10 097			11 123
Subsequent	Euro-direct	Total	43 907	0.9132	0.1009	40 097	43 140	1.0348	0.0299	45 434	1.0666	0.0359	46 830
		LCL				32 108				42 771			43 531
		UCL				48 085				48 096			50 130
Subsequent	PCT-IP	Total	127 484	0.9659	0.0485	123 139	136 188	0.9757	0.0800	124 382	1.0204	0.0865	130 082
		LCL				111 410				104 788			107 897
		UCL				134 869				143 976			152 266
All	Euro-direct	Total	60 785			58 149	61 658			63 278			65 356
		LCL				49 923				58 698			60 002
		UCL				66 375				67 858			70 710
All	PCT-IP	Total	136 509			131 901	145 782			132 168			139 585
		LCL				120 074				112 438			117 341
		UCL				143 729				151 897			161 829
Grand total		Total	197 294			190 050	207 440			195 446			204 941
		LCL				175 643				175 191			182 062
		UCL				204 457				215 700			227 820
Growth from 2005						-3.7%				-0.9%			3.9%
Implied % PCT-IP			69.2%			69.4%	70.3%			67.6%			68.1%
Deviation in % of forecast						7.6%				10.4%			11.2%

Table 22: Forecasts for EPO filings – Random group with no subsidiary breakdown (excluding companies with qualifying comments)

Random group

Breakdown by residence bloc ("other" incorporated in EP; excluding companies with qualifying comments)

Q-indices

S.E. indicates standard error of logarithm

LCL/UCL indicates lower/upper 95% confidence limit

Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year											
			2005		2006				2007			2008		
Filing type	Filing route	Res. bloc	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings	
First	Euro-direct	EP/OT	15 477	1.0452	0.0558	16 177	17 126	0.9916	0.1059	15 346	1.0198	0.1157	15 783	
		JA	271	1.2067	0.0905	327	307	1.3883	0.1219	376	1.4781	0.1338	401	
		US	1 130	1.1868	0.1651	1 341	1 084	1.4139	0.2052	1 598	1.5237	0.1937	1 722	
		Total	16 878			17 845	18 518			17 320			17 905	
		LCL				16 017				14 040			14 228	
		UCL				19 673			20 600			21 583		
First	PCT-IP	EP/OT	5 510	0.9399	0.1007	5 180	6 250	0.7966	0.1623	4 390	1.1271	0.0609	6 211	
		JA	2 030	1.1423	0.0932	2 319	1 957	1.2286	0.0950	2 495	1.2434	0.0958	2 525	
		US	1 484	1.0737	0.0698	1 593	1 388	1.1125	0.0710	1 651	0.7011	0.3915	1 040	
		Total	9 025			9 092	9 594			8 535			9 776	
		LCL				7 956				7 018			8 517	
		UCL				10 229			10 052			11 034		
Subsequent	Euro-direct	EP/OT	23 294	1.0601	0.0409	24 693	23 694	1.0800	0.0318	25 157	1.0940	0.0313	25 484	
		JA	11 338	0.9291	0.0436	10 534	10 766	0.9494	0.0761	10 764	0.9789	0.0998	11 099	
		US	9 275	0.4901	0.5143	4 546	8 680	1.0191	0.0476	9 452	1.1154	0.0579	10 345	
		Total	43 907			39 773	43 140			45 373			46 928	
		LCL				33 769				42 955			43 993	
		UCL				45 777			47 791			49 863		
Subsequent	PCT-IP	EP/OT	59 458	0.9022	0.0367	53 643	64 877	0.8590	0.0793	51 077	0.8846	0.0875	52 594	
		JA	22 809	0.9911	0.0289	22 606	24 810	1.0778	0.0377	24 584	1.1376	0.0496	25 949	
		US	45 217	1.1795	0.1942	53 335	46 501	1.3401	0.2201	60 594	1.4633	0.2171	66 166	
		Total	127 484			129 583	136 188			136 255			144 709	
		LCL				108 306				107 934			114 050	
		UCL				150 861			164 575			175 367		
All	Euro-direct	EP/OT	38 771			40 870	40 820			40 503			41 267	
		JA	11 609			10 861	11 073			11 141			11 499	
		US	10 405			5 887	9 765			11 049			12 067	
		Total	60 785			57 618	61 658			62 694			64 834	
		LCL				51 342				58 619			60 128	
		UCL				63 894			66 768			69 539		
All	PCT-IP	EP/OT	64 968			58 822	71 127			55 467			58 805	
		JA	24 840			24 925	26 767			27 078			28 473	
		US	46 701			54 928	47 889			62 245			67 207	
		Total	136 509			138 676	145 782			144 790			154 484	
		LCL				117 367				116 428			123 800	
		UCL				159 984			173 151			185 169		
Grand total	Total	EP/OT	103 739			99 692	111 947			95 970			100 072	
		JA	36 449			35 786	37 839			38 219			39 973	
		US	57 106			60 815	57 653			73 294			79 274	
		Total	197 294			196 294	207 440			207 483			219 318	
		LCL				174 081				178 830			188 275	
		UCL				218 507			236 136			250 361		
Growth from 2005						-0.5%				5.2%			11.2%	
Implied PCT-IP						70.6%	70.3%			69.8%			70.4%	
Deviation in % of forecast						11.3%				13.8%			14.2%	

Table 23: Forecasts for EPO - Random group, broken down by residence bloc ("other" incorporated in EPC; excluding companies with qualifying comments)

7.4 Biggest and Random group broken down by joint cluster

The forecasts for EPO filings were analysed with primary breakdowns by joint clusters based on the information provided in **Section B** of the questionnaire. For the Biggest group sample and the Random group sample the composite index and the Q-index were calculated respectively. The resulting forecasts for the absolute numbers of patent filings based on the **Random group sample** broken down by joint clusters are illustrated in **Figure 9** (corresponding to **Table 29**).

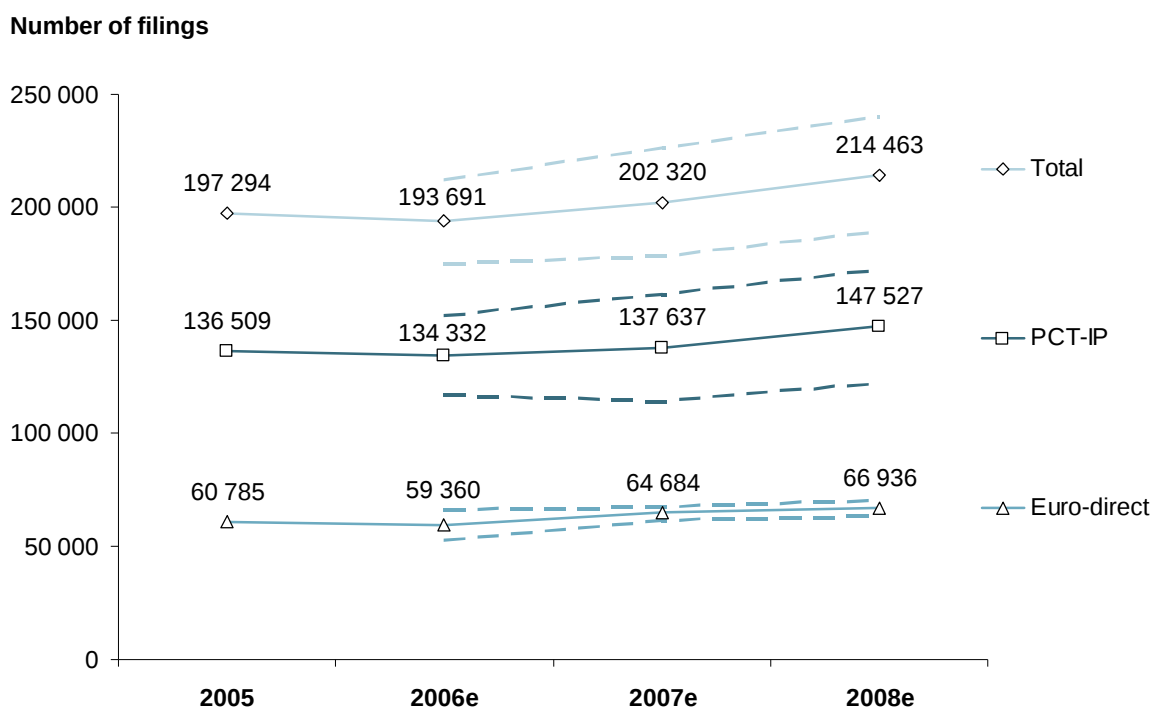


Figure 9: Forecasts for EPO filings based on breakdown by joint cluster for the Random group (dotted lines illustrating 95% confidence limits)

The forecasts of filings by filing type, filing route and joint cluster are shown for the Biggest group in **Table 24** to **Table 26**. A similar analysis carried out for the Random group is presented in **Table 27** to **Table 29**. As before, in tables covering Random group forecasts, the standard error of the Q-indices is given and confidence intervals are calculated. However, when deriving the standard error a correction factor has to be included to avoid distortions caused by multiple joint cluster classifications. This correction factor takes into account the average repetition factor of 1.9 and widens the confidence limits by multiplying standard errors by 1.38, the square root of 1.9. As before for the calculation of standard errors, a finite population correction is also applied that narrows the confidence limits (cf. **Appendix VII**).

Since the breakdown of the sample into 14 sub-groups results in rather few observations per group, some of the individual Q-indices per joint cluster have relatively large standard errors. Overall, the aggregated forecasts for total filings and standard errors are similar to those for a breakdown by residence bloc. This gives confidence in the forecasts for individual joint clusters. However, it is not suggested that the total filing forecasts based on the joint cluster breakdown should be used for the overall forecast of EPO filings. As the respondents were allowed to choose more than one cluster to indicate their main business,

it has to taken into account that all of the answers provided in Section B of the questionnaire are used to calculate the Q-index for each joint cluster reported for that applicant. Differing respondent behaviour as a function of cluster is not considered. For this reason, it appears to be better to use a forecast with a breakdown by blocs of residence rather than a breakdown by joint cluster. The approach based on joint clusters is however particularly useful for business planning as it provides forecasts for individual joint clusters of the various primary combinations of first, subsequent, Euro-direct and Euro-PCT-IP filings.

Biggest group
Breakdown by EPO joint cluster
Composite indices

			Year							
			2005		2006		2007		2008	
Filing type	Filing route	Cluster	Actual filings	Index 06	Predicted filings	Actual filings	Index 07	Predicted filings	Index 08	Predicted filings
First	Euro-direct	Audio, Video & Media	1 227	0.8715	1 069	1 120	0.7118	873	0.7176	880
		Biotechnology	1 208	1.0410	1 257	1 244	1.1379	1 374	1.2119	1 464
		Civil Engineering & Thermodynamics	1 107	1.0112	1 120	1 339	1.0270	1 137	1.1007	1 219
		Computer	1 133	1.2013	1 362	926	1.3020	1 476	1.4765	1 674
		Electricity & Electrical Machines	1 232	0.8810	1 085	1 193	0.7354	906	0.7401	912
		Electronics	1 026	0.8768	900	1 018	0.7305	750	0.7403	760
		Handling and Processing	1 292	0.9310	1 203	1 493	0.9070	1 172	0.9302	1 202
		Human Necessities	1 396	0.8556	1 195	1 554	0.7129	995	0.7194	1 004
		Industrial Chemistry	1 401	0.9157	1 283	1 839	0.8916	1 249	0.9092	1 274
		Measuring, Optics	951	0.9184	873	1 013	0.9109	866	0.9235	878
		Polymers	710	0.9312	661	1 029	0.9718	690	1.0752	764
		Pure & Applied Organic Chemistry	1 730	0.9418	1 630	2 131	0.9613	1 663	0.9811	1 698
		Telecommunications	1 516	0.9254	1 403	1 553	0.8153	1 236	0.8364	1 268
		Vehicles & General Technology	949	1.0250	973	1 065	1.0580	1 004	1.1128	1 056
				Total	16 878		16 012	18 518		15 391
First	PCT-IP	Audio, Video & Media	474	1.0292	487	522	1.0659	505	1.0837	513
		Biotechnology	449	1.0196 *	458	495	1.0390 *	467	1.0685 *	480
		Civil Engineering & Thermodynamics	591	1.0196 *	603	610	1.0390 *	614	1.0685 *	632
		Computer	683	1.0196 *	697	721	1.0390 *	710	1.0685 *	730
		Electricity & Electrical Machines	713	0.9893	706	801	1.0117	722	1.0254	732
		Electronics	526	1.0023	527	581	1.0275	540	1.0415	548
		Handling and Processing	867	1.0196 *	884	920	1.0390 *	900	1.0685 *	926
		Human Necessities	883	1.1661	1 030	892	1.1611	1 025	1.0685 *	943
		Industrial Chemistry	963	1.0196 *	982	1 050	1.1122	1 071	1.1193	1 078
		Measuring, Optics	440	1.0548	465	449	1.0548	465	1.0597	467
		Polymers	297	1.0196 *	303	305	1.0390 *	309	1.0685 *	318
		Pure & Applied Organic Chemistry	733	1.1282	827	793	1.1297	828	1.1379	834
		Telecommunications	976	1.0114	987	1 038	1.0383	1 013	1.0553	1 030
		Vehicles & General Technology	429	0.9563	410	419	0.9939	427	1.0239	439
				Total	9 025		9 365	9 594		9 596

Table 24: Forecasts for EPO filings at the EPO – Biggest group (first filings, broken down by joint cluster)

Biggest group
Breakdown by EPO joint cluster
Composite indices

			Year							
			2005		2006		2007		2008	
Filing type	Filing route	Cluster	Actual filings	Index 06	Predicted filings	Actual filings	Index 07	Predicted filings	Index 08	Predicted filings
Subsequent	Euro-direct	Audio, Video & Media	3 282	0.7405	2 430	3 350	0.8678	2 848	0.8257	2 710
		Biotechnology	911	0.9577	873	1 013	0.9571	872	1.0429	950
		Civil Engineering & Thermodynamics	4 625	0.9925	4 590	4 471	1.0271	4 751	1.0769	4 981
		Computer	2 578	0.6657	1 716	2 088	0.8773	2 261	0.8405	2 166
		Electricity & Electrical Machines	4 008	0.9466	3 794	4 248	0.9169	3 675	0.8877	3 558
		Electronics	2 449	0.9097	2 227	2 470	0.8786	2 151	0.8537	2 090
		Handling and Processing	4 603	0.9967	4 588	4 655	1.0198	4 694	1.0487	4 827
		Human Necessities	4 588	0.9472	4 346	4 711	0.9671	4 437	0.9923	4 553
		Industrial Chemistry	2 745	0.8430	2 314	2 890	0.8630	2 369	0.8824	2 422
		Measuring, Optics	2 724	0.9766	2 660	2 629	0.9977	2 717	1.0327	2 813
		Polymers	1 402	0.9828	1 378	1 204	1.0082	1 414	1.0525	1 476
		Pure & Applied Organic Chemistry	1 476	0.9745	1 439	1 329	0.9728	1 436	1.0289	1 519
		Telecommunications	3 172	0.7844	2 488	2 897	0.8966	2 844	0.8737	2 771
		Vehicles & General Technology	5 345	1.0112	5 405	5 186	1.0597	5 665	1.0972	5 865
				Total	43 907		40 248	43 140		42 134
Subsequent	PCT-IP	Audio, Video & Media	6 717	1.0161	6 825	7 193	1.0008	6 723	1.0160	6 825
		Biotechnology	9 192	0.9897	9 098	9 430	1.0131	9 313	1.0331	9 496
		Civil Engineering & Thermodynamics	7 980	1.0115	8 072	8 573	1.0755	8 582	1.1466	9 150
		Computer	8 746	1.1806	10 325	9 055	1.2857	11 244	1.3345	11 671
		Electricity & Electrical Machines	9 506	0.9422	8 956	10 409	0.9035	8 588	0.9196	8 741
		Electronics	5 528	0.9349	5 168	5 868	0.8951	4 948	0.9106	5 034
		Handling and Processing	8 978	1.1227	10 080	9 467	1.1889	10 674	1.2141	10 900
		Human Necessities	12 946	0.8968	11 611	13 898	0.8032	10 398	0.8209	10 627
		Industrial Chemistry	13 651	1.0101	13 790	15 384	1.0072	13 750	1.0230	13 965
		Measuring, Optics	7 908	1.0187	8 056	8 454	1.0479	8 287	1.0582	8 368
		Polymers	6 188	1.0646	6 588	6 561	1.1127	6 885	1.1605	7 181
		Pure & Applied Organic Chemistry	14 066	1.0004	14 072	15 057	1.0204	14 353	1.0845	15 254
		Telecommunications	8 454	1.0081	8 523	8 837	1.0035	8 484	1.0181	8 608
		Vehicles & General Technology	7 623	0.9996	7 620	8 002	1.0432	7 952	1.0648	8 117
				Total	127 484		128 782	136 188		130 183

Table 25: Forecasts for EPO filings – Biggest group (subsequent filings, broken down by joint cluster)

Biggest group
Breakdown by EPO joint cluster
Composite indices

			Year					
Filing type	Filing route	Cluster	2005	2006		2007		2008
			Actual filings	Index 06	Predicted filings	Actual filings	Index 07	Predicted filings
All	Euro-direct	Audio, Video & Media	4 508		3 499	4 470		3 721
		Biotechnology	2 119		2 130	2 257		2 246
		Civil Engineering & Thermodynamics	5 732		5 710	5 810		5 888
		Computer	3 711		3 078	3 013		3 737
		Electricity & Electrical Machines	5 240		4 879	5 441		4 581
		Electronics	3 475		3 127	3 487		2 901
		Handling and Processing	5 895		5 791	6 148		5 866
		Human Necessities	5 984		5 540	6 265		5 433
		Industrial Chemistry	4 146		3 597	4 730		3 618
		Measuring, Optics	3 674		3 533	3 642		3 584
		Polymers	2 112		2 039	2 233		2 104
		Pure & Applied Organic Chemistry	3 207		3 068	3 460		3 099
		Telecommunications	4 687		3 891	4 450		4 079
		Vehicles & General Technology	6 294		6 378	6 252		6 668
		Total	60 785		56 260	61 658		57 525
All	PCT-IP	Audio, Video & Media	7 191		7 313	7 716		7 228
		Biotechnology	9 642		9 556	9 925		9 780
		Civil Engineering & Thermodynamics	8 571		8 675	9 183		9 197
		Computer	9 429		11 022	9 776		11 954
		Electricity & Electrical Machines	10 219		9 662	11 209		9 310
		Electronics	6 054		5 695	6 449		5 489
		Handling and Processing	9 845		10 964	10 386		11 575
		Human Necessities	13 829		12 640	14 790		11 423
		Industrial Chemistry	14 614		14 771	16 435		14 821
		Measuring, Optics	8 348		8 520	8 903		8 751
		Polymers	6 485		6 891	6 866		7 194
		Pure & Applied Organic Chemistry	14 799		14 899	15 849		15 181
		Telecommunications	9 430		9 510	9 874		9 498
		Vehicles & General Technology	8 052		8 030	8 421		8 379
		Total	136 509		138 147	145 782		139 779
Grand total	Total	Audio, Video & Media	11 699		10 812	12 186		10 949
		Biotechnology	11 760		11 686	12 182		12 026
		Civil Engineering & Thermodynamics	14 303		14 385	14 993		15 084
		Computer	13 140		14 099	12 789		15 691
		Electricity & Electrical Machines	15 459		14 541	16 651		13 891
		Electronics	9 529		8 822	9 936		8 389
		Handling and Processing	15 740		16 755	16 534		17 441
		Human Necessities	19 813		18 180	21 055		16 856
		Industrial Chemistry	18 760		18 368	21 164		18 439
		Measuring, Optics	12 023		12 053	12 544		12 335
		Polymers	8 598		8 930	9 099		9 298
		Pure & Applied Organic Chemistry	18 006		17 968	19 310		18 281
		Telecommunications	14 118		13 401	14 324		13 577
		Vehicles & General Technology	14 346		14 408	14 672		15 047
		Total	197 294		194 407	207 440		197 304
		Growth from 2005			-1.5%			0.0%
		Implied PCT-IP			71.1%	70.3%		70.8%
								71.0%

Table 26: Forecasts for EPO filings – Biggest group (first and subsequent filings combined, broken down by joint cluster)

Random group
Breakdown by EPO joint cluster
Q-indices

S.E. indicates standard error of logarithm
LCL/UCL indicates lower/upper 95% confidence limit
Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year										
			2005			2006		2007			2008		
Filing type	Filing route	Cluster	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual Filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings
First	Euro-direct	Audio, Video & Media	1 227	0.9692	0.1792	1 189	1 120	0.8289	0.3126	1 017	0.8240	0.3139	1 011
		Biotechnology	1 208	1.1154	0.0653	1 347	1 244	1.2668	0.0869	1 530	1.3000	0.0985	1 570
		Civil Engineering & Thermodynamics	1 107	1.0327	0.2203	1 144	1 339	1.0913	0.1838	1 208	1.1834	0.2152	1 310
		Computer	1 133	1.8203	0.1848	2 063	926	2.1285	0.3154	2 413	2.3423	0.2746	2 655
		Electricity & Electrical Machines	1 232	0.9535	0.1004	1 174	1 193	0.8241	0.1956	1 015	0.8335	0.2081	1 027
		Electronics	1 026	0.9048	0.0655	928	1 018	0.7605	0.1477	780	0.7751	0.1659	795
		Handling and Processing	1 292	1.2204	0.1047	1 577	1 493	1.2910	0.1149	1 668	1.3223	0.1316	1 708
		Human Necessities	1 396	0.9338	0.0821	1 304	1 554	0.8226	0.1884	1 149	0.8351	0.1998	1 166
		Industrial Chemistry	1 401	1.0675	0.1369	1 496	1 839	1.1268	0.1455	1 579	1.1766	0.1559	1 649
		Measuring, Optics	951	1.0443	0.1660	993	1 013	1.0287	0.1482	978	1.0691	0.1594	1 017
		Polymers	710	1.0726	0.1206	762	1 029	1.1939	0.1439	848	1.2497	0.1536	887
		Pure & Applied Organic Chemistry	1 730	1.1085	0.0983	1 918	2 131	1.2700	0.1374	2 197	1.2975	0.1386	2 245
		Telecommunications	1 516	1.0014	0.1626	1 518	1 553	0.8831	0.2856	1 338	0.8931	0.2965	1 354
		Vehicles & General Technology	949	0.9893	0.0983	939	1 065	1.0667	0.1121	1 012	1.1244	0.1280	1 067
		Total	16 878			18 351	18 518			18 733			19 460
		LCL				16 935				16 442			17 128
		UCL				19 767				21 023			21 792
First	PCT-IP	Audio, Video & Media	474	0.7519	0.0523	356	522	0.5798	0.1520	275	0.9840	0.0930	466
		Biotechnology	449	1.0332	0.0953	464	495	1.1427	0.0978	513	1.2168	0.1220	547
		Civil Engineering & Thermodynamics	591	1.2953	0.2282	766	610	1.2996	0.2459	768	1.3460	0.2632	796
		Computer	683	0.9351	0.2033	639	721	0.9599	0.1732	656	1.0237	0.1701	699
		Electricity & Electrical Machines	713	0.8055	0.0989	575	801	0.6401	0.1941	457	0.9783	0.1359	698
		Electronics	526	0.8097	0.1048	426	581	0.6391	0.2060	336	1.0721	0.1157	564
		Handling and Processing	867	1.2154	0.1280	1 053	920	1.3611	0.1441	1 180	1.3707	0.1592	1 188
		Human Necessities	883	0.7826	0.0933	691	892	0.6002	0.1814	530	1.2329	0.1242	1 089
		Industrial Chemistry	963	1.2045	0.1240	1 160	1 050	1.1668	0.1044	1 123	1.2599	0.1175	1 213
		Measuring, Optics	440	1.1321	0.1274	499	449	1.1328	0.1196	499	1.1824	0.1348	521
		Polymers	297	1.0186	0.0760	303	305	1.1004	0.0893	327	1.0974	0.1366	326
		Pure & Applied Organic Chemistry	733	1.0902	0.0658	799	793	1.1595	0.0809	850	1.1629	0.0807	853
		Telecommunications	976	0.7881	0.0869	769	1 038	0.6260	0.1960	611	1.0477	0.1016	1 023
		Vehicles & General Technology	429	1.2032	0.0902	516	419	1.2265	0.0893	526	1.2523	0.0898	537
		Total	9 025			9 016	9 594			8 651			10 518
		LCL				8 346				7 891			9 675
		UCL				9 685				9 412			11 362

Table 27: Forecasts for EPO filings at the EPO – Random group (first filings, broken down by joint cluster)

Random group
Breakdown by EPO joint cluster
Q-indices

S.E. indicates standard error of logarithm
LCL/UCL indicates lower/upper 95% confidence limit
Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year										
			2005			2006		2007			2008		
Filing type	Filing route	Cluster	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual Filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings
Subsequent	Euro-direct	Audio, Video & Media	3 282	0.7519	0.5914	2 467	3 350	0.9721	0.0800	3 190	0.9543	0.1041	3 132
		Biotechnology	911	0.9065	0.0826	826	1 013	1.0092	0.0981	920	1.1194	0.0774	1 020
		Civil Engineering & Thermodynamics	4 625	0.9599	0.0920	4 440	4 471	1.1021	0.0948	5 097	1.2064	0.1058	5 580
		Computer	2 578	0.1859	1.2660	479	2 088	1.0264	0.1163	2 646	1.0247	0.1581	2 641
		Electricity & Electrical Machines	4 008	1.0781	0.0919	4 321	4 248	1.0136	0.0567	4 062	0.9873	0.0630	3 957
		Electronics	2 449	1.1033	0.0913	2 702	2 470	0.9748	0.0621	2 387	0.9882	0.0754	2 420
		Handling and Processing	4 603	1.0049	0.0526	4 626	4 655	1.0751	0.0712	4 949	1.1243	0.0702	5 175
		Human Necessities	4 588	1.1385	0.0736	5 224	4 711	1.1343	0.0627	5 204	1.1479	0.0645	5 267
		Industrial Chemistry	2 745	0.9954	0.1085	2 732	2 890	1.0743	0.1389	2 949	1.1393	0.1628	3 127
		Measuring, Optics	2 724	0.9188	0.0844	2 503	2 629	0.9964	0.0755	2 714	1.0185	0.0791	2 774
		Polymers	1 402	1.0401	0.0995	1 459	1 204	1.1567	0.1581	1 622	1.2802	0.1914	1 795
		Pure & Applied Organic Chemistry	1 476	1.0099	0.1058	1 491	1 329	1.0783	0.1585	1 592	1.1374	0.1703	1 679
		Telecommunications	3 172	0.7695	0.5074	2 441	2 897	0.9529	0.0537	3 022	0.9740	0.0678	3 089
		Vehicles & General Technology	5 345	0.9916	0.0503	5 300	5 186	1.0471	0.0601	5 597	1.0888	0.0592	5 820
		Total	43 907			41 009	43 140			45 951			47 476
		LCL					34 433			43 800			44 931
		UCL					47 585			48 102			50 021
Subsequent	PCT-IP	Audio, Video & Media	6 717	1.0391	0.3019	6 980	7 193	0.9293	0.4400	6 242	0.9277	0.4482	6 232
		Biotechnology	9 192	0.9490	0.0498	8 723	9 430	1.1082	0.0726	10 187	1.2001	0.0721	11 032
		Civil Engineering & Thermodynamics	7 980	0.9590	0.1323	7 653	8 573	0.9892	0.1683	7 894	1.1353	0.1791	9 060
		Computer	8 746	1.5620	0.4907	13 661	9 055	1.8525	0.5305	16 202	2.0354	0.5142	17 801
		Electricity & Electrical Machines	9 506	0.8652	0.0773	8 224	10 409	0.7901	0.1756	7 510	0.7996	0.1890	7 601
		Electronics	5 528	0.8851	0.0940	4 893	5 868	0.7909	0.2060	4 373	0.8090	0.2275	4 473
		Handling and Processing	8 978	0.9162	0.0711	8 226	9 467	1.0022	0.0919	8 998	1.0933	0.0898	9 816
		Human Necessities	12 946	0.8653	0.0713	11 203	13 898	0.7744	0.1627	10 025	0.7909	0.1786	10 239
		Industrial Chemistry	13 651	0.9382	0.0871	12 807	15 384	0.9714	0.1064	13 261	1.0366	0.1104	14 151
		Measuring, Optics	7 908	0.9874	0.0872	7 808	8 454	1.0348	0.1003	8 183	1.1185	0.1033	8 845
		Polymers	6 188	0.9969	0.0741	6 169	6 561	1.0876	0.0922	6 730	1.1619	0.1014	7 190
		Pure & Applied Organic Chemistry	14 066	0.9199	0.0564	12 940	15 057	0.9616	0.0739	13 525	1.0120	0.0740	14 235
		Telecommunications	8 454	1.0013	0.2296	8 466	8 837	0.9429	0.3662	7 972	0.9480	0.3761	8 015
		Vehicles & General Technology	7 623	0.9921	0.0533	7 563	8 002	1.0342	0.0596	7 883	1.0916	0.0644	8 321
		Total	127 484			125 316	136 188			128 986			137 009
		LCL					107 861			105 269			111 982
		UCL					142 771			152 702			162 035

Table 28: Forecasts for EPO filings – Random group (subsequent filings, broken down by joint cluster)

Random group
Breakdown by EPO joint cluster
Q-indices

S.E. indicates standard error of logarithm
LCL/UCL indicates lower/upper 95% confidence limit
Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year												
			2005	2006			2007			2008					
Filing type	Filing route	Cluster	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual Filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings		
All	Euro-direct	Audio, Video & Media	4 508			3 656	4 470			4 207			4 143		
		Biotechnology	2 119			2 173	2 257			2 449			2 590		
		Civil Engineering & Thermodynamics	5 732			5 583	5 810			6 306			6 890		
		Computer	3 711			2 542	3 013			5 058			5 296		
		Electricity & Electrical Machines	5 240			5 495	5 441			5 078			4 983		
		Electronics	3 475			3 630	3 487			3 167			3 215		
		Handling and Processing	5 895			6 202	6 148			6 617			6 884		
		Human Necessities	5 984			6 527	6 265			6 353			6 433		
		Industrial Chemistry	4 146			4 228	4 730			4 527			4 776		
		Measuring, Optics	3 674			3 496	3 642			3 692			3 791		
		Polymers	2 112			2 220	2 233			2 470			2 683		
		Pure & Applied Organic Chemistry	3 207			3 409	3 460			3 789			3 924		
		Telecommunications	4 687			3 958	4 450			4 361			4 443		
		Vehicles & General Technology	6 294			6 239	6 252			6 609			6 887		
		Total	60 785			59 360	61 658			64 684			66 936		
		LCL				52 633				61 541			63 484		
		UCL				66 087				67 826			70 388		
All	PCT-IP	Audio, Video & Media	7 191			7 336	7 716			6 517			6 698		
		Biotechnology	9 642			9 187	9 925			10 700			11 579		
		Civil Engineering & Thermodynamics	8 571			8 418	9 183			8 662			9 855		
		Computer	9 429			14 300	9 776			16 858			18 500		
		Electricity & Electrical Machines	10 219			8 799	11 209			7 967			8 299		
		Electronics	6 054			5 319	6 449			4 709			5 036		
		Handling and Processing	9 845			9 279	10 386			10 178			11 004		
		Human Necessities	13 829			11 894	14 790			10 555			11 327		
		Industrial Chemistry	14 614			13 967	16 435			14 384			15 364		
		Measuring, Optics	8 348			8 307	8 903			8 682			9 366		
		Polymers	6 485			6 472	6 866			7 057			7 516		
		Pure & Applied Organic Chemistry	14 799			13 739	15 849			14 375			15 087		
		Telecommunications	9 430			9 235	9 874			8 583			9 037		
		Vehicles & General Technology	8 052			8 079	8 421			8 410			8 859		
		Total	136 509			134 332	145 782			137 637			147 527		
		LCL				116 864				113 908			122 487		
		UCL				151 799				161 366			172 567		
Grand total	Total	Audio, Video & Media	11 699			10 993	12 186			10 724			10 840		
		Biotechnology	11 760			11 361	12 182			13 150			14 169		
		Civil Engineering & Thermodynamics	14 303			14 002	14 993			14 968			16 745		
		Computer	13 140			16 842	12 789			21 916			23 796		
		Electricity & Electrical Machines	15 459			14 294	16 651			13 045			13 283		
		Electronics	9 529			8 949	9 936			7 876			8 252		
		Handling and Processing	15 740			15 482	16 534			16 795			17 888		
		Human Necessities	19 813			18 421	21 055			16 907			17 760		
		Industrial Chemistry	18 760			18 195	21 164			18 912			20 140		
		Measuring, Optics	12 023			11 802	12 544			12 374			13 156		
		Polymers	8 598			8 692	9 099			9 527			10 198		
		Pure & Applied Organic Chemistry	18 006			17 148	19 310			18 165			19 012		
		Telecommunications	14 118			13 193	14 324			12 944			13 480		
		Vehicles & General Technology	14 346			14 319	14 672			15 019			15 746		
		Total	197 294			193 691	207 440			202 320			214 463		
		LCL				174 973				178 384			189 186		
		UCL				212 410				226 256			239 740		
		Growth from 2005						-1.8%				2.5%			8.7%
		Implied PCT-IP						69.4%				68.0%			68.8%
		Deviation in % of forecast						9.7%				11.8%			11.8%

Table 29: Forecasts for EPO filings – Random group (first and subsequent filings combined, broken down by joint cluster)

7.5 Assessment of results and comparison with previous panel surveys

Assessing the forecasting results presented so far, there is a reasonable level of agreement between the results based on the different samples (Biggest and Random group) and the various breakdown scenarios including the breakdown by joint clusters. Taking into account the trade-off between reducing standard errors and reducing the gap between forecasted and actual filings, arguments have been presented recommending usage of the forecasts obtained for the Random group with breakdown by residence bloc as the preferred forecasts in this year's report (**Table 18**).

This recommendation differs from the results of the previous two years where the forecasts based on the Random group with no subsidiary breakdown appeared to be more accurate than the forecasts based on the breakdown by residence bloc. To put the comparison of the two different breakdown scenarios in perspective, **Figure 10** and **Table 30** as well as **Figure 11** and **Table 31** compare the forecasting results of previous panel surveys since 2003 without and with residence bloc breakdown respectively. 2003 was chosen as the start year because, for the first time in this report, a forecast based on the Random group with no subsidiary breakdown was carried out.

The **precision of predictions** from previous years' panels can be evaluated by comparison with actual filing numbers, which are given in the last row of the respective tables. Based on the actual number of filings, the forecasted numbers are given as percentage values of the actual filings in brackets. Overall, the forecast deviation is less than 10% which underlines the high level of forecasting precision. The accuracy of the predictions has improved from the 2003 to the 2005 panel survey. With one exception, the previous forecasts all underestimated the actual number of filings. Concerning the forecasting method, in retrospect, the estimates based on the Random group with no subsidiary breakdown have been more accurate than the estimates based on a breakdown by residence bloc for the years 2003 and 2005. The opposite is true for the year 2004, where the estimates based on a breakdown by residence bloc achieved a higher level of accuracy. However, the presented graphs and tables illustrate that the difference between the two methods in terms of forecasting accuracy is rather small.

Given that both forecasting methods calculating growth rates for the Random group with no subsidiary breakdown and a breakdown by residence bloc have previously proven to be very reliable in yielding similar results, it is recommended to carry out analyses with both methods in subsequent surveys. For the decision regarding which forecast to use, specific circumstances have to be taken into account, as for this year's forecast with the shifting effect of filings routes as discussed in more detail in **Section 7.3**.

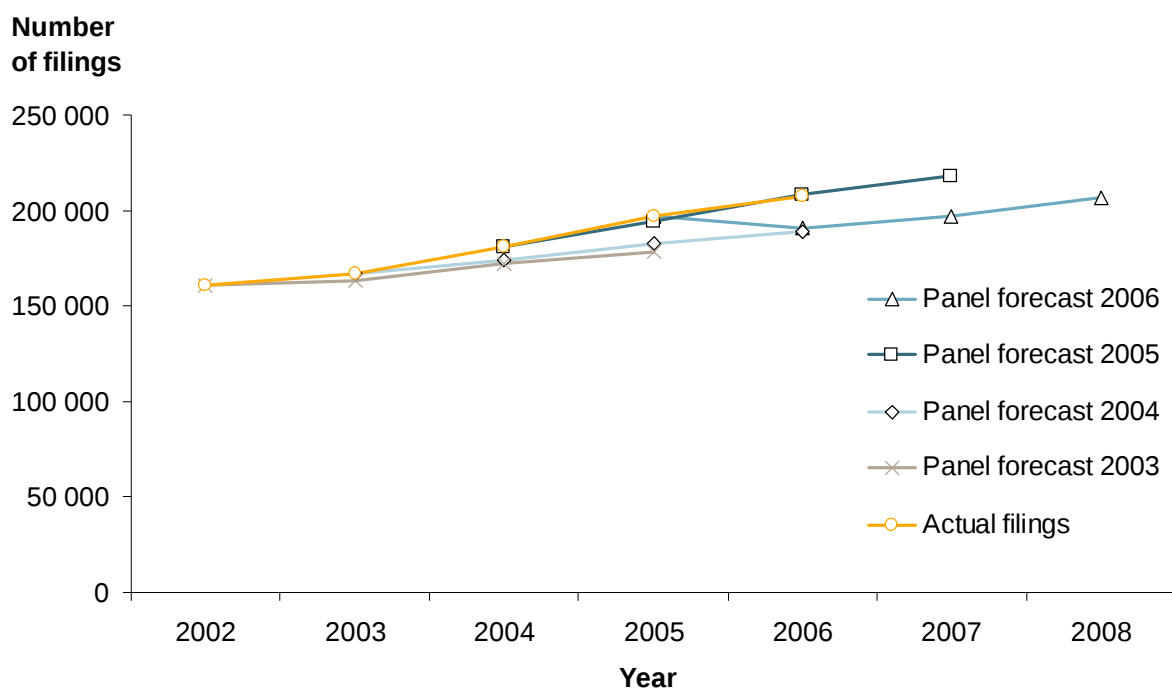


Figure 10: Comparison of forecasts since 2003 (Random group with no subsidiary breakdown)

Number of filings* forecasted based on ...	Forecasting Year						
	2002	2003	2004	2005	2006	2007	2008
... 2003 panel survey (in % of actual filings) Lower confidence limit Upper confidence limit	161 042 (=actual)	163 158 (98%) 154 959 171 357	171 936 (95%) 161 742 182 129	178 477 (90%) 166 359 190 594			
... 2004 panel survey (in % of actual filings) Lower confidence limit Upper confidence limit		167 141 (=actual)	174 456 (96%) 164 250 184 661	182 833 (93%) 170 228 195 439	188 957 (91%) 175 084 202 830		
... 2005 panel survey (in % of actual filings) Lower confidence limit Upper confidence limit			181 148 (=actual)	194 673 (99%) 186 324 203 023	208 772 (101%) 197 983 219 560	218 007 (N/A) 205 505 230 509	
... 2006 panel survey (in % of actual filings) Lower confidence limit Upper confidence limit				197 294 (=actual)	191 215 (92%) 178 179 204 250	197 344 (N/A) 178 579 216 109	206 595 (N/A) 185 533 227 658
Actual filings	161 042	167 141	181 148	197 294	207 440	N/A	N/A

*) First and subsequent Euro-direct and PCT-IP filings

Table 30: Comparison of forecasts since 2003 (Random group with no subsidiary breakdown)

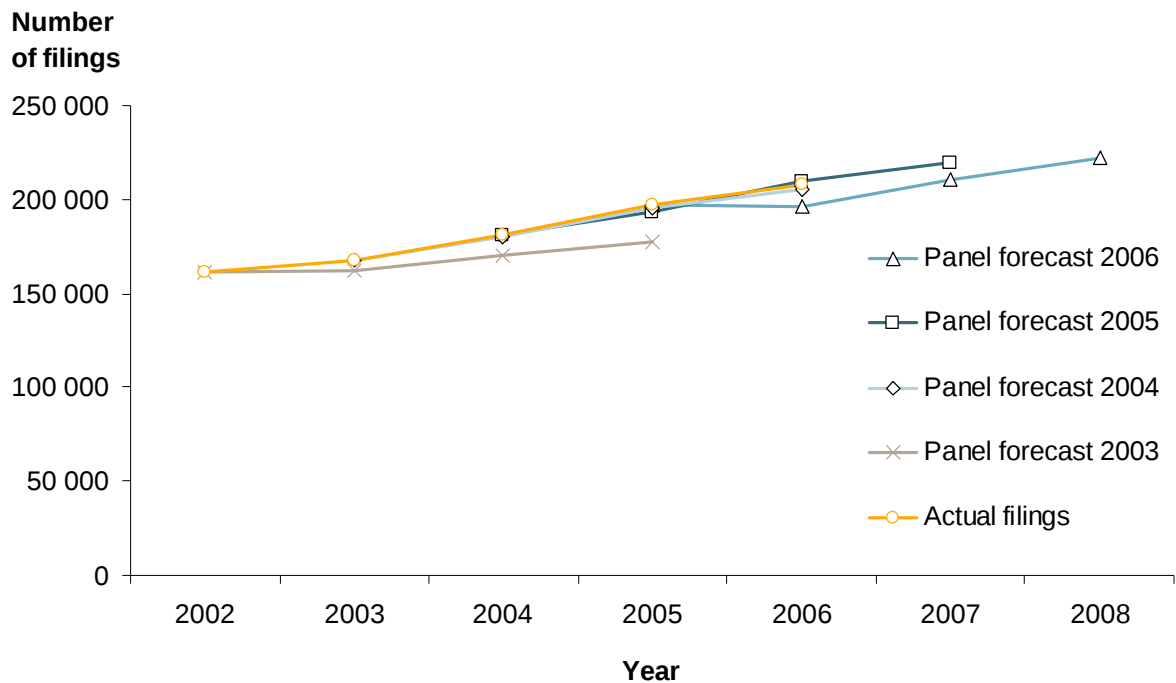


Figure 11: Comparison of forecasts since 2003 (Random group broken down by residence bloc)

Number of filings* forecasted based on ...	Forecasting Year						
	2002	2003	2004	2005	2006	2007	2008
... 2003 panel survey (in % of actual filings) Lower confidence limit Upper confidence limit	161 042 (=actual)	161 783 (97%) 154 069 169 496	170 462 (94%) 160 786 180 138	177 649 (90%) 165 849 189 449			
... 2004 panel survey (in % of actual filings) Lower confidence limit Upper confidence limit		167 141 (=actual)	179 952 (99%) 158 112 201 791	194 919 (99%) 164 308 225 531	205 385 (99%) 173 259 237 511		
... 2005 panel survey (in % of actual filings) Lower confidence limit Upper confidence limit			181 148 (=actual)	193 715 (98%) 184 032 203 398	210 044 (101%) 197 450 222 637	219 381 (N/A) 204 851 233 910	
... 2006 panel survey (in % of actual filings) Lower confidence limit Upper confidence limit				197 294 (=actual)	196 402 (95%) 178 298 214 506	210 436 (N/A) 187 051 233 821	222 271 (N/A) 196 847 247 694
Actual filings	161 042	167 141	181 148	197 294	207 440	N/A	N/A

*) First and subsequent Euro-direct and PCT-IP filings

Table 31: Comparison of forecasts since 2003 (Random group broken down by residence bloc)

8 Forecasts for PCT regional phase applications

The results for PCT regional phase applications at the EPO were obtained from question (j) in **Section B** of the questionnaire (**Annex I**). The forecasts for Euro-PCT-RP filings are calculated both for the Biggest group sample and the Random group sample, applying the composite index and the Q-index respectively.

An overview of the main results of the forecasts for Euro-PCT-RP applications according to the different methods is given in terms of growth rates (**Table 32**) and in terms of absolute numbers of filings (**Table 33**). Firstly, Euro-PCT-RP filings are estimated for the Biggest group sample with no subsidiary breakdown (**Table 34**) and broken down by residence bloc (**Table 35**). Secondly, the Euro-PCT-RP filing forecasts are given for the Random group sample. Q-indices for the Random group are calculated with no subsidiary breakdown (**Table 36**). The same analysis is repeated with the Euro-PCT-RP filings broken down by residence bloc (**Table 37**). Finally, the regional phase filing predictions are shown in **Table 38**, based on the break down by joint cluster of the Random group sample.

The results show that there seems to be a general intention to significantly increase the numbers of filings entering the regional phase in the year 2007, with a growth rate (from 2005) of between 8.2% and 9.4% for the Biggest group and of 7.7% to 11.8% for the Random group, depending on the method used. However, forecasts for the number of filings in 2006 result in rather different estimates when the Biggest group and the Random group are compared. Whereas the growth rates (from 2005) for the Biggest group estimates are in the range of 3.7% to 4.2%, the growth rates based on the Random group estimates appear to be much more pessimistic, being in the range of -5.2% and -2.0%. However, similarly to the forecasting results obtained previously, the number of predicted filings for 2006 fall much below the actual number of filings for 2006. The actual number of filings does not lie within any of the confidence intervals given. Looking at the growth forecasts for the year 2008 and comparing those to the growth forecasts for 2007, it is consistent with all forecasting methods that there will be little growth if any in the number of Euro-PCT-RP filings from 2007 to 2008.

Comparing deviations of confidence limits from forecasts, no single analysis is consistently superior to any other. For the 2006 forecasts, the analysis with no subsidiary breakdown gives the best results. Thereafter, for the 2007 and 2008 forecasts, the analysis with break down by residence bloc gives the best results with regard to the width of the confidence intervals.

**Comparison of forecasts: Growth from 2005
Euro-PCT-RP**

		2006		2007		2008	
Group	Breakdown	Growth rate	Deviation*	Growth rate	Deviation*	Growth rate	Deviation*
Biggest	None	3.7%		8.2%		8.0%	
Biggest	Residence bloc	4.2%		9.4%		9.8%	
Random	None	-2.0%	8.1%	10.8%	6.3%	11.0%	10.3%
Random	Residence bloc	-3.4%	9.8%	11.8%	5.6%	14.1%	7.1%
Random	EPO joint cluster	-5.2%	8.6%	7.7%	6.3%	7.4%	8.1%

*) **Deviation** corresponds to the distance from the forecasted filings to the lower 95% confidence limit (as % of the forecasted filings)

Table 32: Overview of predicted growth rates for Euro-PCT-RP applications by forecasting methods

**Comparison of forecasts: Predicted total filings
Euro-PCT-RP**
LCL/UCL indicates lower/upper 95% confidence limit

		2005			2006			2007		
Group	Breakdown	Predicted filings	LCL	UCL	Predicted filings	LCL	UCL	Predicted filings	LCL	UCL
Biggest	None	70 461			73 571			73 380		
Biggest	Residence bloc	70 840			74 350			74 655		
Random	None	66 621	61 239	72 003	75 289	70 575	80 003	75 438	67 690	83 187
Random	Residence bloc	65 668	59 231	72 106	75 977	71 739	80 215	77 551	72 080	83 022
Random	EPO joint cluster	64 425	58 916	69 934	73 186	68 562	77 810	72 988	67 095	78 880
Actual filings		74 996								

Table 33: Overview of predicted filing numbers for Euro-PCT-RP applications by forecasting methods

Biggest Group
No subsidiary breakdown
Composite Indices

			Year							
			2005	2006			2007		2008	
Patent Office	Filing route	Res. bloc	Actual filings	Index 06	Predicted filings	Actual filings	Index 07	Predicted filings	Index 08	Predicted filings
EPO	Euro-PCT-RP	Total	67 974	1.0366	70 461	74 996	1.0823	73 571	1.0795	73 380
Growth from 2005					3.7%			8.2%		8.0%

Table 34: Forecasts for Euro-PCT-RP applications (no subsidiary breakdown; composite index based on Biggest group)

Biggest group
Breakdown by residence bloc
Composite indices

			Year							
			2005	2006			2007		2008	
Patent office	Filing route	Res. bloc	Actual filings	Index 06	Predicted filings	Actual filings	Index 07	Predicted filings	Index 08	Predicted filings
EPO	Euro-PCT-RP	EPC	30 291	1.0086	30 553	31 751	1.0269	31 104	0.9819	29 744
		JA	9 879	1.1035	10 901	11 596	1.2017	11 871	1.2879	12 723
		OT	5 506	1.0366 *	5 707	6 489	1.0823 *	5 959	1.0795 *	5 944
		US	22 298	1.0619	23 678	25 160	1.1398	25 415	1.1770	26 244
Total		Total	67 974		70 840	74 996		74 350		74 655
Growth from 2005					4.2%			9.4%		9.8%

Table 35: Forecasts for Euro-PCT-RP applications (breakdown by residence bloc; composite index based on Biggest group)

Random group
No subsidiary breakdown
Q-indices

S.E. indicates standard error of logarithm
LCL/UCL indicates lower/upper 95% confidence limit
Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year										
			2005	2006				2007			2008		
Patent office	Filing route	Res. bloc	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings
EPO	Euro-PCT-RP	Total	67 974	0.9801	0.0412	66 621	74 996	1.1076	0.0319	75 289	1.1098	0.0523	75 438
		LCL				61 239				70 575			67 690
		UCL				72 003				80 003			83 187
Growth from 2005						-2.0%				10.8%			11.0%
Deviation in % of forecast						8.1%				6.3%			10.3%

Table 36: Forecasts for Euro-PCT-RP applications (no subsidiary breakdown; Q-index based on Random group)

Random group
Breakdown by residence bloc
Q-indices

S.E. indicates standard error of logarithm
LCL/UCL indicates lower/upper 95% confidence limit
Deviation in % of forecast means (Predicted filings - LCL)/Predicted filings

			Year										
			2005		2006			2007			2008		
Patent Office	Filing route	Res. bloc	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings
EPO	Euro-PCT-RP	EPC	30 291	1.0077	0.0226	30 525	31 751	1.0625	0.0405	32 184	1.0119	0.0634	30 652
		JA	9 879	1.0882	0.0545	10 750	11 596	1.2598	0.0513	12 445	1.3898	0.0565	13 730
		OT	5 506	1.1733	0.0782	6 460	6 489	1.2699	0.0957	6 992	1.3793	0.0817	7 595
		US	22 298	0.8043	0.1700	17 934	25 160	1.0923	0.0595	24 355	1.1470	0.0675	25 575
Total		Total	67 974			65 668	74 996			75 977			77 551
		LCL				59 231				71 739			72 080
		UCL				72 106				80 215			83 022
Growth from 2005						-3.4%				11.8%			14.1%
Deviation in % of forecast						9.8%				5.6%			7.1%

Table 37: Forecasts for Euro-PCT-RP applications (broken down by residence bloc; Q-index based on Random group)

Random group
Breakdown by EPO Joint Cluster
Q-indices

S.E. indicates standard error of logarithm
LCL/UCL indicates lower/upper 95% confidence limit
Deviation in % of forecast means (predicted filings - LCL)/predicted filings

			Year											
			2005	2006				2007			2008			
Patent office	Filing route	Cluster	Actual filings	Q-index 06	S.E. 06	Predicted filings	Actual filings	Q-index 07	S.E. 07	Predicted filings	Q-index 08	S.E. 08	Predicted filings	
EPO	Euro-PCT-RP	Audio, Video & Media	3 680	0.7789	0.3294	2 867	4 476	1.0666	0.0857	3 925	0.8829	0.1598	3 249	
		Biotechnology	4 753	0.9785	0.0529	4 651	4 838	1.0382	0.0681	4 935	1.1207	0.0599	5 327	
		Civil Engineering & Thermodynamics	3 899	1.0697	0.1611	4 171	4 253	1.1952	0.2291	4 661	1.2162	0.2764	4 742	
		Computer	3 758	0.5395	0.6564	2 027	3 838	1.1803	0.0955	4 436	1.2360	0.1324	4 645	
		Electricity & Electrical Machines	4 752	0.9787	0.0406	4 651	5 224	1.0830	0.0738	5 147	0.9571	0.1615	4 549	
		Electronics	3 026	0.9207	0.0701	2 786	3 168	0.9954	0.0611	3 012	0.8908	0.1356	2 696	
		Handling and Processing	5 107	0.9975	0.0581	5 095	5 816	1.0296	0.1055	5 259	1.1031	0.1075	5 634	
		Human Necessities	6 987	1.0292	0.0634	7 191	7 563	1.0598	0.0771	7 405	0.9394	0.1523	6 564	
		Industrial Chemistry	7 016	0.9178	0.1264	6 439	7 879	1.0223	0.1550	7 172	1.0676	0.1732	7 489	
		Measuring, Optics	3 826	0.9362	0.1599	3 582	4 412	0.9787	0.1880	3 745	1.0259	0.1942	3 925	
		Polymers	4 018	1.0708	0.0999	4 303	4 383	1.1586	0.1429	4 656	1.2824	0.1613	5 153	
		Pure & Applied Organic Chemistry	8 528	1.0240	0.0512	8 733	9 001	1.0613	0.0790	9 051	1.1150	0.0738	9 509	
		Telecommunications	4 457	0.7905	0.2567	3 523	5 419	1.0231	0.0655	4 560	0.8999	0.1429	4 011	
		Vehicles & General Technology	4 164	1.0580	0.1083	4 406	4 726	1.2544	0.0925	5 224	1.3192	0.0998	5 494	
		Total	67 974			64 425	74 996			73 186			72 988	
		LCL				58 916				68 562			67 095	
		UCL				69 934				77 810			78 880	
Growth from 2005						-5.2%				7.7%		7.4%		
Deviation in % of forecast						8.6%				6.3%		8.1%		

Table 38: Forecasts for Euro-PCT-RP applications (broken down by joint cluster; Q-index based on Random group)

9 Conclusion

The main results of this report are summarized in **Section 1**. The following discussion is therefore restricted to a few key points.

The recommended forecasting method for future filings at the EPO is based on the Random group broken down by residence bloc and including companies with qualifying comments. This forecasting method is selected based on the trade-off between smaller confidence intervals and confidence intervals encompassing the actual number of filings. Arguments leading to this recommendation have been presented in **Section 7.3**. The forecasts are summarised in **Table 18**.

This recommendation deviates from the conclusion of last year's report, where forecasts based on the Random group with no subsidiary breakdown were considered to be superior to the forecasts broken down by residence bloc, in particular because of smaller confidence intervals. However, as the assessment of the results and the comparison with previous forecasts in **Section 7.5** have shown, the estimates of both methods have shown a high level of reliability for forecasting patent filings with a relatively small difference in the forecasts by method. For future Applicant Panel Surveys it is recommended to carry on with the forecasts based on the different methods. Also the assessment of results comparing actual and forecasted filings for previous years should be repeated in subsequent reports.

The applicants responding to the survey in 2006 represented an appreciable percentage of applications from the total population (see **Annex VIII**). There is a reasonable level of agreement between the results obtained through different forecasting methods, as well as between those based on the Biggest group and the Random group. Despite the fact that the groups do, in fact, largely overlap, this may be taken as an indication that the results should be fairly representative of future filing intentions. However, there is always the possibility that the applicants who did not respond have different intentions.

This survey was conducted in mid-2006, so for the forecasts to be valid, it is assumed that filing intentions currently remain similar.

10 Annex I: Questionnaire



European Patent Office

APPR
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ABTEILUNG
STRASSE

GROUP

ORT
LAND

Questionnaire

for Applicant Panel Survey on Patent Filings

Please return to:
+49-89-99 600 599

Please respond only in respect of the company/company part mentioned to you over the phone by Roland Berger Market Research, e.g. your branch or subsidiary. If, however, this is not possible, we would welcome your responses in respect of whatever larger or smaller company part that you can speak for.

Please answer the whole questionnaire for the same company/company part.

A. Contact Details and Comments

Should the information given above on your company details be incorrect, please provide us with corrected information below:

Contact Name: _____

Position: _____

Phone Number: _____

E-mail-Address: _____

Organisation Name: _____

Organisation Address: _____

Comments on any matter concerning this questionnaire (please continue on a separate sheet if necessary):

B. Estimation of levels of patenting activity throughout the world for your company/ company part

Please give information on numbers of filings in the two tables below. In case you are unable to give actual figures, please indicate anticipated yearly growth rates as percentages (i.e. 2006 compared with 2005; 2007 compared with 2006; 2008 compared with 2007).

Please indicate the numbers of **first filings** (priority forming) and **subsequent filings** (claiming priority of an earlier application) with break downs by patent types and countries, that you filed in the last calendar year and that you expect to file in the present and future calendar years.

		Filed		Expected		Expected		Expected	
		2005		2006		2007		2008	
		First filings ¹	Subsequent filings	First filings ¹	Subsequent filings	First filings ¹	Subsequent filings	First filings ¹	Subsequent filings
European patent applications under the EPC (excluding PCT) (a)									
International applications under the PCT (International Phase) (b)									
National applications (excluding PCT and EPC) in	Germany (c)								
	United Kingdom (d)								
	France (e)								
	Japan (f)								
	United States ² (g)								
	Other countries (h)								
Worldwide Total First Filings (i)									

¹ A first filing is a patent application that, according to the Paris Convention for the Protection of Industrial Property, confers a right of priority for a period of twelve months for the purpose of filing patent applications in other countries or systems, with respect to the same invention.

² Including provisional filings under the columns for first filings.

Please indicate the numbers of your PCT applications which entered the regional/national phase at the listed offices during the last calendar year and which you expect to enter the regional/national phase in the present and future calendar years.

PCT applications entering the regional/national phase at	Entered 2005	Expected 2006	Expected 2007	Expected 2008
European Patent Office (EPO) (j)				
United States Patent and Trademark Office (USPTO) (k)				
Japan Patent Office (JPO) (l)				
German Patent and Trade Mark Office (DPMA) (m)				

If you have any comments on this part please put them on page 1.

C. Activities in total and in various sectors for your company/company part

We would like to know more information on your R&D, patenting and business activities in 2005.
Please indicate...

- (a) the total number of inventions in 2005 where you considered making patent applications.....
- (b) the proportion of your inventions that were patented throughout the world in 2005..... %
- (c) the approximate size of your total sales throughout the world in 2005 (specify currency).....
- (d) the total number of your full-time researchers in 2005.....

We are also interested in classifying your activities in terms of the *Joint Cluster* organisational groupings used for examinations at the European Patent Office. Please complete the following table as far as you can, by indicating...

(e) ...which of the following you believe contain(s) the main area(s) of your business. Please tick appropriate box(es).	(f) ...the approximate size of your R&D budget 2005 (specify currency)	(g) ...the number of first patent filings that you actually made in 2005 throughout the world	(e) ...which of the following you believe contain(s) the main area(s) of your business. Please tick appropriate box(es).	(f) ...the approximate size of your R&D budget 2005 (specify currency)	(g) ...the number of first patent filings that you actually made in 2005 throughout the world
1. Audio, Video and Media ☐			9. Industrial Chemistry ☐		
2. Biotechnology ☐			10. Measuring and Optics ☐		
3. Civil Engineering; Thermodynamics (including engines and pumps) ☐			11. Polymers ☐		
4. Computers ☐			12. Pure and Applied Organic Chemistry (including pharmaceuticals) ☐		
5. Electricity and Semiconductor Technology ☐			13. Tele-communications ☐		
6. Electronics ☐			14. Vehicles and General Technology (including transporting mechanisms, lighting) ☐		
7. Handling and Processing ☐			15. Other area, ☐ please specify: _____		
8. Human Necessities (including agriculture, medical products, printing) ☐					
			Total of cluster 1 to 15:		

If you have any comments on this part please put them on page 1.

D. Other issues

(a) Please indicate the average time between initial expenditure on R&D that might lead to patent applications and the first patent filings:

Time lag (months): _____

(b) Do you make use of an external attorney service to handle your patent filings to EPO?

☐ Yes ☐ No

(c) To what extent do you agree to the following statements? Please answer using a scale from 1 to 6

(1 meaning "completely disagree", 6 meaning "fully agree").

Rating

1 2 3 4 5 6

- | | |
|---|--------|
| - I will not patent an invention that I can keep secret. | □□□□□□ |
| - I patent mainly to prevent imitation by competitors..... | □□□□□□ |
| - I patent mainly to preserve my freedom of operation. | □□□□□□ |
| - I take patents in order to convince investors or banks of the value of my inventions..... | □□□□□□ |
| - I take patents in order to license them to other companies..... | □□□□□□ |
| - I take more patents in areas where competition is more intense. | □□□□□□ |
| - I use my patents for hampering my competitors' access to technology. | □□□□□□ |
| - My competitors use their patents for hampering my access to technology..... | □□□□□□ |

(d) Please tick appropriate boxes. Indicate the proportion of your EPO granted patents in 2000-2005 that are...

	0-20%	21-50%	51-80%	81-100%
...not used	☐	☐	☐	☐
...exploited in your company only	☐	☐	☐	☐
...exploited in-house and licensed to other companies	☐	☐	☐	☐
...licensed only to other companies	☐	☐	☐	☐

E. Details of company/company part

(a) Please indicate the nature of the entity for which you have answered the above questions in Sections A to D of this questionnaire. Please cross all boxes that apply.

Type: Private enterprise/commercial sector ...	☐	Persons employed: individual inventor	☐
Public sector:		1 – 9	☐
- Government-performed R&D	☐	10 – 49	☐
- Higher educational sector	☐	50 – 249	☐
- Other public sector	☐	250 – 999	☐
		1 000 – 4 999	☐
Other,	☐	5 000 – 9 999	☐
please specify:		10 000 – 49 999	☐
		50 000 or more	☐

(b) Does your company belong to a national or international group of companies?

☐ Yes ☐ No

If you have any comments on this part please put them on page 1.

Thank you very much for your co-operation.

A summary of the results of the survey will be published in early 2007 under www.european-patent-office.org/aps/. We will remind you of this if you could please give us your E-mail address under Section A of this questionnaire.

11 Annex II: Comments received from participating members of the applicant panel (selection)

11.1 Comments on Section A

11.1.1 General comments on Section A

- Data relate to group/several/all associated companies (*mentioned 13 times*)
- The questionnaire is very time consuming/the questions ask for details that require extraordinary effort (*mentioned 5 times*)
- Data are confidential (*mentioned 3 times*)

11.1.2 Individual comments on Section A

- The questionnaire partly goes far beyond of what EPO should be interested in. That is especially true for Part C.
- A substantial competitive disadvantage for European companies is to have to pay such high dues for patent filings in every country. Above all you cannot abandon national patenting costs even if using the EPC proceedings.
- Too much effort for applicants with little filing numbers
- Many compliments for your kind survey. I think it will be a great help for EPO development & strengthening.
- We consider a trend calculated from the filing numbers of the past years more appropriate than estimation.
- We are reasonably happy with the way the EPO conducts business, though prosecution and appeals are too slow and result in patents taking on average 5-10 years to be fully and finally granted. This is significantly too long compared to average time of 2-4 years in the US.
- The biggest issue at the EPO is cost. I issued one EPO patent in 15 countries recently at a cost of \$225,000, including fees, translations, legal fees, etc. just for granting. Issuing the same patent in the US would cost about \$2,000 including everything. [...] However, I urge the EPO to do something as it seems harder every year to justify obtaining patents in Europe with this kind of cost differential.
- PCT filing is too expensive and not as profitable. More cost effective and profitable to file directly in each country.

11.2 Comments on Section B

11.2.1 General comments on Section B

- Difficult to provide precise figures for forecasts; data are estimates
- Forecasts are not yet possible, e.g. because it is not yet clear how many substantive examinations to enter in each listed office etc.
- Hard to fill out/complex/takes a lot of time

11.2.2 Individual comments on Section B

- Our first filing is always in [...]. Then since a few years we always proceed with PCT application. After that we enter the EPO phase + USA + China + Japan (in some cases). Once the European patent is granted, we generally file the EU patent in [five] countries: [...]. If the EU patent is really very important to us the countries where the patent is filed at national level can be a high number.
- The company does not regularly file priority EP applications nor does it regularly file priority PCT or national applications, except in the U.S. EPO country filings are made through the PCT. Other country filings are made in non-PCT countries at the 12 month date.
- Please note that in the next year and onward our filing strategy will change.
- For subsequent filings, we have recently moved from national/EP filings without PCT to using PCT as an initial filing step. This translates to reductions in EP filing numbers and increases PCT filing numbers from 2004 to 2005 and 2006.
- Under B, note that we do not normally enter the US or DE national application process via the PCT. Such US and DE national stage filings are done directly. A large percentage of the indicated PCT applications will enter the JP national stage; a smaller percentage will enter the EPO regional stage.
- As a rule 1st filing is in SE, occasionally in US, followed by a PCT filing and some non-PCT filings.
- In B (2) no USPTO national phase because almost all first filings already are in US system
- We do not plan any PCT first filings. First step is national, second step EP/US. By now, we do not have a granted EP.
- We usually file Japanese patent application and make PCT application within 12 months. And through PCT application, we file some PCT member countries such as EP, US, and CN within 30 months. After the examination in EPO, should the subject patented be granted, we file some member countries in their languages.
- We usually file a PCT first – approximately 4 per year. EP filings would be required from those.
- We cannot request data for subsequent filings from our database. Approximately, 70-80% of first filings are subsequently PCT filed. Approximately 60-70% of PCT filings enter the regional/national phase (as a rule EU/US).
- For the future, we will file more internationally. Reason: global competition. Now we will file patents strategically.
- U.S. is always priority first filed – then PCT, then national phase at 30 months.
- If a patent application is not sold or licensed to a third party we will not proceed with it to the national level.

11.3 Comments on Section C

11.3.1 General comments on Section C

- The data are confidential (particularly R&D budgets)
- Data are not available/not known

11.3.2 Individual comments on Section C

- Not possible to provide number of full-time researchers because a) information in that form is not available within this company and b) a substantial amount of full time research is carried out by universities (directed and paid for by the company).
- Because of the company structure we cannot indicate missing information to R&D budgets in detail.
- We apply for patents in so many different categories and it's difficult to collect data in each category, so I gave only the total number.
- The proportion of patented filings that are inventions of 2005: 0%. The proportion of inventions of 2005 that were not patented: 80%.
- Company started its business on January 2006. Therefore no information available.
- The cluster is too roughly categorized. One does not know to which cluster one belongs.
- I am not sure how to categorize our areas of business by Joint Cluster. If there is a reference on the EPO site, you may want to include it.

11.4 Comments on Section D

11.4.1 Average time between initial expenditure on R&D that might lead to patent applications and first patent filings (a)

- The information is not available/unknown
- The time span varies a lot
- Uncomfortable answering/confidential
- Too little data
- Differentiating a lot because sometimes also patenting first and then R&D

11.4.2 Patenting behaviour and attitudes (c), (d)

- Currently only one/no patent granted yet/small sample size
- Confidential/uncomfortable answering
- Part D, question c was a very good addition to the survey.
- The evaluation does not consider the patent process.

12 Annex III: Plausibility checks and interpretation rules

To ensure that the answers given to the questionnaire were logical and consistent, a number of plausibility rules were set up:

- The worldwide total of first filings (line i of Section B) was compared with the sum of the first filings reported for Euro-direct/European patent applications under the EPC (excluding PCT) (line a), international applications under the PCT (international phase) (line b) and national applications (lines c, d, e, f, g and h)
- The numbers in any cell under subsequent filings should be comparable (say, not more than three times higher) to the number under worldwide total first filings (line i) for the previous year
- The numbers for PCT national/regional phase applications in any cell for 2006 and 2007 (lines j, k, l or m) should be comparable to (say, not more than three times as high as) the combined figures under PCT international phase first filings and subsequent filings (line b) in 2004 and 2005.
- Technical areas noted in the "others" line of Section C were allocated to one of the 14 joint clusters ex post, where possible

A set of rules was developed together with the researchers, to ensure that the answers given to the questions were correctly transcribed and interpreted in the electronic database. In cases where percentage growth rates were given instead of real figures, a method was defined for converting these into equivalent filing figures on which the analyses could be based. Rules were given concerning the interpretation of zero, to ensure correct interpretation where zero is given either as a figure or as an indicator of no change compared to the base year. Due to problems in understanding question C (b), the number of first filings 2005 (B) was checked if a zero was indicated in C (b).

13 Annex IV: Detailed forecasting results

The detailed results of the predictive analysis are shown below. For each forecast, the growth index is given as the composite index (CI) for the Biggest group or as the Q-index for the Random group. The number of cases that the forecast is based on and the estimated standard error of the forecast (Q-index only) are also shown.

Biggest group
No subsidiary breakdown
Composite indices

			Year					
			2006		2007		2008	
Filing type	Filing route	Res. bloc	Cases 06	Index 06	Cases 07	Index 07	Cases 08	Index 08
First	Euro-direct	Total	76	0.9701	71	0.9013	67	0.9420
	PCT-IP	Total	43	1.0196	41	1.0390	38	1.0685
Subsequent	Euro-direct	Total	130	0.9158	121	0.9910	115	1.0068
	PCT-IP	Total	155	0.9935	143	0.9980	134	1.0381

Table 39: Detailed forecasting results (no further breakdown) – Biggest group

Biggest group
Breakdown by residence bloc
Composite indices

			Year					
			2006		2007		2008	
Filing type	Filing route	Res. bloc	Cases 06	Index 06	Cases 07	Index 07	Cases 08	Index 08
First	Euro-direct	EPC	54	0.9533	50	0.8392	46	0.8647
		JA	5	0.9701 *	5	0.9013 *	5	0.9420 *
		OT	2	0.9701 *	2	0.9013 *	2	0.9420 *
		US	15	1.0403	14	1.1502	14	1.2280
First	PCT-IP	EPC	25	0.9805	23	0.9995	21	1.0654
		JA	9	1.0605	9	1.0613	9	1.0613
		OT	0	1.0196 *	0	1.0390 *	0	1.0685 *
		US	9	1.0409	9	1.1037	8	1.1227
Subsequent	Euro-direct	EPC	63	0.9829	57	1.0402	54	1.0756
		JA	41	1.0034	39	0.9894	37	1.0053
		OT	1	0.9158 *	1	0.9910 *	1	1.0068 *
		US	25	0.6737	24	0.9536	23	1.0000
Subsequent	PCT-IP	EPC	78	0.9445	70	0.8886	66	0.9148
		JA	39	1.0655	37	1.1366	36	1.1981
		OT	4	0.9935 *	3	0.9980 *	3	1.0381 *
		US	34	1.0095	33	1.0538	29	1.1014

Table 40: Detailed forecasting results broken down by residence bloc – Biggest group

Random group
No subsidiary breakdown
Q-Indices

			Year								
			2006			2007			2008		
Filing type	Filing route	Res. bloc	Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
First	Euro-direct	Total	211	1.0620	0.0489	209	1.0504	0.0928	199	1.0906	0.1017
First	PCT-IP	Total	135	0.9776	0.0820	129	0.8840	0.1431	123	1.0727	0.0784
Subsequent	Euro-direct	Total	309	0.9152	0.0894	288	1.0151	0.0265	276	1.0481	0.0316
Subsequent	PCT-IP	Total	406	0.9749	0.0439	374	0.9967	0.0728	362	1.0393	0.0785

Table 41: Detailed forecasting results (no further breakdown) – Random group

Random group
Breakdown by residence bloc
Q-indices

			Year								
			2006			2007			2008		
Filing type	Filing route	Res. bloc	Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
First	Euro-direct	EPC	169	1.0372	0.0495	165	0.9842	0.0939	157	1.0125	0.1031
		JA	12	1.0971	0.0857	12	1.2468	0.1070	12	1.3120	0.1173
		OT	3	1.0620 *	0.0489 *	6	1.2933	0.1195	4	1.0906 *	0.1017 *
		US	27	1.1743	0.1470	26	1.3743	0.1884	26	1.4715	0.1791
First	PCT-IP	EPC	79	0.9322	0.0943	73	0.7979	0.1577	71	1.1297	0.0581
		JA	20	1.1691	0.0757	20	1.2379	0.0761	20	1.2495	0.0764
		OT	8	1.2375	0.0914	9	1.2278	0.1485	6	1.2554	0.2082
		US	28	1.0732	0.0602	27	1.1128	0.0622	26	0.7638	0.3470
Subsequent	Euro-direct	EPC	168	1.0498	0.0397	156	1.0511	0.0304	152	1.0679	0.0298
		JA	65	0.9406	0.0392	62	0.9585	0.0680	60	0.9851	0.0882
		OT	13	1.0181	0.0600	13	1.0166	0.1189	11	1.2307	0.1339
		US	63	0.5463	0.4239	57	0.9917	0.0426	53	1.0582	0.0540
Subsequent	PCT-IP	EPC	206	0.9194	0.0372	190	0.8819	0.0784	183	0.9037	0.0855
		JA	72	1.0136	0.0269	69	1.1015	0.0343	69	1.1579	0.0443
		OT	26	0.9725	0.1035	23	1.2009	0.1515	21	1.3409	0.1586
		US	102	1.1106	0.1661	92	1.2508	0.1890	89	1.3481	0.1883

Table 42: Detailed forecasting results broken down by residence bloc – Random group

Random group
No subsidiary breakdown
Q-Indices
Euro-direct and PCT-IP filings combined

			Year								
			2006			2007			2008		
Filing type	Filing route	Res. bloc	Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
First	Euro-direct+PCT-IP	Total	136	1.0301	0.0561	121	0.9580	0.1072	119	1.1723	0.0559
Subsequent	Euro-direct+PCT-IP	Total	324	0.9345	0.0258	296	1.0139	0.0228	286	1.0628	0.0259

Table 43: Detailed forecasting results – Random group, no breakdown, Euro-direct and PCT-IP filings combined

Random group
Breakdown by residence bloc
Q-indices
Euro-direct and PCT-IP filings combined

			Year								
			2006			2007			2008		
Filing type	Filing route	Res. bloc	Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
First	Euro-direct+PCT-IP	EPC	85	1.0287	0.0703	73	0.8946	0.1165	72	1.1449	0.0756
		JA	16	1.0999	0.0475	15	1.1727	0.0600	15	1.1905	0.0635
		OT	5	2.1779	0.3062	6	1.4913	0.1536	5	1.5727	0.2614
		US	30	0.9236	0.0794	27	1.1366	0.0667	27	1.2080	0.0820
Subsequent	Euro-direct+PCT-IP	EPC	155	0.9319	0.0407	141	1.0074	0.0322	135	1.0373	0.0349
		JA	70	1.0082	0.0216	66	1.0653	0.0310	66	1.1205	0.0398
		OT	16	1.0552	0.1367	15	1.2885	0.1998	14	1.3877	0.1956
		US	83	0.8599	0.0381	74	0.9435	0.0493	71	1.0195	0.0545

Table 44: Detailed forecasting results – Random group broken down by residence bloc, Euro-direct and PCT-IP filings combined

Random group
No subsidiary breakdown (excluding companies with qualifying comments)
Q-indices

			Year								
			2006			2007			2008		
Filing type	Filing route	Res. bloc	Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
First	Euro-direct	Total	170	1.0696	0.0553	165	1.0573	0.1057	158	1.0976	0.1150
First	PCT-IP	Total	112	0.9709	0.0879	109	0.8627	0.1490	103	1.0530	0.0865
Subsequent	Euro-direct	Total	256	0.9132	0.1009	239	1.0348	0.0299	229	1.0666	0.0359
Subsequent	PCT-IP	Total	337	0.9659	0.0485	310	0.9757	0.0800	300	1.0204	0.0865

Table 45: Detailed forecasting results (no further breakdown), excluding companies with qualifying comments – Random group

Random group
Breakdown by residence bloc ("other" incorporated in EPC; excluding companies with qualifying comments)
Q-indices

			Year								
			2006			2007			2008		
Filing type	Filing route	Res. bloc	Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
First	Euro-direct	EPC/OT	138	1.0452	0.0558	133	0.9916	0.1059	126	1.0198	0.1157
		JA	10	1.2067	0.0905	10	1.3883	0.1219	10	1.4781	0.1338
		US	22	1.1868	0.1651	22	1.4139	0.2052	22	1.5237	0.1937
First	PCT-IP	EPC/OT	73	0.9399	0.1007	71	0.7966	0.1623	66	1.1271	0.0609
		JA	15	1.1423	0.0932	15	1.2286	0.0950	15	1.2434	0.0958
		US	24	1.0737	0.0698	23	1.1125	0.0710	22	0.7011	0.3915
Subsequent	Euro-direct	EPC/OT	151	1.0601	0.0409	141	1.0800	0.0318	137	1.0940	0.0313
		JA	55	0.9291	0.0436	53	0.9494	0.0761	51	0.9789	0.0998
		US	50	0.4901	0.5143	45	1.0191	0.0476	41	1.1154	0.0579
Subsequent	PCT-IP	EPC/OT	190	0.9022	0.0367	173	0.8590	0.0793	166	0.8846	0.0875
		JA	63	0.9911	0.0289	61	1.0778	0.0377	60	1.1376	0.0496
		US	84	1.1795	0.1942	76	1.3401	0.2201	74	1.4633	0.2171

Table 46: Detailed forecasting results broken down by residence bloc, excluding companies with qualifying comments, "Other" incorporated in EPC – Random group

Biggest group
Breakdown by EPO joint cluster
Composite indices

			Year					
			2006		2007		2008	
Filing type	Filing route	Cluster	Cases 06	Index 06	Cases 07	Index 07	Cases 08	Index 08
First	Euro-direct	Audio, Video & Media	9	0.8715	8	0.7118	7	0.7176
		Biotechnology	11	1.0410	9	1.1379	9	1.2119
		Civil Engineering & Thermodynamics	9	1.0112	9	1.0270	9	1.1007
		Computer	6	1.2013	6	1.3020	6	1.4765
		Electricity & Electrical Machines	20	0.8810	19	0.7354	18	0.7401
		Electronics	16	0.8768	15	0.7305	15	0.7403
		Handling and Processing	9	0.9310	8	0.9070	8	0.9302
		Human Necessities	15	0.8556	14	0.7129	13	0.7194
		Industrial Chemistry	14	0.9157	14	0.8916	14	0.9092
		Measuring, Optics	9	0.9184	9	0.9109	9	0.9235
		Polymers	14	0.9312	13	0.9718	13	1.0752
		Pure & Applied Organic Chemistry	20	0.9418	17	0.9613	17	0.9811
		Telecommunications	15	0.9254	14	0.8153	13	0.8364
		Vehicles & General Technology	13	1.0250	13	1.0580	13	1.1128
First	PCT-IP	Audio, Video & Media	8	1.0292	7	1.0659	6	1.0837
		Biotechnology	5	1.0196 *	5	1.0390 *	5	1.0685 *
		Civil Engineering & Thermodynamics	3	1.0196 *	3	1.0390 *	3	1.0685 *
		Computer	5	1.0196 *	5	1.0390 *	5	1.0685 *
		Electricity & Electrical Machines	13	0.9893	12	1.0117	11	1.0254
		Electronics	13	1.0023	12	1.0275	11	1.0415
		Handling and Processing	5	1.0196 *	4	1.0390 *	4	1.0685 *
		Human Necessities	6	1.1661	6	1.1611	5	1.0685 *
		Industrial Chemistry	5	1.0196 *	6	1.1122	6	1.1193
		Measuring, Optics	8	1.0548	8	1.0548	8	1.0597
		Polymers	5	1.0196 *	5	1.0390 *	5	1.0685 *
		Pure & Applied Organic Chemistry	6	1.1282	6	1.1297	6	1.1379
		Telecommunications	11	1.0114	10	1.0383	9	1.0553
		Vehicles & General Technology	11	0.9563	11	0.9939	11	1.0239
Subsequent	Euro-direct	Audio, Video & Media	16	0.7405	12	0.8678	11	0.8257
		Biotechnology	10	0.9577	8	0.9571	8	1.0429
		Civil Engineering & Thermodynamics	12	0.9925	12	1.0271	12	1.0769
		Computer	11	0.6657	10	0.8773	10	0.8405
		Electricity & Electrical Machines	29	0.9466	27	0.9169	26	0.8877
		Electronics	23	0.9097	22	0.8786	21	0.8537
		Handling and Processing	19	0.9967	17	1.0198	17	1.0487
		Human Necessities	22	0.9472	19	0.9671	18	0.9923
		Industrial Chemistry	20	0.8430	20	0.8630	20	0.8824
		Measuring, Optics	15	0.9766	15	0.9977	14	1.0327
		Polymers	19	0.9828	18	1.0082	17	1.0525
		Pure & Applied Organic Chemistry	15	0.9745	14	0.9728	14	1.0289
		Telecommunications	22	0.7844	18	0.8966	16	0.8737
		Vehicles & General Technology	31	1.0112	31	1.0597	30	1.0972
Subsequent	PCT-IP	Audio, Video & Media	15	1.0161	14	1.0008	13	1.0160
		Biotechnology	17	0.9897	15	1.0131	15	1.0331
		Civil Engineering & Thermodynamics	14	1.0115	14	1.0755	14	1.1466
		Computer	14	1.1806	14	1.2857	14	1.3345
		Electricity & Electrical Machines	31	0.9422	29	0.9035	28	0.9196
		Electronics	25	0.9349	23	0.8951	22	0.9106
		Handling and Processing	18	1.1227	15	1.1889	15	1.2141
		Human Necessities	32	0.8968	30	0.8032	29	0.8209
		Industrial Chemistry	20	1.0101	18	1.0072	18	1.0230
		Measuring, Optics	14	1.0187	14	1.0479	13	1.0582
		Polymers	22	1.0646	20	1.1127	19	1.1605
		Pure & Applied Organic Chemistry	30	1.0004	28	1.0204	27	1.0845
		Telecommunications	25	1.0081	23	1.0035	21	1.0181
		Vehicles & General Technology	34	0.9996	33	1.0432	32	1.0648

Table 47: Detailed forecasting results broken down by joint cluster – Biggest group

Random group
Breakdown by EPO joint cluster
Q-indices

			Year								
Filing type	Filing route	Cluster	2006			2007			2008		
			Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
First	Euro-direct	Audio, Video & Media	11	0.9692	0.1792	10	0.8289	0.3126	9	0.8240	0.3139
		Biotechnology	37	1.1154	0.0653	34	1.2668	0.0869	34	1.3000	0.0985
		Civil Engineering & Thermodynamics	20	1.0327	0.2203	25	1.0913	0.1838	21	1.1834	0.2152
		Computer	10	1.8203	0.1848	11	2.1285	0.3154	10	2.3423	0.2746
		Electricity & Electrical Machines	36	0.9535	0.1004	35	0.8241	0.1956	33	0.8335	0.2081
		Electronics	28	0.9048	0.0655	27	0.7605	0.1477	26	0.7751	0.1659
		Handling and Processing	28	1.2204	0.1047	31	1.2910	0.1149	31	1.3223	0.1316
		Human Necessities	39	0.9338	0.0821	41	0.8226	0.1884	41	0.8351	0.1998
		Industrial Chemistry	34	1.0675	0.1369	34	1.1268	0.1455	31	1.1766	0.1559
		Measuring, Optics	22	1.0443	0.1660	21	1.0287	0.1482	21	1.0691	0.1594
		Polymers	24	1.0726	0.1206	26	1.1939	0.1439	25	1.2497	0.1536
		Pure & Applied Organic Chemistry	34	1.1085	0.0983	29	1.2700	0.1374	29	1.2975	0.1386
		Telecommunications	20	1.0014	0.1626	20	0.8831	0.2856	19	0.8931	0.2965
		Vehicles & General Technology	38	0.9893	0.0983	34	1.0667	0.1121	34	1.1244	0.1280
First	PCT-IP	Audio, Video & Media	8	0.7519	0.0523	8	0.5798	0.1520	6	0.9840	0.0930
		Biotechnology	23	1.0332	0.0953	21	1.1427	0.0978	20	1.2168	0.1220
		Civil Engineering & Thermodynamics	11	1.2953	0.2282	10	1.2996	0.2459	9	1.3460	0.2632
		Computer	8	0.9351	0.2033	8	0.9599	0.1732	8	1.0237	0.1701
		Electricity & Electrical Machines	29	0.8055	0.0989	25	0.6401	0.1941	24	0.9783	0.1359
		Electronics	22	0.8097	0.1048	19	0.6391	0.2060	20	1.0721	0.1157
		Handling and Processing	20	1.2154	0.1280	19	1.3611	0.1441	19	1.3707	0.1592
		Human Necessities	19	0.7826	0.0933	19	0.6002	0.1814	17	1.2329	0.1242
		Industrial Chemistry	12	1.2045	0.1240	14	1.1668	0.1044	12	1.2599	0.1175
		Measuring, Optics	19	1.1321	0.1274	17	1.1328	0.1196	16	1.1824	0.1348
		Polymers	11	1.0186	0.0760	11	1.1004	0.0893	11	1.0974	0.1366
		Pure & Applied Organic Chemistry	11	1.0902	0.0658	9	1.1595	0.0809	9	1.1629	0.0807
		Telecommunications	13	0.7881	0.0869	12	0.6260	0.1960	11	1.0477	0.1016
		Vehicles & General Technology	27	1.2032	0.0902	25	1.2265	0.0893	25	1.2523	0.0898
Subsequent	Euro-direct	Audio, Video & Media	22	0.7519	0.0514	18	0.9721	0.0800	17	0.9543	0.1041
		Biotechnology	31	0.9065	0.0826	29	1.0092	0.0981	28	1.1194	0.0774
		Civil Engineering & Thermodynamics	28	0.9599	0.0920	25	1.1021	0.0948	24	1.2064	0.1058
		Computer	16	0.1859	1.2660	16	1.0264	0.1163	15	1.0247	0.1581
		Electricity & Electrical Machines	55	1.0781	0.0919	49	1.0136	0.0567	47	0.9873	0.0630
		Electronics	41	1.1033	0.0913	36	0.9748	0.0621	35	0.9882	0.0754
		Handling and Processing	38	1.0049	0.0526	35	1.0751	0.0712	33	1.1243	0.0702
		Human Necessities	50	1.1385	0.0736	49	1.1343	0.0627	48	1.1479	0.0645
		Industrial Chemistry	30	0.9954	0.1085	30	1.0743	0.1389	29	1.1393	0.1628
		Measuring, Optics	39	0.9188	0.0844	35	0.9964	0.0755	34	1.0185	0.0791
		Polymers	28	1.0401	0.0995	29	1.1567	0.1581	26	1.2802	0.1914
		Pure & Applied Organic Chemistry	25	1.0099	0.1058	24	1.0783	0.1585	25	1.1374	0.1703
		Telecommunications	35	0.7695	0.5074	30	0.9529	0.0537	29	0.9740	0.0678
		Vehicles & General Technology	68	0.9916	0.0503	62	1.0471	0.0601	60	1.0888	0.0592
Subsequent	PCT-IP	Audio, Video & Media	22	1.0391	0.3019	20	0.9293	0.4400	19	0.9277	0.4482
		Biotechnology	68	0.9490	0.0498	63	1.1082	0.0726	61	1.2001	0.0721
		Civil Engineering & Thermodynamics	30	0.9590	0.1323	26	0.9892	0.1683	23	1.1353	0.1791
		Computer	26	1.5620	0.4907	24	1.8525	0.5305	23	2.0354	0.5142
		Electricity & Electrical Machines	72	0.8652	0.0773	66	0.7901	0.1756	64	0.7996	0.1890
		Electronics	47	0.8851	0.0940	44	0.7909	0.2060	43	0.8090	0.2275
		Handling and Processing	40	0.9162	0.0711	38	1.0022	0.0919	36	1.0933	0.0898
		Human Necessities	78	0.8653	0.0713	75	0.7744	0.1627	74	0.7909	0.1786
		Industrial Chemistry	54	0.9382	0.0871	51	0.9714	0.1064	49	1.0366	0.1104
		Measuring, Optics	48	0.9874	0.0872	44	1.0348	0.1003	42	1.1185	0.1033
		Polymers	49	0.9969	0.0741	45	1.0876	0.0922	43	1.1619	0.1014
		Pure & Applied Organic Chemistry	64	0.9199	0.0564	57	0.9616	0.0739	56	1.0120	0.0740
		Telecommunications	43	1.0013	0.2296	39	0.9429	0.3662	38	0.9480	0.3761
		Vehicles & General Technology	69	0.9921	0.0533	64	1.0342	0.0596	62	1.0916	0.0644

Table 48: Detailed forecasting results broken down by joint cluster – Random group

Biggest group
Breakdown by residence bloc
Composite indices

			Year					
			2006		2007		2008	
Patent office	Filing route	Res. bloc	Cases 06	Index 06	Cases 07	Index 07	Cases 08	Index 08
EPO	Euro-PCT-RP	EPC	74	1.0086	69	1.0269	66	0.9819
		JA	33	1.1035	30	1.2017	30	1.2879
		OT	3	1.0366 *	3	1.0823 *	3	1.0795 *
		US	33	1.0619	32	1.1398	29	1.1770
EPO	Euro-PCT-RP	Total	143	1.0366	134	1.0823	128	1.0795

Table 49: Detailed forecasting results for PCT applications entering the regional phase at the EPO - Biggest group

Random group
Breakdown by residence bloc
Q-indices

			Year								
			2006			2007			2008		
Patent Office	Filing route	Res. bloc	Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
EPO	Euro-PCT-RP	EPC	224	1.0077	0.0226	210	1.0625	0.0405	201	1.0119	0.0634
		JA	63	1.0882	0.0545	58	1.2598	0.0513	58	1.3898	0.0565
		OT	24	1.1733	0.0782	27	1.2699	0.0957	26	1.3793	0.0817
		US	104	0.8043	0.1700	100	1.0923	0.0595	92	1.1470	0.0675
EPO	Euro-PCT-RP	Total	415	0.9801	0.0412	395	1.1076	0.0319	377	1.1098	0.0523

Table 50: Detailed forecasting results for PCT applications entering the regional phase at the EPO - Random group

Random group
Breakdown by EPO Joint Cluster
Q-indices

			Year								
			2006			2007			2008		
Patent office	Filing route	Cluster	Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
EPO	Euro-PCT-RP	Audio, Video & Media	18	0.7789	0.3294	16	1.0666	0.0857	13	0.8829	0.1598
		Biotechnology	64	0.9785	0.0529	63	1.0382	0.0681	61	1.1207	0.0599
		Civil Engineering & Thermodynamics	31	1.0697	0.1611	26	1.1952	0.2291	25	1.2162	0.2764
		Computer	22	0.5395	0.6564	20	1.1803	0.0955	17	1.2360	0.1324
		Electricity & Electrical Machines	64	0.9787	0.0406	61	1.0830	0.0738	59	0.9571	0.1615
		Electronics	49	0.9207	0.0701	47	0.9954	0.0611	45	0.8908	0.1356
		Handling and Processing	44	0.9975	0.0581	42	1.0296	0.1055	41	1.1031	0.1075
		Human Necessities	74	1.0292	0.0634	71	1.0598	0.0771	72	0.9394	0.1523
		Industrial Chemistry	52	0.9178	0.1264	51	1.0223	0.1550	46	1.0676	0.1732
		Measuring, Optics	44	0.9362	0.1599	39	0.9787	0.1880	37	1.0259	0.1942
		Polymers	40	1.0708	0.0999	38	1.1586	0.1429	35	1.2824	0.1613
		Pure & Applied Organic Chemistry	60	1.0240	0.0512	56	1.0613	0.0790	54	1.1150	0.0738
		Telecommunications	38	0.7905	0.2567	36	1.0231	0.0655	33	0.8999	0.1429
		Vehicles & General Technology	69	1.0580	0.1083	67	1.2544	0.0925	65	1.3192	0.0998

Table 51: Detailed forecasting results for PCT applications entering the regional phase at the EPO broken down by joint cluster – Random group

14 Annex V: Forecasts for applications at other patent offices (national applications and PCT national phase applications).

Intentions regarding future patent filings at national offices were obtained from questions (c) to (i) and (k) to (m) in **Section B** of the questionnaire (**Annex I**). Forecasts for PCT national phase applications at other patent offices apart from the EPO (USPTO, JPO, and DPMA) are displayed in **Table 52** to **Table 54** and are limited to calculating growth indices as no actual filing numbers were obtained. National applications by country are presented in **Table 55** and **Table 56**.

Random group
Breakdown by residence bloc
Q-indices

			Year								
			2006			2007			2008		
Patent Office	Filing route	Res. bloc	Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
USPTO	Euro-PCT-RP	EPC	189	1.0476	0.0336	174	1.0626	0.0434	170	1.0035	0.0712
		JA	62	1.0942	0.0889	57	1.3217	0.0622	57	1.4137	0.0684
		OT	24	1.1277	0.1167	25	1.2595	0.1143	25	1.3375	0.0998
		US	60	1.0285	0.0706	54	1.0774	0.0820	50	1.1195	0.0933
USPTO	Euro-PCT-RP	Total	335	1.0578	0.0300	310	1.1191	0.0378	302	1.1038	0.0630

Table 52: Detailed forecasting results for PCT applications entering the national phase at USPTO - Random group

Random group
Breakdown by residence bloc
Q-indices

			Year								
			2006			2007			2008		
Patent Office	Filing route	Res. bloc	Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
JPO	Euro-PCT-RP	EPC	143	1.0534	0.0349	131	1.1086	0.0395	131	1.0609	0.0829
		JA	55	1.1854	0.0455	53	1.2850	0.0619	52	1.3674	0.0664
		OT	19	1.2038	0.1639	22	1.2768	0.1840	20	1.4414	0.1707
		US	73	0.8188	0.2520	70	1.2019	0.0716	64	1.2645	0.0849
JPO	Euro-PCT-RP	Total	290	1.0305	0.0604	276	1.1660	0.0354	267	1.1640	0.0673

Table 53: Detailed forecasting results for PCT applications entering the national phase at JPO - Random group

Random group
Breakdown by residence bloc
Q-indices

			Year								
			2006			2007			2008		
Patent Office	Filing route	Res. bloc	Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
DPMA	Euro-PCT-RP	EPC	49	1.1847	0.1469	45	1.1539	0.0570	43	1.1632	0.0635
		JA	22	1.2766	0.1259	22	1.4657	0.1539	21	1.5248	0.1662
		OT	8	1.3230	0.1202	9	1.3514	0.2097	9	1.4028	0.2158
		US	19	1.1553	0.1382	20	1.1414	0.1251	19	1.1927	0.1286
DPMA	Euro-PCT-RP	Total	98	1.2048	0.0913	96	1.2218	0.0552	92	1.2483	0.0569

Table 54: Detailed forecasting results for PCT applications entering the national phase at DPMA - Random group

Random Group
No breakdown
Q Indices

				Year								
Filings type	Filing route	Nation	Res. bloc	2006			2007			2008		
				Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
First	National	Germany (c)	Total	158	1.0448	0.0719	149	1.0221	0.0970	143	1.1509	0.1160
		United Kingdom (d)	Total	60	0.9703	0.0424	61	0.9842	0.0599	60	0.9763	0.0665
		France (e)	Total	47	0.9576	0.0896	45	0.9477	0.0967	42	0.9737	0.1049
		Japan (f)	Total	125	0.5540	0.5522	117	1.2089	0.0872	114	1.1990	0.0798
		United States (g)	Total	271	1.0081	0.1108	246	0.9977	0.1593	238	1.0310	0.1676
		Other Countries (h)	Total	142	0.9511	0.1809	132	0.8879	0.2549	129	0.9053	0.2661
		Worldwide total (i)	Total	596	0.9750	0.0226	568	0.9939	0.0510	549	1.0243	0.0566
Subsequent	National	Germany (c)	Total	96	1.0528	0.0534	89	1.1379	0.0617	83	1.1871	0.0715
		United Kingdom (d)	Total	73	1.1568	0.0606	66	1.0672	0.1281	62	1.1302	0.1211
		France (e)	Total	59	1.0809	0.0754	55	1.0980	0.0837	53	1.1400	0.0990
		Japan (f)	Total	152	0.8534	0.1899	138	1.0308	0.0499	132	1.0568	0.0494
		United States (g)	Total	281	0.9408	0.0338	253	0.9887	0.0380	241	1.0156	0.0433
		Other Countries (h)	Total	235	0.6717	0.3164	219	1.0141	0.0373	212	1.0516	0.0421

Table 55: Detailed forecasting results for national applications (excluding PCT), no breakdown – Random group

Random Group
Breakdown by residence bloc
Q Indices

				Year								
Filings type	Filing route	Nation	Res. bloc	2006			2007			2008		
				Cases 06	Q-index 06	S.E. 06	Cases 07	Q-index 07	S.E. 07	Cases 08	Q-index 08	S.E. 08
First	National	Germany (c)	EPC	122	0.9868	0.0192	113	0.9407	0.0503	108	1.0273	0.0391
			JA	2	1.0448 *	0.0719 *	2	1.0221 *	0.0970 *	2	1.1509 *	0.1160 *
			OT	2	1.0448 *	0.0719 *	3	1.0221 *	0.0970 *	2	1.1509 *	0.1160 *
			US	8	2.2195	0.8088	8	2.8681	0.7004	9	3.2331	0.7698
		United Kingdom (d)	EPC	39	1.0085	0.0312	37	0.9503	0.0597	36	0.9307	0.0659
			JA	2	0.9703 *	0.0424 *	2	0.9842 *	0.0599 *	2	0.9763 *	0.0665 *
			OT	2	0.9703 *	0.0424 *	3	0.9842 *	0.0599 *	3	0.9763 *	0.0665 *
			US	12	0.7029	0.1856	14	1.0797	0.1878	14	1.1065	0.1918
		France (e)	EPC	34	0.9027	0.0888	32	0.9057	0.0941	29	0.9298	0.1050
			JA	1	0.9576 *	0.0896 *	0	0.9477 *	0.0967 *	0	0.9737 *	0.1049 *
			OT	0	0.9576 *	0.0896 *	1	0.9477 *	0.0967 *	1	0.9737 *	0.1049 *
			US	6	1.2874	0.1657	6	1.2188	0.1664	7	1.2648	0.1364
		Japan (f)	EPC	19	0.2493	0.9127	14	1.4083	0.1856	13	1.3035	0.1476
			JA	76	0.9746	0.0223	72	1.0166	0.0347	71	1.0186	0.0473
			OT	0	0.5540 *	0.5522 *	1	1.2089 *	0.0872 *	1	1.1990 *	0.0798 *
			US	14	1.2587	0.1209	14	1.5769	0.1939	14	1.6939	0.1781
		United States (g)	EPC	85	1.0084	0.2106	72	0.9239	0.2788	69	0.9444	0.2916
			JA	24	1.2295	0.0944	23	1.2961	0.1306	23	1.2954	0.1435
			OT	14	1.2034	0.1245	13	1.3963	0.1583	12	1.6088	0.1488
			US	102	0.9286	0.0360	96	1.0180	0.0312	93	1.0653	0.0345
		Other Countries (h)	EPC	71	0.7668	0.1505	66	0.6291	0.1655	65	0.6229	0.1687
			JA	10	1.4451	0.1329	9	1.5935	0.2026	9	1.6608	0.2161
			OT	13	1.0991	0.0778	13	1.1622	0.0963	12	1.2249	0.1322
			US	22	2.2131	0.6585	21	3.4730	0.7722	22	3.7928	0.7493
		Worldwide total (i)	EPC	270	0.9747	0.0363	254	0.9548	0.0799	245	0.9805	0.0885
			JA	80	0.9865	0.0198	75	1.0260	0.0314	74	1.0297	0.0439
			OT	25	1.0774	0.0636	27	1.2096	0.0571	23	1.2868	0.0627
			US	108	0.9450	0.0336	102	1.0398	0.0307	99	1.1023	0.0342
Subsequent	National	Germany (c)	EPC	39	1.0385	0.0307	33	1.0806	0.0472	31	1.1082	0.0558
			JA	22	1.2133	0.1824	21	1.2222	0.1896	19	1.2729	0.2186
			OT	3	1.0528 *	0.0534 *	3	1.1379 *	0.0617 *	3	1.1871 *	0.0715 *
			US	16	0.8994	0.1771	15	1.1493	0.1867	15	1.2144	0.1945
		United Kingdom (d)	EPC	27	1.1689	0.0527	22	0.9649	0.1659	21	1.0385	0.1502
			JA	14	1.3094	0.2061	14	1.3158	0.2058	12	1.3968	0.2256
			OT	3	1.1568 *	0.0606 *	2	1.0672 *	0.1281 *	2	1.1302 *	0.1211 *
			US	14	1.0011	0.1457	14	1.0916	0.1729	14	1.1078	0.1833
		France (e)	EPC	29	1.0054	0.0432	25	1.0215	0.0505	24	1.0482	0.0760
			JA	9	1.4275	0.2771	8	1.5071	0.2830	8	1.5228	0.2817
			OT	3	1.0809 *	0.0754 *	3	1.0980 *	0.0837 *	3	1.1400 *	0.0990 *
			US	8	1.0681	0.2747	9	1.0331	0.3034	9	1.0670	0.3262
		Japan (f)	EPC	55	1.0601	0.0721	49	1.0286	0.0767	46	1.0438	0.0728
			JA	30	1.0401	0.0708	28	1.0340	0.0939	27	1.0148	0.1058
			OT	7	1.0213	0.1764	6	1.4252	0.1536	7	1.5623	0.1330
			US	26	0.4253	0.6606	24	0.9711	0.0851	23	1.0434	0.0944
		United States (g)	EPC	115	0.8963	0.0400	101	0.9456	0.0461	95	0.9536	0.0447
			JA	56	0.9581	0.0649	53	0.9867	0.0978	51	0.9977	0.1227
			OT	9	0.8734	0.1545	8	1.1581	0.0945	9	1.2492	0.1223
			US	58	1.0762	0.0728	52	1.0751	0.0722	49	1.1614	0.0811
		Other Countries (h)	EPC	88	0.5098	0.4717	82	1.0147	0.0593	81	1.0518	0.0611
			JA	53	0.9716	0.0406	52	0.9900	0.0566	49	0.9786	0.0719
			OT	7	1.0595	0.1008	6	1.2368	0.0883	6	1.3917	0.1050
			US	39	0.9729	0.0763	36	1.0208	0.0772	35	1.1175	0.0817

Table 56: Detailed forecasting results for national applications (excluding PCT), broken down by residence bloc – Random group

15 Annex VI: Analysis of R&D budgets and average time for patent filing

In **Section C** of the questionnaire, applicants were asked to provide more detailed information about their R&D budgets and the numbers of first patent filings in 2005 throughout the world, both split by joint cluster. The structure of the questionnaire for the 2006 applicant panel survey was changed and it was extended with questions on the total number of inventions considered for patent application, the proportion of inventions that were patented throughout the world in 2005, the approximate size of total sales, and the total number of full-time researchers in 2005. In contrast to previous questionnaires, all of these additional questions were asked at a total level and not split by joint clusters. In this year's study, the question of the proportion of inventions that were patented throughout the world in 2005 caused confusion among some applicants. 33 cases were excluded from the analysis due to plausibility checks. Nevertheless, not all answers to this question could be checked for plausibility.

For the questions on R&D budget and sales, currencies had to be specified by the respondents. Therefore, before analysing Section C, the numbers given for R&D budget and sales were recalculated to EUR. The exchange rate of August 1, 2006, was applied to the responses to those questions.

To provide a representative result for EPO applicants, the analysis is based on the Random group only. Taking into account the restructured questionnaire, six different indicators are reported as a result of the analysis of Section C. Three of these are directly taken from the questionnaire, namely the total number of inventions considered per patent application, the proportion of inventions patented, and the number of first patent filings. For the remaining three questions, a ratio is built dividing the totals sales, the R&D budget and the number of researchers by the number of first patent filings.

The results are first presented as based on actual case numbers without any weighting scheme applied. **Table 57** shows the six indicators both on a joint cluster level and for the total. The mean and the median for total are calculated as the average of all clusters, weighted by the number of interviewees belonging to the clusters and excluding zero-values. Bearing in mind the low number of responses and the resulting skewness of the data, the median is provided as a more stable parameter as well as the mean. However, even for the average cluster, means and medians differ greatly, which reflects the skewness of the size distribution of the applicant population.

To at least partially counter the skewness caused by the sampling bias, the extended structural weight as described in **Section 5.4** is applied to the data. Indicators calculated based on the reweighted cases are given in **Table 58**. The reweighted indicators are used for further interpretation. However, it is noteworthy that the data remain skewed. It is quite obvious that the results differ among the joint clusters and fall into a wide range. Generally, the data is skewed to the right and this is to be expected for measures that correlate to the sizes of applicants which are known to be distributed in this asymmetric fashion. However, exceptions can also be found looking at relative change in the mean and the median for unweighted and weighted data. The high standard errors, even though they are significantly reduced by applying the structural weights, should be taken into account when interpreting the results, as should the fact that sample sizes vary in each column. Please note that, in both tables, reported zero cases have been excluded in the columns for "Total number of inventions considered for patent applications" and for "Number of first patent filings throughout the world in 2005".

The indicators based on the weighted cases show trends consistent with last year's analyses. The highest mean and median R&D budget per patent filed can be found in the biotechnology, electronics, vehicle & general technology, and polymers sectors. The lowest R&D budget per filing is to be found in civil engineering & thermodynamics and computer sectors. Due to the newly introduced structural weight, however, the absolute numbers for the various indicators differ a lot from the results that were obtained last year. This again emphasises that the indicators should be interpreted as illustrating relative trends comparing industry sectors rather than representative average values for the population of patent applicants.

Random group
Unweighted

Joint Cluster	Statistic	Total number of inventions considered for patent application	Proportion of inventions patented throughout the world [%]	Total sales by first patent filing	R&D budget by first patent filing	Number of researchers by first patent filing	Number of first patent filings throughout the world in 2005
Audio, Video & Media	N	25	18	11	11	13	19
	MIN	1	0	16 667	280	1	1
	MAX	28 000	100	225 165 563	1 260 113	37	1 237
	MEAN	2 754	53	30 869 902	308 744	8	241
	MEDIAN	150	62	5 278 886	156 732	4	82
Biotechnology	SE	1 181	7	20 198 588	117 183	3	87
	N	70	52	33	35	44	53
	MIN	1	0	9 796	1 306	0	1
	MAX	1 500	100	2 350 980 000	14 300 000	1 500	195
	MEAN	95	49	236 939 180	2 854 971	93	18
Civil Engineering & Thermodynamics	MEDIAN	25	50	9 675 628	760 333	11	7
	SE	26	4	101 537 100	659 866	37	5
	N	46	35	28	21	21	37
	MIN	1	0	5 000	280	0	1
	MAX	3 659	100	233 333 333	2 323 286	63	524
Computer	MEAN	158	57	31 089 442	468 809	9	45
	MEDIAN	18	60	8 421 519	200 000	3	5
	SE	82	6	10 833 932	137 762	4	18
	N	28	22	12	9	9	17
	MIN	1	0	18 627	21 422	1	1
Electricity & Electrical Machines	MAX	28 000	80	979 575 000	6 360 800	1 750	1 150
	MEAN	1 732	49	135 124 982	1 128 213	201	160
	MEDIAN	79	62	11 313 861	156 732	6	31
	SE	1 018	7	82 331 082	678 449	194	69
	N	75	57	45	33	43	58
Electronics	MIN	1	0	18 205	280	0	1
	MAX	28 000	100	1 044 880 000	18 181 818	1 500	1 400
	MEAN	1 149	53	57 566 189	2 291 265	61	174
	MEDIAN	60	50	13 636 364	391 830	7	27
	SE	423	3	23 865 893	846 055	35	43
Handling and Processing	N	57	46	31	23	25	38
	MIN	1	0	18 627	280	0	1
	MAX	28 000	100	1 044 880 000	50 000 000	1 500	1 150
	MEAN	983	53	103 474 915	3 731 016	84	76
	MEDIAN	46	50	17 365 854	1 007 578	7	15
Human Necessities	SE	510	4	38 357 369	2 190 731	61	33
	N	72	58	47	36	45	60
	MIN	1	0	18 627	10 000	0	1
	MAX	7 000	100	800 000 000	100 000 000	400	37 000
	MEAN	389	49	59 521 915	3 169 565	19	649
Industrial Chemistry	MEDIAN	16	47	18 662 727	288 980	3	9
	SE	136	4	18 261 980	2 767 567	9	616
	N	95	81	58	48	56	86
	MIN	1	0	7 053	280	0	1
	MAX	7 000	100	3 166 666 667	14 300 000	1 500	1 150
Measuring, Optics	MEAN	252	53	135 617 747	2 014 154	44	53
	MEDIAN	32	50	17 650 000	340 440	6	9
	SE	90	3	58 159 703	463 833	27	15
	N	66	44	34	28	30	47
	MIN	1	0	1 513	280	0	1
Polymers	MAX	7 000	100	587 745 000	6 360 800	700	469
	MEAN	373	52	60 240 648	933 322	39	51
	MEDIAN	29	53	24 745 333	325 341	4	7
	SE	128	4	18 670 155	267 888	23	15
	N	55	44	34	25	32	43
Pure & Applied Organic Chemistry	MIN	1	0	14 106	78 366	0	1
	MAX	7 000	100	1 044 880 000	100 000 000	1 500	759
	MEAN	364	57	79 090 481	5 518 846	102	60
	MEDIAN	32	60	11 613 424	632 911	7	10
	SE	141	4	31 538 849	3 979 121	52	20
Telecommunications	N	49	35	24	13	22	38
	MIN	1	0	18 627	99 892	1	1
	MAX	7 000	100	1 000 000 000	14 300 000	1 500	600
	MEAN	379	55	140 419 638	2 000 892	101	49
	MEDIAN	47	50	48 818 250	550 000	15	9
Vehicles & General Technology	SE	150	5	47 447 794	1 054 834	67	17
	N	53	41	27	20	26	42
	MIN	1	0	56 424	6 071	3	1
	MAX	7 000	100	1 051 921 167	13 000 000	1 364	425
	MEAN	335	61	114 081 690	3 261 157	186	64
Total	MEDIAN	70	70	37 647 059	1 216 169	28	35
	SE	137	4	44 727 995	846 216	66	14
	N	42	32	19	15	15	25
	MIN	2	0	18 627	280	1	1
	MAX	28 000	90	108 047 368	8 439 415	72	1 150
Total	MEAN	2 044	54	30 270 415	1 536 315	15	231
	MEDIAN	300	55	21 352 628	529 432	6	118
	SE	732	4	7 702 093	592 851	5	60
	N	90	71	58	39	49	73
	MIN	1	0	20 595	280	0	1
Total	MAX	6 000	100	500 000 000	6 594 586	71	3 565
	MEAN	379	54	55 942 908	1 058 569	9	218
	MEDIAN	58	55	26 785 714	437 500	4	29
	SE	89	3	11 059 984	232 841	2	61
	N	823	636	461	356	430	636
Total	MEAN	640	53	91 365 484	2 289 876	61	153
	MEDIAN	57	54	19 924 807	500 576	7	21
	SE						

Table 57: Main statistics for activities in various sectors – Random group (unweighted)

Random group
Cases weighted with structural weight

Joint Cluster	Statistic	Total number of inventions considered for patent application	Proportion of inventions patented throughout the world (%)	Total sales by first patent filing	R&D budget by first patent filing	Number of researchers by first patent filing	Number of first patent filings throughout the world in 2005
Audio, Video & Media	N	25	18	11	11	13	19
	MIN	1	0	16 667	280	1	1
	MAX	28 000	100	225 165 563	1 260 113	37	1 237
	MEAN	13	78	3 137 424	183 998	3	3
	MEDIAN	5	70	3 134 640	200 000	3	5
Biotechnology	SE	10	6	60 355	11 329	0	1
	N	70	52	33	35	44	53
	MIN	1	0	9 796	1 306	0	1
	MAX	1 500	100	2 350 980 000	14 300 000	1 500	195
	MEAN	21	34	15 150 886	1 652 220	16	9
Civil Engineering & Thermodynamics	MEDIAN	10	25	666 667	522 440	3	4
	SE	3	4	6 135 761	448 758	5	1
	N	46	35	28	21	21	37
	MIN	1	0	5 000	280	0	1
	MAX	3 659	100	233 333 333	2 323 286	63	524
Computer	MEAN	10	54	10 246 688	280 284	4	2
	MEDIAN	2	50	2 000 000	25 000	2	2
	SE	3	8	3 019 289	97 298	1	0
	N	28	22	12	9	9	17
	MIN	1	0	18 627	21 422	1	1
Electricity & Electrical Machines	MAX	28 000	80	979 575 000	6 360 800	1 750	1 150
	MEAN	10	36	3 834 561	173 507	7	5
	MEDIAN	5	0	3 134 640	156 732	4	5
	SE	8	8	5 729 409	94 655	24	1
	N	75	57	45	33	43	58
Electronics	MIN	1	0	18 205	280	0	1
	MAX	28 000	100	1 044 880 000	18 181 818	1 500	1 400
	MEAN	22	54	6 463 924	380 169	3	7
	MEDIAN	12	50	5 800 000	250 000	2	4
	SE	9	3	1 752 312	232 984	2	7
Handling and Processing	N	57	46	31	23	25	38
	MIN	1	0	18 627	280	0	1
	MAX	28 000	100	1 044 880 000	50 000 000	1 500	1 150
	MEAN	9	66	16 010 160	1 460 768	4	3
	MEDIAN	5	70	8 888 889	156 732	4	3
Human Necessities	SE	4	5	2 555 550	306 920	1	0
	N	72	58	47	36	45	60
	MIN	1	0	18 627	10 000	0	1
	MAX	7 000	100	800 000 000	100 000 000	400	37 000
	MEAN	10	48	22 063 182	335 253	6	5
Industrial Chemistry	MEDIAN	3	33	14 000 000	155 523	3	2
	SE	4	4	3 186 520	81 309	2	6
	N	95	81	58	48	56	86
	MIN	1	0	7 053	280	0	1
	MAX	7 000	100	3 166 666 667	14 300 000	1 500	1 150
Measuring, Optics	MEAN	18	49	23 135 379	1 431 500	20	7
	MEDIAN	5	50	2 500 000	117 549	1	3
	SE	4	4	6 643 339	384 747	6	2
	N	66	44	34	28	30	47
	MIN	1	0	1 513	280	0	1
Polymers	MAX	7 000	100	587 745 000	6 360 800	700	469
	MEAN	7	49	36 157 877	469 159	2	5
	MEDIAN	3	30	13 650 000	156 732	2	2
	SE	2	5	7 021 829	84 398	2	1
	N	55	44	34	25	32	43
Pure & Applied Organic Chemistry	MIN	1	0	14 106	78 366	0	1
	MAX	7 000	100	1 044 880 000	100 000 000	1 500	759
	MEAN	6	36	3 168 163	366 672	5	4
	MEDIAN	5	40	1 250 000	125 000	2	3
	SE	2	4	1 642 477	99 683	2	1
Telecommunications	N	49	35	24	13	22	38
	MIN	1	0	18 627	99 892	1	1
	MAX	7 000	100	1 000 000 000	14 300 000	1 500	600
	MEAN	19	70	62 251 692	845 311	7	2
	MEDIAN	5	60	31 804 000	550 000	8	2
Vehicles & General Technology	SE	6	4	11 876 049	119 549	1	0
	N	53	41	27	20	26	42
	MIN	1	0	56 424	6 071	3	1
	MAX	7 000	100	1 051 921 167	13 000 000	1 364	425
	MEAN	35	41	20 013 427	783 737	35	61
Total	MEDIAN	5	25	20 529 000	273 720	4	65
	SE	10	7	3 695 340	332 593	18	4
	N	42	32	19	15	15	25
	MIN	2	0	18 627	280	1	1
	MAX	28 000	90	108 047 368	8 439 415	72	1 150
Total	MEAN	32	49	2 144 123	207 682	3	21
	MEDIAN	35	32	783 660	117 549	1	20
	SE	9	4	1 740 536	128 418	2	6
	N	90	71	58	39	49	73
	MIN	1	0	20 595	280	0	1
Total	MAX	6 000	100	500 000 000	6 594 586	71	3 565
	MEAN	17	58	18 021 738	1 450 687	8	5
	MEDIAN	5	50	6 666 667	600 000	9	3
	SE	3	4	2 835 257	324 372	1	3
	N	823	636	461	356	430	636
Total	MEAN	16	51	18 418 468	850 794	10	10
	MEDIAN	7	43	8 059 409	255 107	3	8

Table 58: Main statistics for activities in various sectors – Random group (weighted)

In **Section D** of the questionnaire, respondents were asked about the time lag between initial expenditure on R&D and the first patent filing. Additional questions were added in Section D of the 2006 applicant panel survey addressing the usage of external attorney services, motives for patent filings and the utilisation of EPO granted patents. The responses to these additional questions will be analysed and reported on elsewhere.

In order to obtain a representative analysis on the time lag between initial expenditure on R&D and the first patent filing, the statistics are once again based on the Random group and structural weights are applied. The number of valid cases is shown for each statistic. For each variable, the main statistics were calculated for a breakdown by residence bloc (**Table 59**) and by joint cluster (**Table 60**).

Random group
Breakdown by residence bloc
Cases weighted with structural weight

Average time between initial expenditure on R&D that might lead to patent applications and the first patent filing [months]	N	MIN	MAX	MEAN	MEDIAN	SE
EU	288	1	60	12	9	0.66
JA	62	2	60	10	12	0.77
OT	37	1	54	17	18	1.55
US	71	2	62	17	12	1.72
TOTAL	458	1	62	13	11	0.91

Table 59: Average time between initial R&D expenditure and first patent filing, broken down by residence bloc – Random group; weighted

Compared to last year's results, the mean and median time lag differs to a higher degree by residence bloc with mean values between 10 and 17 months compared to a range from 12 to 14 months in the previous year. Compared to last year, both the average regional mean and median are reduced by 1 month with an average regional mean of 13 months.

Random group
Breakdown by joint cluster
Cases weighted with structural weight

Average time between initial expenditure on R&D that might lead to patent applications and the first patent filing [months]	N	MIN	MAX	MEAN	MEDIAN	SE
Audio, Video & Media	24	2	44	16	18	1.75
Biotechnology	66	1	42	16	12	1.26
Civil Engineering & Thermodynamics	44	2	62	12	6	1.86
Computer	20	3	42	10	6	1.44
Electricity & Electrical Machines	69	2	42	12	6	1.05
Electronics	51	2	42	10	6	1.51
Handling and Processing	73	1	36	11	9	0.98
Human Necessities	86	1	62	20	15	1.75
Industrial Chemistry	59	2	60	15	10	1.99
Measuring, Optics	49	2	36	12	12	0.87
Polymers	42	2	60	13	6	1.57
Pure & Applied Organic Chemistry	45	1	60	9	9	1.09
Telecommunications	34	2	62	25	12	4.24
Vehicles & General Technology	88	2	62	15	7	1.64
TOTAL	750	1	62	14	10	1.56

Table 60: Average time between initial R&D expenditure and first patent filing, broken down by joint cluster – Random group; weighted

The average time between initial R&D expenditure and first patent filing calculated on a joint cluster level shows a resulting range of 9 to 25 months. In terms of the range, this is very similar to last year's result giving a range of 9 to 26 months. However, this year different joint clusters stand out that show a significantly longer time lag between initial R&D expenditure and first patent filing than for the average cluster. In particular, this holds true for the telecommunications sector with a 25-month lag and the human necessities sector with a 20-month lag. Both of these sectors in last year's statistics reported time lags that were below average. Once again, the volatility of the results when comparing current and previous analyses illustrates the high impact of single cases as the case number per cluster is rather small and further emphasises the need for careful interpretation of the results.

16 Annex VII: Issues emerging regarding the analysis of the random group (finite population correction, advantages of a breakdown by blocs of residence)

Here we consider modifications to methods of analysis of data from previous applicant panel surveys. Firstly, a pragmatic way to apply a finite population correction to the confidence limits for forecasts of total patent filings is discussed. Then there is an investigation of the relative accuracy in recent surveys of breaking analysis down by blocs of residence of the applicants, compared to ignoring blocs.

Background:

The randomly sampled group in the applicant panel is obtained by a simple random sample (SRS) of applications from the database. The calculation of growth index estimates from the random group involves a weighted averaging of individual applicant indices after (natural) log transformation. These estimates are made for several parallel measures of each respondent (viz. Euro-direct first filings, Euro-direct subsequent filings, PCT-IP first filings, PCT-IP subsequent filings). The estimates can also be made either for the respondent group as a whole ("no subsidiary breakdown") or for exclusive groups by post-stratification (blocs of residence, joint clusters).

Thus we obtain estimates of growth, and hence forecasts, for various subtotals of the quantity that must be forecasted (total filings). The growth indices can be back-transformed and then used to forecast each subtotal, and hence the total by summing the subtotals. But an issue arises as to the appropriate way to calculate the variance (and standard error) of the forecast for total filings. This issue has been solved by looking at properties of the lognormal distribution¹⁴. But up to now no attempt has been made to include a finite population correction in the calculated variance. Since a considerable proportion of the applications are sampled in the survey, it is a good idea to investigate to what extent the confidence limits on forecasts for total filings can be reduced when this effect is taken into account.

In the earlier surveys (2003 and before), it was apparent that a lower total forecast variance was obtained with a breakdown by blocs than with no subsidiary breakdown. However, in the 2004 to 2006 surveys, the lower variance was obtained with no subsidiary breakdown. It is a cause for concern that the nature of the distribution of responses has changed in this way.

Finite population correction (fpc):

The traditional theory of the fpc is described for a Simple Random Sample (SRS) of n objects without replacement from a population of size N ¹⁵. The variance of the sample means y_m is given as follows.

$$\text{Var}(y_m) = (S^2/n) \cdot (1 - f)$$

where

$$f = n / N$$

¹⁴ cf. Applicant Panel Survey 2003 report, Annex IV.

¹⁵ cf. Cochran W.G., *Sampling Techniques* (1977), 3rd edition, Wiley, page 23.

$$S^2 = \frac{\sum_{i=1}^N (y_i - Y_m)^2}{(N - 1)}$$

Y_m is the population mean. S^2 is generally itself estimated from the available sample, or from pooled prior data. The term f is the fpc and goes from 0 for an infinite population up to 1 for a sample of the whole population (when $n = N$).

A version of this formula is available for the case of stratified random sampling, with summing of the various terms over the prespecified strata. However, in our case a post-stratification of a simple random sample is used. In this setup, an approximate expression is available that relates the practice to proportional stratification¹⁶.

However, in the applicant panel, the situation is complicated by the fact that the sampling is done via applications on applicants, who then "vote" for all their respective applications. In terms of *applicants*, f is not worth calculating because only about 3% of applicants are approached (about 1% in responses). However the sampling scheme preferentially covers the larger applicants and the proportion of *applications* that are covered is much higher, at around 30%¹⁷. How can f be calculated to relate to the proportions of applications in the population that appear in the sample?

From the EPO database we know the total filings in the population in the base year (A). We can also find the count of total filings in the base year that corresponds to the respondents alone (A_R). This suggests a simple route to calculating an effective value of f for the population of applications rather than the population of applicants.

$$f = A_R / A$$

This does not take any account of the post-stratification effect, which is assumed negligible in the context of the other approximations that have been made. A bloc-wise fpc can be calculated by looking at the total filings in the population in the base year from a bloc and comparing it to the count of total filings in the base year that corresponds to the respondents from that bloc alone.

As an illustration, consider the 2003 survey current year forecasts (for 2003) for an analysis of the likely effect of this procedure. In the following tables, the confidence limits for the 2003 forecasts are recomputed, using f as defined above: analysis with no subsidiary breakdown, analysis with a bloc-wise breakdown by all four blocs, and analysis by a bloc-wise breakdown that amalgamates blocs EPC and Others into a single composite bloc. These tables can be compared to Tables IV, V and VI in the 2003 survey report.

¹⁶ cf. Cochran (ibid.), page 134.

¹⁷ Figures in this paragraph correspond to Annex VIII.

			2002		2003		
Filings Type	Filing route	Bloc of origin	Index	Actual"	Index		Predicted
					Estimate	S.E.	
First	Euro-Direct	Total	1	12 377	1.1034	0.0686	13 656
		LCL (Total)					(11 777)
		UCL (Total)					(15 536)
	Euro-PCT-IP	Total	1	7 340	1.0285	0.0930	7 549
LCL (Total)						(6 135)	
		UCL (Total)				(8 962)	
Subsequent	Euro-Direct	Total	1	41 365	0.9793	0.0369	40 509
		LCL (Total)					(37 518)
		UCL (Total)					(43 500)
	Euro-PCT-IP	Total	1	99 960	1.0148	0.0293	101 444
LCL (Total)						(95 491)	
		UCL (Total)				(107 396)	
All	Euro-Direct	Total		53 742			54 165
		LCL (Total)					(50 633)
		UCL (Total)					(57 698)
	Euro-PCT-IP	Total		107 300			108 992
		LCL (Total)					(102 875)
		UCL (Total)					(115 110)
	Grand Total			161 042			163 158
	LCL (Grand Total)						(156 093)
UCL (Grand Total)						(170 222)	
% Growth from Year 2001			0.0%			1.3%	
Implied % Euro-PCT-IP			66.6%			66.8%	

No Bloc breakdown.

			2002		2003		
Filings Type	Filing route	Bloc of origin	Index	Actual"	Index		Predicted
					Estimate	S.E.	
First	Euro-Direct	EPC	1	10 463	1.0731	0.0361	11 228
		Japan	1	221	0.9645	0.0306	213
		USA	1	1 161	1.3183	0.1699	1 531
		Others	1	532	1.0298	0.0266	548
		Total		12 377			13 519
		LCL (Total)					(12 548)
		UCL (Total)					(14 491)
	Euro-PCT-IP	EPC	1	1 656	0.9863	0.0925	1 633
		Japan	1	1 334	1.2451	0.0732	1 661
		USA	1	1 152	0.9334	0.1138	1 075
		Others	1	3 197	1.0445	0.0324	3 340
		Total		7 340			7 710
		LCL (Total)					(7 200)
		UCL (Total)					(8 220)
Subsequent	Euro-Direct	EPC	1	19 292	0.9848	0.0356	18 999
		Japan	1	11 568	0.9598	0.0334	11 103
		USA	1	8 530	0.9921	0.0643	8 462
		Others	1	1 975	1.9792	0.5199	3 909
		Total		41 365			42 473
		LCL (Total)					(37 141)
		UCL (Total)					(47 804)
	Euro-PCT-IP	EPC	1	39 746	1.0149	0.0245	40 338
		Japan	1	11 035	1.1244	0.0310	12 408
		USA	1	39 813	0.9169	0.0474	36 503
		Others	1	9 367	0.9429	0.0642	8 832
		Total		99 960			98 081
		LCL (Total)					(93 859)
		UCL (Total)					(102 302)
All	Euro-Direct	EPC		29 755			30 226
		Japan		11 789			11 316
		USA		9 691			9 993
		Others		2 507			4 457
		Total		53 742			55 992
		LCL (Total)					(50 573)
		UCL (Total)					(61 412)
	Euro-PCT-IP	EPC		41 402			41 971
		Japan		12 369			14 069
		USA		40 965			37 578
		Others		12 564			12 172
		Total		107 300			105 791
		LCL (Total)					(101 538)
		UCL (Total)					(110 043)
	Total	EPC		71 157			72 198
		Japan		24 158			25 385
		USA		50 656			47 571
		Others		15 071			16 629
Grand Total				161 042			161 783
LCL (Grand Total)							(154 894)
UCL (Grand Total)							(168 671)
% Growth from Year 2001				0.0%			0.5%
Implied % Euro-PCT-IP				66.6%			65.4%

Breakdown by 4 Blocs (EPC, Japan, Others, USA)

Filings Type	Filing route	Bloc of origin	2002		2003	
			Index	Actual"	Index	
					Estimate	Predicted
First	Euro-Direct	EPC + Others	1	10 995	1.0735	11 803
		Japan	1	221	0.9645	213
		USA	1	1 161	1.3183	1 531
		Total		12 377		13 547
	Euro-PCT-IP	EPC + Others	1	4 854	0.9824	4 768
		Japan	1	1 334	1.2451	1 661
		USA	1	1 152	0.9334	1 075
		Total		7 340		7 504
Subsequent	Euro-Direct	EPC + Others	1	21 267	0.9654	20 532
		Japan	1	11 568	0.9598	11 103
		USA	1	8 530	0.9921	8 462
		Total		41 365		40 097
	Euro-PCT-IP	EPC + Others	1	49 113	1.0163	49 912
		Japan	1	11 035	1.1244	12 408
		USA	1	39 813	0.9169	36 503
		Total		99 960		98 823
All	Euro-Direct	EPC + Others		32 262		32 335
		Japan		11 789		11 316
		USA		9 691		9 993
		Total		53 742		53 644
	Euro-PCT-IP	EPC + Others		53 966		54 680
		Japan		12 369		14 069
		USA		40 965		37 578
		Total		107 300		106 327
	Total	EPC + Others		86 228		87 015
		Japan		24 158		25 385
		USA		50 656		47 571
		Grand Total		161 042		159 971
	LCL (Grand Total)					(154 057)
						(165 885)
						-0.7%
	% Growth from Year 2001			0.0%		
		Implied % Euro-PCT-IP		66.6%		66.5%

Breakdown by 3 Blocs (EPC and Others combined, Japan, USA)

In summary, the effects on the 95% confidence limits are as follows:

Width of 95% confidence limits on total filings forecast for 2003	No fpc	With fpc	CL Shrinkage
No bloc breakdown	16 398	14 129	13.8%
With bloc breakdown	15 427	13 777	10.7%
CL Shrinkage	5.9%	2.5%	
With bloc breakdown incorporating Others with EPC	14 168	11 828	16.5%
CL Shrinkage	13.6%	16.3%	

Clearly there is a shrinkage in the width of the 95% confidence limits as we pass from no bloc breakdown to the breakdown by 4 blocs and finally to the breakdown by 3 blocs. There were very few responses from "Others", which underscores the benefit of pooling this group with EPC. These findings were already discussed in the 2003 survey report. However the same kinds of behaviour were not found in the 2004 and 2005 surveys.

The above table becomes interesting when considering the effect of f. The confidence interval shrinkage is greatest for the 3 bloc breakdown, indicating that in this case it acts to amplify the existing bloc to bloc differences. The incorporation of an fpc may make the bloc-wise breakdown analysis method relatively more accurate when compared to the case with no bloc breakdown.

In the main tables of this report of the 2006 survey, finite population correction terms f have been applied throughout. The calculated values of f were obtained from the EPO database counts of Euro-direct and Euro-PCT-RP filings. These are shown in the following table.

Bloc	f
EPC	0.28
Japan	0.3
Others	0.07
USA	0.19
All	0.24

Variability of results with and without bloc breakdowns:

No finite population corrections are applied in this section.

The comparison of results with and without bloc breakdowns has been done up to now by looking at the calculated standard errors (S.E.) of the total filings forecasts by both techniques. However it seems appropriate to look directly at the S.E.s for the growth estimates (in the transformed log scale), since a comparison of S.E.s for forecast totals involves other assumptions about the lognormal distribution of the indices. The S.E.s of growth estimates depend critically on the number of observations used in their construction (e.g. in the classic case of estimating a sample mean, the S.E. is $S / n^{0.5}$). A fairer comparison is given by looking at sums of squares (S.O.S.) of the growth estimates, where $S.O.S. = S.E.^2 n(n-1)$, with $(n - 1)$ degrees of freedom. The S.O.S terms can be added over subunits (blocs, First/Subsequent, Euro-direct/PCT-IP)¹⁸.

The following analysis investigates the results from the applicant panel surveys of 2003 - 2006, in terms of the current year forecasts (i.e. the forecasts for 2003 - 2006 respectively in each survey from 2003 to 2006). The tables show an analysis of variability in terms of cumulated S.O.S. over the samples, both with and without blocwise breakdowns. For the 2003 survey, tables are shown for PCTs both in terms of all PCT-IP applications and in terms of designations of the EPO within PCT-IP applications. Since 2004 however, due to the rule change at WIPO, the designations of the EPO within PCT-IP applications disappeared because all PCT-IP filings are considered to designate the EPO automatically.

¹⁸ Additivity of S.O.S. underlies the standard analysis of variance procedure that is used in statistical modelling.

EPO panel survey. Is blocwise post-stratification worthwhile for the random group?
Comparison of sums of squares for response indices on the logarithmic scale.
Cases excluded where # responses is so small that a generic S.E. is applied.

Same year forecasts

Survey year	First/subsequent	ED/PCT	No bloc breakdown			Bloc breakdown			
			D.F (n-1)	S.E.	S.O.S.		D.F (n-1)	S.E.	S.O.S.
2003 forecast 2003	F	ED	310	0.0796	610.8692	EP	174	0.0424	54.7418
						JP	59	0.0412	6.0089
						OT	5	0.027	0.0219
						US	69	0.2118	216.6701
						Summed	307		277.4427
EP PCT-IP designations	F	PCT	176	0.1079	362.6844	EP	75	0.1085	67.1018
						JP	47	0.0986	21.9327
						OT	7	0.0329	0.0606
						US	44	0.1419	39.8685
						Summed	173		128.9637
EP PCT-IP designations	S	ED	343	0.0428	216.1425	EP	189	0.0418	62.7434
						JP	84	0.045	14.4585
						OT	7	0.527	15.5528
						US	60	0.0802	23.5413
						Summed	340		116.2960
EP PCT-IP designations	S	PCT	361	0.034	151.0684	EP	199	0.0288	33.0117
						JP	76	0.0418	10.2248
						OT	9	0.0651	0.3814
						US	74	0.0591	19.3851
						Summed	358		63.0031
		Grand sum	1190		1340.7644	Grand sum	1178		585.7055

Survey year	First/subsequent	ED/PCT	No bloc breakdown			Bloc breakdown			
			D.F (n-1)	S.E.	S.O.S.		D.F (n-1)	S.E.	S.O.S.
2003 forecast 2003	F	ED	310	0.0796	610.8692	EP	74	0.0424	54.7418
						JP	59	0.0412	6.0089
						OT	5	0.027	0.0219
						US	69	0.2118	216.6701
						Summed	307		277.4427
All PCT-IP	F	PCT				EP	73	0.1806	176.1936
						JP	54	0.133	52.5363
						OT	7	0.1141	0.7291
						US	62	0.1688	111.2954
						Summed	196		340.7543
	S	ED	343	0.0428	216.1425	EP	189	0.0418	62.7434
						JP	84	0.045	14.4585
						OT	7	0.527	15.5528
						US	60	0.0802	23.5413
						Summed	340		116.2960
All PCT-IP	S	PCT				EP	183	0.0538	97.4616
						JP	82	0.0544	20.1414
						OT	10	0.0835	0.7669
						US	75	0.0819	38.2334
						Summed	350		156.6033
		Grand sum				Grand sum	1193		891.0964

Source: Applicant Panel Survey 2003 Report, Annex II, page 21. Information is only provided there for all PCT-IP filings with a bloc breakdown.

Survey year	First/subsequent	ED/PCT	No bloc breakdown			Bloc breakdown			
			D.F (n-1)	S.E.	S.O.S.	D.F (n-1)	S.E.	S.O.S.	
2004 forecast 2004	F	ED	368	0.0279	105.7019	EP	221	0.0309	46.8449
						JP	62	0.111	48.1258
						OT	10	0.0852	0.7985
						US	72	0.0507	13.5105
						Summed	365		109.2797
All PCT-IP	F	PCT	299	0.0595	317.5604	EP	144	0.038	30.1507
						JP	67	0.0447	9.1033
						OT	9	0.0917	0.7568
						US	76	0.2087	254.8879
						Summed	296		294.8987
All PCT-IP	S	ED	394	0.0488	370.6235	EP	223	0.057	162.2940
						JP	88	0.0842	55.5261
						OT	11	0.0827	0.9028
						US	69	0.1519	111.4455
						Summed	391		330.1684
All PCT-IP	S	PCT	421	0.0449	358.1684	EP	238	0.0274	42.7047
						JP	89	0.0472	17.8450
						OT	12	0.0955	1.4228
						US	79	0.222	311.4749
						Summed	418		373.4474
		Grand sum	1482		1152.0542	Grand sum	1470		1107.7942

Survey year	First/subsequent	ED/PCT	No bloc breakdown			Bloc breakdown			
			D.F (n-1)	S.E.	S.O.S.	D.F (n-1)	S.E.	S.O.S.	
2005 forecast 2005	F	ED	169	0.0685	134.8083	EP	127	0.0943	144.5563
						JP	7	0.1147	0.7367
						OT	0	0	0.0000
						US	29	0.0594	3.0697
						Summed	163		148.3627
	F	PCT	109	0.0757	68.7086	EP	49	0.1135	31.5615
						JP	17	0.1423	6.1963
						OT	0	0	0.0000
						US	38	0.0675	6.7524
						Summed	104		44.5102
All PCT-IP	S	ED	306	0.0256	61.5658	EP	162	0.0327	28.2357
						JP	57	0.0439	6.3714
						OT	8	0.1407	1.4253
						US	76	0.0764	34.1579
						Summed	303		70.1903
	S	PCT	376	0.031	136.2237	EP	193	0.0257	24.7301
						JP	68	0.0729	24.9352
						OT	8	0.1456	1.5264
						US	104	0.0803	70.4131
						Summed	373		121.6048
Grand sum			960		401.3064	Grand sum	943		384.6679

Survey year	First/subsequent	ED/PCT	No bloc breakdown			Bloc breakdown			
			D.F (n-1)	S.E.	S.O.S.		D.F (n-1)	S.E.	S.O.S.
2006 forecast 2006	F	ED				EP	168	0.0583	96.6215
						JP	11	0.1024	1.3850
						OT	0	0.0000	0.0000
						US	26	0.1633	18.7278
			210	0.0561	139.4138	Summed	205		116.7343
All PCT-IP	F	PCT				EP	78	0.1111	76.1049
						JP	19	0.0905	3.1108
						OT	7	0.0948	0.5030
						US	27	0.0669	3.3824
			134	0.0941	160.0489	Summed	131		83.1012
	S	ED				EP	167	0.0468	61.4150
						JP	64	0.0469	9.1320
						OT	12	0.0622	0.6039
						US	62	0.4710	866.5109
			308	0.1025	1000.8538	Summed	305		937.6618
All PCT-IP	S	PCT				EP	205	0.0438	81.1661
						JP	71	0.0322	5.2844
						OT	25	0.1073	7.4871
						US	101	0.1846	350.8939
			405	0.0504	416.9620	Summed	402		444.8314
		Grand sum	1057		1717.2786	Grand sum	1043		1582.3287

In all surveys, it can be seen that there is a clear advantage in breaking down by blocs in that the S.O.S terms are reduced¹⁹. In the 2004 - 2006 surveys the level of advantage is far less than in 2003. Comparison of the analyses for 2003 using PCT-IP applications with that using designations of the EPO within PCT-IP applications (Euro-PCT-IP) shows why this may be so. There is higher variability in the responses involving PCT-IP applications in general compared to those using Euro-PCT-IP applications. This is surprising because the designation rate of the EPO in PCT-IP in 2003 was over 97%. However it should be born in mind that the database from which the population was drawn consisted of EPO clients only, and these are "good clients" in the sense that they have made at least one PCT filing that progressed to the regional phase. In this regard, it seems particularly useful to break out the USA bloc to look for any particularities of PCT filing behaviour there.

The above tables show considerably greater variability in the survey results for 2006 than in each of the earlier surveys from 2003 - 2005. When comparing the results between reports, it should be born in mind that a finite population correction has been applied in 2006 only, which to some extent masks the extent of the increased variation in the main tables of this report.

Postscript:

It is advisable to base the analysis for making total filings forecasts on a bloc breakdown, in order to be able to examine the possibilities for systematic biases. An option that remains open is to use blocwise breakdowns selectively to optimise potential forecasting accuracy (e.g. EPC combined with Others, US vs. the rest of the world, First filings vs Subsequent filings etc.)²⁰. There is also an indication that using a finite population correction may demonstrate some further advantages of a breakdown by blocs of residence.

Reasons should be sought for the apparent increased variability of responses with regard to PCT-IP applications, when compared to the designations of the EPO among PCT-IP applications (Euro-PCT-IP) that were allowed before 2004.

¹⁹ Similar results (not shown) are generally found when considering tables that are based on the one year ahead and two years ahead forecasts.

²⁰ As in Tables 19, 20 and 21 of this report.

17 Annex VIII: Sizes of Populations and Samples for the EPO Applicant Panel Survey 2006

1. Population in 2005*	Euro-applications in 2005				Euro-applicants in 2005			
	Direct	PCT IP	Total (Direct + PCT IP)	PCT RP	Direct	PCT IP	Total (Direct + PCT IP)	PCT RP
	60 784	136 543	197 327	68 045	16 047	41 605	53 486	21 843
Sample group A: Biggest**								
2. Number asked* as percentage of 1.	26 656 43.9%	25 035 18.3%	51 691 26.2%	23 402 34.4%	387 2.4%	366 0.9%	403 0.8%	359 1.6%
(a) Number of quantitative responses (EPASYS)* as percentage of 1.	12 720 20.9%	14 289 10.5%	27 009 13.7%	12 423 18.3%	188 1.2%	185 0.4%	200 0.4%	176 0.8%
(b) Number of quantitative responses (questionnaires) as percentage of 1. as percentage of 2. Percentage ratio 2(b) / 2(a)	19 720 32.4% 74.0% 155.0%	31 369 23.0% 125.3% 219.5%	51 089 25.9% 98.8% 189.2%	15 467 22.7% 66.1% 124.5%	184 1.1% 47.5% 97.9%	187 0.4% 51.1% 101.1%	207 0.4% 51.4% 103.5%	168 0.8% 46.8% 95.5%
Sample group B: Random								
3. Number asked* as percentage of 1.	29 678 48.8%	31 030 22.7%	60 708 30.8%	27 560 40.5%	1 276 8.0%	1 076 2.6%	1 582 3.0%	1 407 6.4%
(a) Number of quantitative responses (EPASYS)* as percentage of 1.	13 233 21.8%	15 594 11.4%	28 827 14.6%	13 468 19.8%	430 2.7%	423 1.0%	547 1.0%	501 2.3%
(b) Number of quantitative responses (questionnaires) as percentage of 1. as percentage of 3. Percentage ratio 3(b) / 3(a)	22 139 36.4% 74.6% 167.3%	36 032 26.4% 116.1% 231.1%	58 171 29.5% 95.8% 201.8%	17 759 26.1% 64.4% 131.9%	506 3.2% 39.7% 117.7%	517 1.2% 48.0% 122.2%	650 1.2% 41.1% 118.8%	479 2.2% 34.0% 95.6%

* From the EPO database (EPASYS), status January 2007.

** Excluding deliberately selected addresses that are of special interest.

Other numbers are based on figures given by the respondents. Questionnaire responses often account for more filings than are ascribed to the same applicants in the database.



Synovate GmbH

Elektrastr. 6
81925 Munich
Germany

Phone +49-89-99 600-110
Fax +49-89-99 600-199

Member of Arbeitskreis Deutscher
Markt- und Sozialforschungsinstitute e.V.

www.synovate.com/germany