



European Patent Office

APPLICANT PANEL SURVEY 2004

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

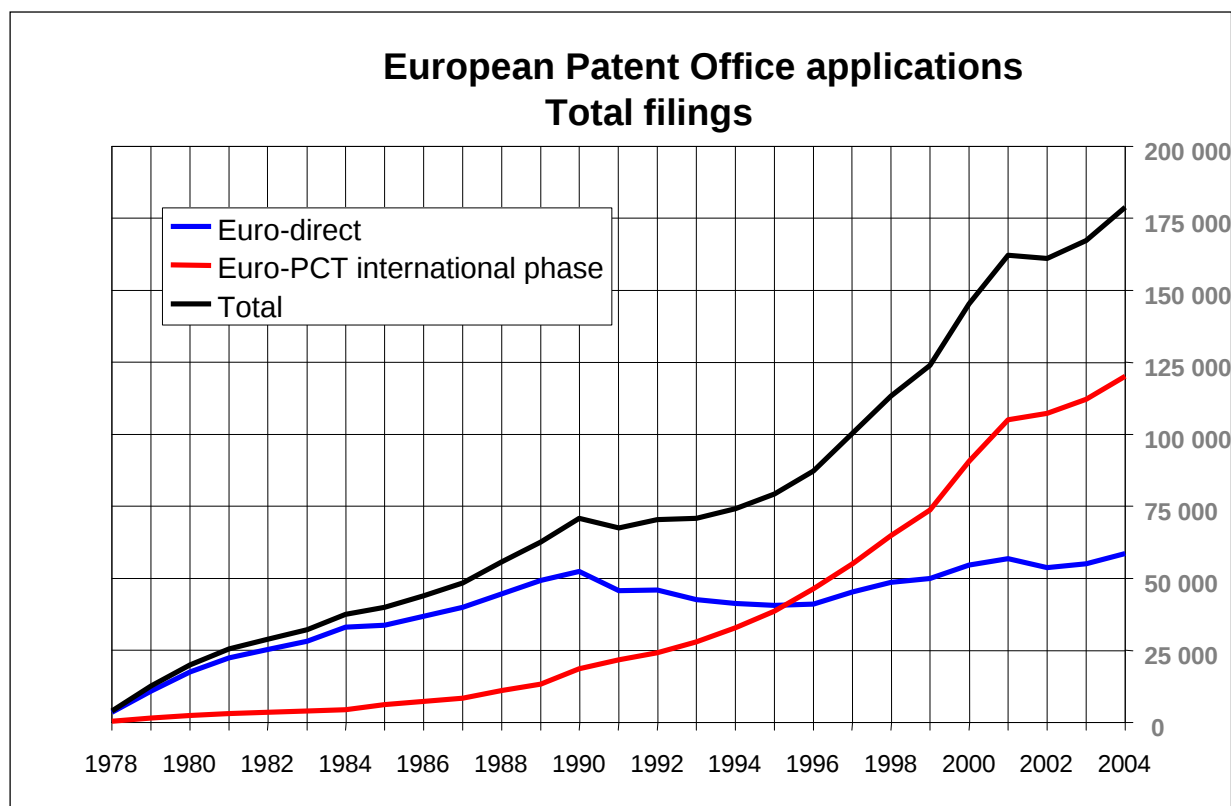
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with an Introduction by the European Patent Office

Munich, January 2005

Introduction by the European Patent Office

It is clear that overall numbers of filings at the European Patent Office have started to recover, with fairly positive growth in 2004. Various regression based forecasting models can be applied that project the previous trends into the future. These methods all suggest further growth, with some giving quite high levels of growth for the next five years.



Each year the EPO carries out a survey of filing intentions by applicants for European patents. In summer 2004 the latest survey was carried out by Roland Berger Market Research acting as researcher and consultant, using a questionnaire sent by fax and follow-up interviews. The survey design was similar to the one done in 2003 and has been executed and analysed by the consultant. The survey finds modest degrees of optimism among applicants regarding future numbers of patent filings in years 2004 to 2006. But it should be appreciated that the results of the survey are liable to large degrees of statistical error, summarised often by fairly wide 95% confidence intervals on the forecasts.

For us, the main purpose of the survey is to provide information on likely filing developments into the EPO's annual forecasting exercises for budgetary planning purposes. This effort is made in January each year, with the current objective being to forecast annual patent filings out as far as 2010. The survey is executed some months before January, so that the results become available in time for the planning exercise.

In this report there is a description of the survey set-up and execution, followed by a discussion of results. After presenting some descriptive statistics, the report concentrates on estimating future inputs for the main workload items at the EPO: Direct European route filings, Euro-PCT international phase filings and Euro-PCT regional phase filings. Then there is a discussion of filing trends for applications in other world patent systems (France,

Germany, Japan, UK, USA). This is followed by information on R&D expenditures, inventions and first patent filings for each of the 14 main technology joint clusters that exist at EPO. Finally some statistics are presented that discuss survey items on time lengths between initial R&D expenditures and patenting, usage of the epoline[®] electronic filings system and patent licensing activities.

The survey asks about filing intentions for three years only (in the current exercise 2004, 2005 and 2006), since it seems unlikely that many clients can easily estimate their patenting activities further than this horizon. The set of forecasts that is identified in the report as being most appropriate appears in [Table 12](#), based on a random sample of applicants and not differentiating between countries of residence of the applicants or technical areas of the applications. In previous surveys, the most appropriate results have usually been those that appeared in the randomly sampled group after allowing for different forecasted growth rates in four major residential blocs (EPC, Japan, USA and Others). A problem in the current survey was that there was excessive variability in results generated after bloc-wise breakdown, particularly among USA based applicants regarding Euro-PCT international phase subsequent filings. However the results after a bloc-wise breakdown ([Table 13](#) et seq.) do tend to show a more positive trend in future filings numbers than appears in [Table 12](#). This situation may have been caused by a single USA based respondent who predicted a very large growth rate in filings from 2003 to 2004. The plans of this respondent may also be responsible for slightly unexpected results for Euro-PCT Regional Phase filings projections that appear in [Section 9](#). This highlights the value of incorporating methods for identifying and treating outliers in future surveys. We continue to believe that an analysis of the data should be made after taking account of bloc to bloc variation. For the EPO's internal forecasting meeting we decided to recommend a survey based scenario that lies halfway between the results shown in [Tables 12](#) and [13](#) of this report.

Another possible source of error in forecasts that is mentioned in the report is non-response bias. We hope that methodology can be further developed in order to take this problem properly into account in future surveys.

In the later parts of the report, there appear a series of interesting results on R&D investment activities, inventions and usage of the patent system for such inventions. Tabulations of data are given after breakdowns into the various joint clusters. Here some large differences in results appear between joint clusters, but these may be due mainly to the fact that the industrial concentration of applicants differs markedly between clusters, some having small numbers of large companies while others have larger numbers of smaller companies. In order that a standardization for industrial concentration can be incorporated, and to look beyond these concentration factors at genuine differences in patenting approaches and behaviours between joint clusters, it may be advisable to include more detailed questions on company size and turnover in future surveys.

We hope that you will enjoy reading the report. Please do not hesitate to provide your feedback to us in case you should wish to do so. This will help us to learn from experience in our continuous effort to improve the applicant survey from year to year.

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1 Summary

1.1 Background

In 2004, the Office organised its ninth annual exercise to question groups of applicants on their intentions regarding future numbers of patent filings. The design of the 2004 survey was similar to that of the previous years, with a comparable sample size. This year, however, questions relating to further matters regarding patent filing were added.

The main 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 bloc. 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 and patent applications. The results of the survey are described and discussed in more detail below.

1.2 The 2004 survey

Applicants were selected in two groups: the Biggest group and the Random group. The total number of applicants involved was 2 266, with most of the Biggest group also appearing in the Random group. The survey covered about 38% of the applications at the EPO. In the first stage, valid addresses were found for 2 063 applicants, and contact details were established for 1 724 applicants. A questionnaire was sent out in late June 2004, 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. Changes over last year's survey include an additional matrix covering PCT applications entering the regional/national phase. Furthermore, questions were asked to elicit information on R&D expenditures and filings by joint cluster (roughly equivalent to industry segments), and a new section was added on other filing matters, such as the usage of epoline® and licensing. Descriptive information was also collected on type of company and size in terms of persons employed. The total useful response rate was 35.5% of the valid addresses (733 out of 2 063), which is only slightly lower than last year's survey, with 37.4%.

1.3 Analysis of results on patent filings

The survey approach involved establishing forecasts from primordial filing types (first and subsequent filings, Euro-direct and PCT international phase filings, as well as PCT applications entering the national and regional phase) and residence bloc of the applicants. The specific responses regarding future expectations for applicants' filings were subjected to several analyses. For the Biggest group, growth rates (compared with 2003) can be estimated at about 4.0% in 2004, 8.2% in 2005 and 11.4% in 2006. For the Random group, an effort was made to optimise the forecasts by cleaning the data and applying several forecasting methods to the data set. This resulted in estimated growth rates (compared with 2003) of about 4.4% in 2004, 9.4% in 2005 and 13.1% in 2006. The proportion of filings using the PCT system is about 68%.

Especially for applicants residing in the US, the results of this year's survey were more variable than last year, particularly regarding subsequent PCT international phase filings. A possible explanation for this greater variability may be general confusion on the part of the interviewees due to a declaration by the EPO that it would not examine PCT applications from US applicants in the three joint clusters biotechnology, computers and telecommunications as from 1 January 2002, and that filings would still be allowed, but full examinations would not be carried out.

Since then, the EPO has resumed allowing full examinations of PCT applications from US applicants as from 1 January 2004 for biotechnology, and from 1 July 2004 for telecommunications. Currently, the restriction of competence for computers still remains in force. These changes in the treatment of filings for particular joint clusters may have led interviewees to exhibit distorted answering behaviour.

An alternative approach was taken to analyse the data from the Random group by establishing forecasts broken down by joint clusters used by the EPO for organisational planning. Growth rates were derived by joint cluster as well as on an overall basis by combining the results by joint cluster. The overall forecasts are much more optimistic for 2005 and 2006, but the figures should be interpreted cautiously: A multiple choice option was included for the joint clusters in order to make it easier for applicants to describe the business of the company, so answers may be biased and distorted to some extent, even after applying a correction factor.

It was also possible to analyse the matrix of questions on PCT filings entering the regional phase at the EPO. For the Biggest group, growth rates (compared with 2003) can be estimated at 11.4% in 2004, 1.0% in 2005 and 4.3% in 2006. Due to the relatively low number of responses for Japanese residents and residents from other countries, the results should be interpreted cautiously. More reliable are the results for the Random group, for which growth rates (compared with 2003) can be estimated at 4.9% in 2004, 3.9% in 2005 and 15.6% in 2006.

An analysis was also made of the intentions of the EPO's clients towards future patent applications at the other major world patent offices, both in terms of national filings and of PCT national phase filings.

1.4 Forecasts of future filings at the EPO

The recommended forecasts are those from the Random group without any additional breakdown and including companies with qualifying comments, due to the narrower upper and lower confidence limits compared with the other methods. [Table 12](#) summarises the forecasts.

The overall forecast for total filings in 2004 is 174 456, with approximate 95% confidence limits of 164 250 to 184 661, resulting in a deviation of +/- 5.9%. The estimated percentage of Euro-PCT-IP filings among total filings for 2004 is 68.4%.

This method predicts total filings of 182 833 in 2005 (approximate 95% confidence limits of 170 228 and 195 439) and 188 957 in 2006 (approximate 95% confidence limits of 175 084 and 202 830).

2 Introduction

In 2004, the Office organised its ninth annual exercise to question groups of applicants on their intentions regarding future numbers of patent filings. The survey was carried out by telephone and mail interview with pre-established contact persons. The interviews, data capture and data analysis were done by Roland Berger Market Research, providing the EPO with the benefit of joint experience gained previously in similar surveys in 2001 to 2003. The design of the 2004 survey was similar to that of the previous years, using a comparable sample size. This year, however, questions relating to further matters regarding patent filing were added.

The main 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 bloc. 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 and patent applications. This was done on the basis of 14 joint clusters, broken down according to technology classes of the patent applications and corresponding to the structure in which the EPO has organised its search, examination and opposition departments.

3 The 2004 survey

More than 2 000 applicants were approached regarding their expectations for patent filings for the coming three years, in this case for 2004, 2005 and 2006.

Participating applicants belonged to one of two groups: the "Biggest" group was selected from a list of 473 of the biggest applicants at the EPO in 2003, while the "Random" group contained 2 159 participants selected from among all applicants to the EPO in the same year. The Random group was obtained from a simple random sample of applications. This had the effect of overweighting large applicants in the sample, thus obtaining extensive coverage of the population of applications and improving the ability to make statistical inferences about the population. There was a large overlap, so that most of the applicants in the Biggest group also appeared in the Random group. The questionnaire is attached as **Annex I**.

The questionnaire was provided in English, French and German, depending on the procedural language the applicants previously used in their applications to the EPO, as well as in Japanese for applicants residing in Japan. Questions were asked about the expected numbers of filings in various patent systems for calendar years 2004 to 2006 (questionnaire **Section B**). These encompassed "Patent applications under the EPC (excluding PCT)" (Euro-direct filings); "Patent applications under the PCT (international phase)" (overall PCT filings), and "National applications (excluding PCT and EPC)" (national filings) at major patent offices (France, Germany, Japan, United Kingdom and the United States). The total number of worldwide first filings for patents was requested. Furthermore, a breakdown was requested of all of the above in terms of both first and subsequent filings.

These questions were mainly identical to the 2003 questionnaire but, to represent recent changes in the PCT procedure, the questions regarding PCT designations were no longer asked. Overall worldwide PCT international phase filings are in principle therefore equivalent to International phase PCT filings at the EPO and will be termed Euro-PCT-IP filings. A replacement question was added regarding expected numbers of PCT national

phase/regional phase applications at major patent offices (EPO, USPTO, JPO, DPMA). The PCT regional phase applications at the EPO will be termed Euro-PCT-RP filings.

A question was included on R&D usage and patenting inventions broken down by various technological areas, based on the joint clusters used for examination organisation at the EPO (questionnaire **Section C**).

For the 2004 survey, some questions were added about other matters regarding patent filings, such as average time between initial R&D expenditure and the first patent filing, the usage of epoline[®] online filing as well as patents licensed and licence fees spent and received (questionnaire **Section D**)

To obtain a profile of the applicants, a question was included asking for the type of company and its size as measured by the number of employees (questionnaire **Section E**).

Participants were given the opportunity to make specific comments at the end of Section B. The questionnaire also included a general comments section (questionnaire **Section F**). A selection of the comments received is included in **Annex II**.

The main question (in **Section B**) asked for the number of filings already made in the base year (2003), as well as estimates for future filings for the years 2004, 2005 and 2006. An option was provided to give information in the form of growth rates rather than actual numbers. Growth rates were requested on a year-by-year basis 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 2003).

Screening interviews were carried out by telephone in the appropriate language (English, French, German or Japanese) with all identified applicants. In each case, whenever possible, a contact person was identified to whom the questionnaire was then sent¹. The telephone interviews took place from June to early September 2004. However, substantive telephone interviews were required for only about 10% of the cases because most participants completed the questionnaire themselves and returned it to the researchers.

4 Response rates

A full report on 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 2 266 selected applicants. The researchers strove to identify contact names, addresses and telephone numbers, and 2 063 addresses were confirmed. Of these, contact for survey purposes was established with 1 724 applicants (adjusted sample).

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.

¹ Applicants received a package containing the questionnaire together with a letter of recommendation from the EPO and a letter of explanation from Roland Berger Market Research.

Item	Number	Percentage
Total gross sample	2 266	100.0
Addresses not found	203	9.0
Addresses found	2 063	91.0
Addresses found	2 063	100.0
Dropouts (1)	339	16.4
Adjusted sample	1 724	83.6
Dropouts (2)	991	48.0
Total responses	733	35.5

- (1) Company was identical to another already identified in the sample; company could not be reached; no patents filed; mailbox system blocked further contact possibilities; company no longer exists, company being restructured, etc.
- (2) General refusal to participate; questionnaire not returned though promised; contact person not available; no time available for dealing with the matter; not possible to collect data; data too confidential; questionnaire forwarded to somebody else, etc.

Table 1: Sample and responses received

Table 2 shows the distribution of the applicant population in 2003, broken down by residence bloc (applicants for Euro-direct and Euro-PCT-IP, see **Annex VI**)

Table 3 shows the same information as **Table 1**, but additionally broken down by applicants' residence bloc. Compared with the previous survey, the overall response rate is slightly lower (37.4% in 2003 compared with 35.5% in 2004).

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

All gross sample data were taken from the EPO application database of Euro-direct and Euro-PCT regional phase filings only (Euro-PCT-IP filings were ignored for the sampling due to lack of timeliness).

Residence bloc	Applicants (population)	%
EPC countries	20 828	45.3
Japan	3 477	7.6
USA	13 830	30.1
Other countries	7 811	17.0
Total	45 946	100.0

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

Residence bloc	Applicants selected (sample)	%	Addresses found	Adjusted sample	Responses	Response rate [%]
EPC countries	1 111	49.0	1 037	902	434	41.9
Japan	295	13.0	286	231	133	46.5
USA	672	29.7	599	471	136	22.7
Other countries	188	8.3	141	120	30	21.3
Total	2 266	100.0	2 063	1 724	733	35.5

Table 3: Total sample (Biggest and Random groups, net numbers)

Residence bloc	Applicants selected (sample)	%	Addresses found	Adjusted sample	Responses	Response rate [%]
EPC countries	206	43.6	206	170	101	49.0
Japan	112	23.7	111	87	53	47.7
USA	138	29.2	133	104	36	27.1
Other countries	17	3.6	14	9	3	21.4
Total	473	100.0	464	370	193	41.6

Table 4: Biggest group sample (including overlap)

Residence bloc	Applicants selected (sample)	%	Addresses found	Adjusted sample	Responses	Response rate [%]
EPC countries	1 064	49.3	990	864	413	41.7
Japan	276	12.8	268	215	121	45.1
USA	636	29.5	565	442	126	22.3
Other countries	183	8.5	136	117	28	20.6
Total	2 159	100.0	1 959	1 638	688	35.1

Table 5: Random group sample (including overlap)

Annex VI provides an alternative breakdown of the samples, showing the coverage proportions of the underlying populations both in terms of 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.

5 Respondent profile

In **Section 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 describe the applicants' business best. The question regarding the allocation to joint clusters was slightly different this year compared with last year's questionnaire: instead of indicating one joint cluster that describes the applicants' business, the interviewees were allowed to choose multiple clusters that best fit their business. The information obtained on joint clusters is discussed in **Section 7.3** below.

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

It comes as little surprise that the distribution of the respondents according to company/organisation type shows that the majority of the Biggest applicants are private enterprises (91%), compared with the public sector (7%), educational institutions (1%) and independent inventors (1%).

Regarding the profiles of the Biggest applicants in terms of number of employees, the majority have more than 250 employees (97%), followed by 50-249 employees (2%) and less than 1% for the category 10-49 employees.

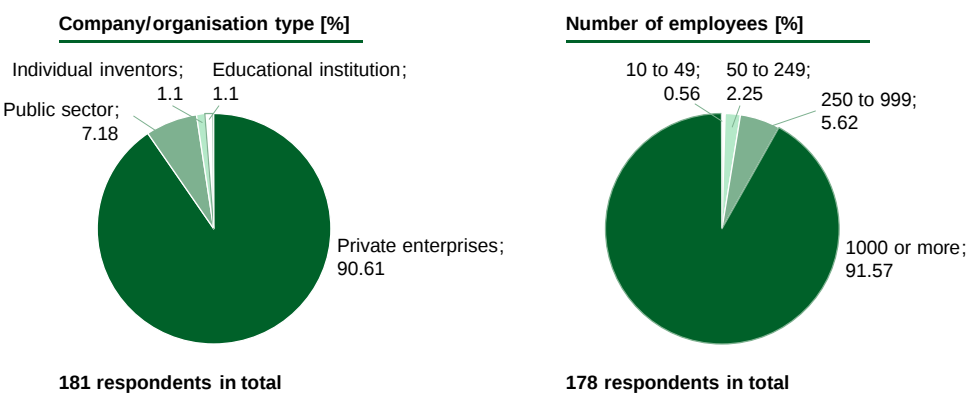


Figure 1: Biggest group distribution according to company/organisation type and number of employees

Broken down by residence bloc, the distributions are as follows:

Sample Biggest group

Residence bloc	Type					Grand Total	No. of cases
	Private enterprises	Public sector	Educational institutions	Individual inventors	Others		
EP	91%	6%	1%	0%	1%	100%	93
JA	98%	2%	0%	0%	0%	100%	53
OT	100%	0%	0%	0%	0%	100%	3
US	75%	19%	3%	0%	3%	100%	32
Grand Total	91%	7%	1%	0%	1%	100%	181

Table 6: Biggest group broken down by company type and residence bloc

Sample Biggest group

Residence bloc	Persons employed					Grand Total	No. of cases
	1 to 9	10 to 49	50 to 249	250 to 999	1 000 or more		
EP	0%	0%	3%	4%	92%	100%	92
JA	0%	0%	0%	4%	96%	100%	53
OT	0%	0%	0%	0%	100%	100%	3
US	0%	3%	3%	13%	80%	100%	30
Grand Total	0%	1%	2%	6%	92%	100%	178

Table 7: Biggest group broken down by persons employed and residence bloc

Not surprisingly, most of the applicants are private enterprises and employ at least 1 000 persons.

5.3 Respondents from the Random group

The distribution of respondents from the Random group according to company/organisation type shows that the majority of random applicants are private enterprises (90%), compared to the public sector (4%), educational institutions (3%) and independent inventors (2%). Finally, about 2% of the respondents fall into the category "other".

Regarding profiles of random applicants in terms of number of employees, the majority have more than 250 employees (69%), followed by 50-249 employees (14%), 10-49 (10%) and 1-9 (7%). Therefore, the Random group does indeed comprise smaller companies than the Biggest group does.

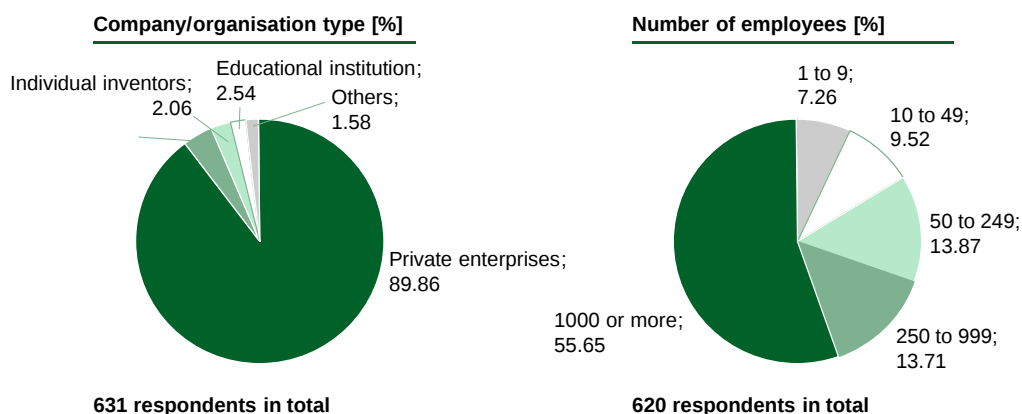


Figure 2: Random group distribution according to company/organisation type and number of employees

Broken down by residence bloc, the distributions are as follows.

Sample Random group

Residence bloc	Type					Grand Total	No. of cases
	Private enterprises	Public sector	Educational institutions	Individual inventors	Others		
EP	90%	3%	2%	3%	2%	100%	385
JA	98%	1%	1%	0%	0%	100%	118
OT	78%	4%	4%	4%	9%	100%	23
US	83%	10%	6%	0%	1%	100%	105
Grand Total	90%	4%	3%	2%	2%	100%	631

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

Sample Random group

Residence bloc	Persons employed					Grand Total	No. of cases
	1 to 9	10 to 49	50 to 249	250 to 999	1 000 or more		
EP	9%	11%	15%	16%	49%	100%	378
JA	2%	3%	7%	10%	79%	100%	118
OT	10%	29%	19%	10%	33%	100%	21
US	8%	9%	16%	10%	58%	100%	103
Grand Total	7%	10%	14%	14%	56%	100%	620

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

Again, most of the applicants are private enterprises. Compared with the Biggest group, the share of smaller companies is higher.

It should be borne in mind that the Random group is highly skewed towards larger applicants due to the sampling method that was used. Compared with the Random group, the actual applicant population contains a much larger proportion of small companies in terms of number of patent applications filed, and presumably also in terms of number of employees. In order to cope with this systematic distortion of the results, a specific weighting factor was introduced, balancing the results by taking into account the probability that each applicant was drawn randomly for the sample from the EPO database. For a detailed description of the methodology, please refer to the *Applicant panel survey 2003* report.

6 Methodology

The survey was executed in the same way as in 2003. Please refer to the *Applicant panel survey 2003* report as well as the 2002 report for a more detailed description of the methodology. For the data generated by the main questions in **Section B** of the questionnaire, a composite index was used to measure patent growth rates in the Biggest group (see *Applicant panel survey 2001: Annex III*), and a Q-index was used to measure patent growth rates in the Random group (see *Applicant panel survey 2002: Section IV.1, Annex IV*).

As described in the *Applicant panel survey 2002: Annex IV*, a natural logarithmic transformation was applied to the data before calculating the Q-index. Approximate 95% confidence intervals were calculated in order to provide a more realistic estimate of the forecasts in terms of a bandwidth of possible values.

In the survey, the principal questions of interest for the EPO concern forecasts of future *Euro-direct filings*, *Euro-PCT-IP filings*, *total filings (Euro-direct and Euro-PCT-IP)*, and *Euro-PCT-RP filings*. **Section 7** presents an analysis of forecasted filings for the first three

types of filing at the EPO, while **Section 9** analyses Euro-PCT-RP filings. The analyses were done by calculating growth indices according to various breakdowns of the data, in order to establish combined overall forecasts. At the EPO, however, it is important to make forecasts not just for total filings, but also for filings broken down by 14 technical work units known as *joint clusters*. The Random group constitutes a simple random sample across applications, so the responses can be broken down by joint cluster as an alternative to residence bloc. It was decided not to split the responses by both factors simultaneously ($4 \times 14 = 56$ combinations), as there would not have been enough data in the subdivided groups to allow for good growth rate estimates.

In last year's survey, each responding applicant was assigned to one joint cluster. This was felt to be an improvement on the indirect method of assigning joint clusters by IPC code, as done in the previous survey. Some respondents complained that it was difficult to assign their company/organisation to any particular joint cluster, or remarked that several joint clusters would be appropriate. Thus, the choice of multiple joint clusters was allowed in the current survey. Detailed results will be discussed in **Section 7.3** (*Random group broken down by joint cluster*).

In many cases, the researchers found it necessary to correct the responses to **Section B** of the questionnaire for one reason or another, often after a further conversation with the respondent for clarification. In other cases, more substantial comments were given for the interpretation of the reported results. All these cases were indicated in the data set that was subsequently analysed. Since some uncertainty remained about these cases, the data were analysed both in total and after excluding all companies with substantial comments. However, this cleaning was not found to improve the precision of the resulting growth indices.

Another problem with these kinds of forecasts is the possibility of bias in the results due to non-response. Nearly 57.5% of the applicants approached (adjusted sample in **Table 3**) did not respond, and it is possible that a propensity to not respond may be correlated with a pessimistic outlook for future filings. On the other hand, it can be argued that there are always new applicants appearing in the population each year, constituting a non-surveyed element of the population that acts as a source of extra applications beyond the forecasts from the survey.

It is difficult to make an accurate correction for the effect of non-responses that are, obviously, not observed. In last year's report, an attempt was made to do this by isolating a subset of the respondents that might be presumed to be similar to the non-responders and assuming that their intentions can be projected across the non-responding part of the sample. This subset was made up of those respondents who provided data for filing expectations for 2002 (the base year) and 2003 only, with no estimates for 2004 or 2005. As all of these calculations were based on debatable assumptions, this bias correction was omitted for this year's survey.

Responses to the survey also allowed growth indices to be calculated for EPO clients' intentions to file patent applications using all the major worldwide patenting systems (**Sections 8 and 9**).

Annex IV comprises a series of tables showing, for each relevant question in **Section B** of the questionnaire, the growth indices estimated by the members of the Random group. The number of cases used for each comparison is shown there together with the standard error of the estimates.

The responses in **Section C** of the questionnaire involve a breakdown of numbers of patentable inventions and first patent filings in 2003 by joint cluster, together with 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. Results are presented in **Section 10**. These questions differed slightly from the questions asked in Section C in the previous survey. The objective is to accumulate these responses over several years in order to explore the relationship between R&D and subsequent patenting at the microeconomic level. Results on other matters (from questionnaire **Section D**) appear in **Section 11**.

7 Results 1: Forecasts for patent filings at the EPO

7.1 Biggest group

473 applicants: 443 applicants who filed at least 33 applications (Euro-direct filings & Euro-PCT-RP) in 2003, 30 applicants added by EPO joint cluster planners (193 respondents).

Since the Biggest group is not a random sample, it is considered appropriate to use the composite index (CI) in this case, as explained in the *Applicant panel survey 2001: Annex III*. The numerical values of the indices obtained are shown in **Tables 10** and **11**, with the resulting forecasts and actual number of filings where available. The first analysis is based on no subsidiary breakdown, while the second analysis takes into account the residence blocs of the applicants. Unfortunately, the breakdown of Euro-PCT-IP filings for 2004 is still an approximation with regard to first filings and subsequent filings, therefore only total numbers of filings are presented in the tables for 2004. It should also be noted that the specified actual Euro-PCT-IP first filings for 2003 may include a few as yet undetermined cases that are, in fact, subsequent filings. By analogy to the results from the random group (**Section 7.2** below), the results depicted in **Table 10** are considered to be more appropriate. **Figure 3** shows a plot of these forecasts from **Table 10**. No confidence limits are indicated for the estimates because this is a survey of the intentions of the Biggest applicants.

Biggest group [# of filings]

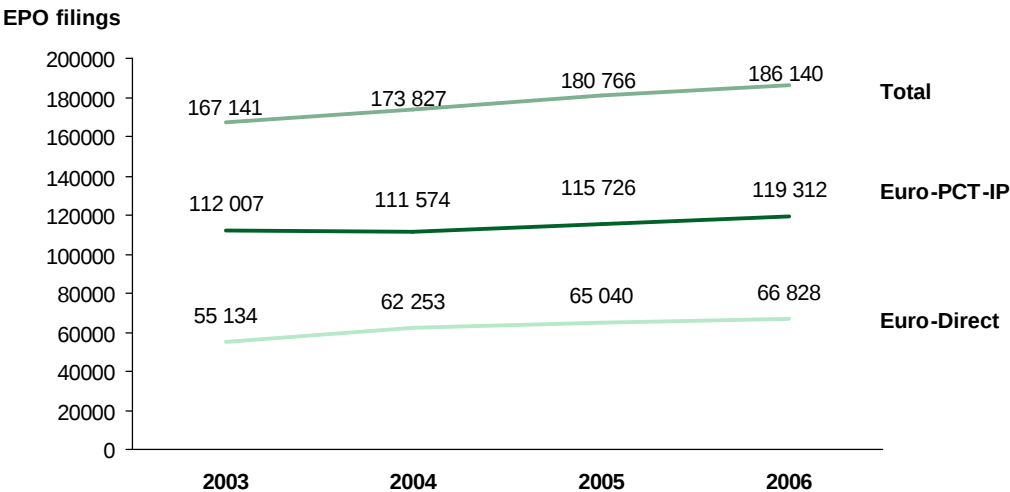


Figure 3: Forecasts for EPO filings – Biggest group

Biggest group
No subsidiary breakdown
Composite Indices

			Year							
			2003	2004		2005		2006		
Filings type	Filing route	Res. bloc	Actual filings	Index 04	Predicted filings	Actual filings	Index 05	Predicted filings	Index 06	Predicted filings
First	Euro-Direct	Total	13 955	1.1469	16 005		1.3256	18 499	1.3561	18 924
	Euro-PCT-IP	Total	7 140	0.9599	6 854		1.0291	7 348	1.0850	7 747
Subsequent	Euro-Direct	Total	41 179	1.1231	46 248		1.1302	46 541	1.1633	47 904
	Euro-PCT-IP	Total	104 867	0.9986	104 721		1.0335	108 378	1.0639	111 565
All	Euro-Direct	Total	55 134		62 253	57 986		65 040		66 828
	Euro-PCT-IP	Total	112 007		111 574	119 600		115 726		119 312
Grand Total		Total	167 141		173 827	177 586		180 766		186 140
Growth from 2003					4.0%			8.2%		11.4%
Implied % Euro-PCT-IP			67.0%		64.2%	67.3%		64.0%		64.1%

Table 10: Composite index for Biggest group, no subsidiary breakdown

Biggest group
Breakdown by residence bloc
Composite Indices

			Year							
			2003		2004		2005		2006	
Filings type	Filing route	Res. bloc	Actual filings	Index 04	Predicted filings	Actual filings	Index 05	Predicted filings	Index 06	Predicted filings
First	Euro-Direct	EP	11 989	1.0717	12 849		1.2741	15 275	1.3004	15 591
		JA	206	2.2133	456		2.2085	455	2.2133	456
		OT	602	1.0000	602		1.0000	602	1.0000	602
		US	1 158	1.3007	1 506		1.2745	1 476	1.3638	1 579
		Total	13 955		15 413			17 808		18 228
First	Euro-PCT-IP	EP	2 382	0.9932	2 366		1.0360	2 468	1.0986	2 617
		JA	1 282	0.7548	968		0.7946	1 019	0.8153	1 045
		OT	1 827	1.0000	1 827		1.0000	1 827	1.0000	1 827
		US	1 648	1.0434	1 720		1.1491	1 894	1.3041	2 149
		Total	7 139		6 880			7 207		7 638
Subsequent	Euro-Direct	EP	18 399	1.0171	18 713		1.0163	18 699	1.0316	18 980
		JA	10 920	1.3666	14 923		1.3779	15 046	1.4060	15 353
		OT	2 549	1.0000	2 549		1.0000	2 549	1.0000	2 549
		US	9 311	0.6174	5 749		0.5520	5 140	0.6093	5 673
		Total	41 179		41 934			41 434		42 555
Subsequent	Euro-PCT-IP	EP	40 337	0.9908	39 968		0.9981	40 260	1.0175	41 042
		JA	13 853	0.9208	12 756		0.9589	13 283	0.9908	13 725
		OT	11 212	1.0000	11 212		1.0000	11 212	1.0000	11 212
		US	39 465	1.1594	45 757		1.3375	52 783	1.4102	55 653
		Total	104 867		109 693			117 538		121 632
All	Euro-Direct	EP	30 388		31 562			33 974		34 570
		JA	11 126		15 379			15 501		15 809
		OT	3 151		3 151			3 151		3 151
		US	10 469		7 255			6 616		7 252
		Total	55 134		57 347	57 986		59 242		60 783
All	Euro-PCT-IP	EP	42 719		42 333			42 728		43 659
		JA	15 135		13 724			14 302		14 770
		OT	13 039		13 039			13 039		13 039
		US	41 113		47 477			54 676		57 802
		Total	112 006		116 573	119 600		124 745		129 271
Grand Total	Total	EP	73 107		73 895			76 702		78 230
		JA	26 261		29 103			29 803		30 580
		OT	16 190		16 190			16 190		16 190
		US	51 582		54 732			61 292		65 054
		Total	167 140		173 921	177 586		183 987		190 054
Growth from 2003					4.1%			10.1%		13.7%
Implied Euro-PCT-IP			67.0%		67.0%	67.3%		67.8%		68.0%

Table 11: Composite index for Biggest group, broken down by residence bloc

The overall growth rate for total filings for this group seems rather pessimistic (4.0% for the Biggest group vs. 4.4% for the Random group in 2004, 8.2% vs. 9.4% in 2005, and 11.4% vs. 13.1 in 2006). The results per residence bloc are more variable. Especially for the category "other", the calculations are based on only a small number of respondents, so the growth indices for this bloc are not dependable. The results for the Random group are reported in greater detail in the following sections. There is a reasonable degree of agreement between the results generated by the two methods.

Based on the analysis containing no subsidiary breakdown, this method predicts total filings of 173 827 in 2004, 180 766 in 2005, and 186 140 in 2006. The corresponding predictions from the 2003 survey were 169 550 in 2004 and 173 885 in 2005.

Please refer to **Section 9** for further analyses of the Biggest group.

7.2 Random group

A randomly sampled group of 2 159 applicants to the EPO (Euro-direct filings and Euro-PCT-RP) in 2003 (688 respondents).

For the responses from the Random group, it is appropriate to use the Q-index method after logarithmic transformation of the data (see *Applicant panel survey 2002: Section IV.1, Annex IV*). A series of analyses will now be reported for the Random Group. Details of the Q-Index estimates are shown in **Annex IV, Tables 37 - 43**. First, the data were analysed without taking residence blocs into account. The numerical values of the Q-indices are shown with their standard errors in **Table 12**. The resulting predicted filings are shown together with confidence limits based on the standard error for combined counts of total filings.

The overall forecast for total filings in 2004 is 174 456, with approximate 95% confidence limits of 164 250 to 184 661, resulting in a deviation of +/- 5.9%. The estimated percentage of Euro-PCT-IP filings among total filings for 2004 is 68.4%. **Figure 4** shows the predicted filings for 2004 to 2006.

Random group [# of filings]

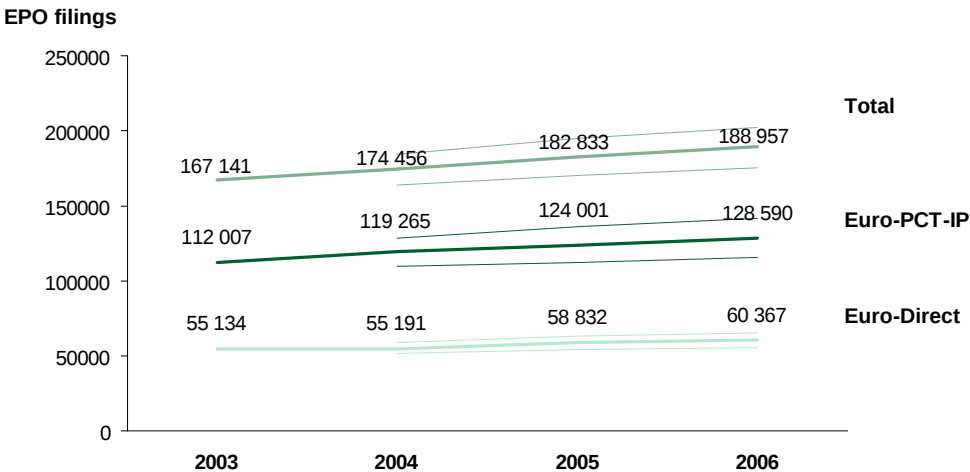


Figure 4: Forecasts for EPO filings, including 95% confidence limits

Random group
No subsidiary breakdown
Q Indices

S.E. indicates Standard Error of logarithm
LCL/UCL indicates Lower/Upper 95% Confidence Limit

			Year										
			2003	2004				2005			2006		
Filings type	Filing route	Res. bloc	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
First	Euro-Direct	Total	13 955	1.0754	0.0279	15 007		1.1937	0.0618	16 658	1.2271	0.0647	17 125
		LCL				14 185				14 640			14 950
		UCL				15 829				18 677			19 300
First	Euro-PCT-IP	Total	7 140	1.0755	0.0595	7 679		1.0804	0.0611	7 714	1.0959	0.0650	7 825
		LCL				6 783				6 789			6 827
		UCL				8 575				8 639			8 823
Subsequent	Euro-Direct	Total	41 179	0.9758	0.0488	40 184		1.0242	0.0480	42 174	1.0501	0.0527	43 242
		LCL				36 338				38 205			38 769
		UCL				44 031				46 143			47 715
Subsequent	Euro-PCT-IP	Total	104 867	1.0641	0.0449	111 586		1.1089	0.0540	116 287	1.1516	0.0571	120 765
		LCL				101 755				103 974			107 240
		UCL				121 417				128 600			134 290
All	Euro-Direct	Total	55 134			55 191	57 986			58 832			60 367
		LCL				51 336				54 469			55 493
		UCL				59 046				63 196			65 241
All	Euro-PCT-IP	Total	112 007			119 265	119 600			124 001			128 590
		LCL				109 590				111 901			115 299
		UCL				128 939				136 101			141 881
Grand Total		Total	167 141			174 456	177 586			182 833			188 957
		LCL				164 250				170 228			175 084
		UCL				184 661				195 439			202 830
Growth from 2003						4.4%				9.4%			13.1%
Implied % Euro-PCT-IP			67.0%			68.4%	67.3%			67.8%			68.1%
Deviation in % of forecast						5.9%				6.9%			7.3%

Table 12: Applicant panel 2004: Forecasts for EPO filings

Random group
Breakdown by residence bloc
Q Indices

S.E. indicates Standard Error of logarithm
LCL/UCL indicates Lower/Upper 95% Confidence Limit

			Year										
			2003	2004				2005			2006		
Filings type	Filing route	Res. bloc	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
First	Euro-Direct	EP	11 989	1.0465	0.0309	12 546		1.2247	0.0887	14 682	1.2699	0.0951	15 225
		JA	206	1.1708	0.1110	241		1.1796	0.1214	243	1.2027	0.1200	248
		OT	602	1.1041	0.0852	665		1.0616	0.0379	639	1.0902	0.0543	656
		US	1 158	1.1061	0.0507	1 281		1.1034	0.0524	1 278	1.1077	0.0500	1 283
		Total	13 955			14 733				16 842			17 412
		LCL				13 953				14 271			14 551
		UCL				15 513				19 413			20 273
First	Euro-PCT-IP	EP	2 382	1.0138	0.0380	2 415		1.0303	0.0437	2 454	1.0467	0.0501	2 493
		JA	1 282	0.9795	0.0447	1 256		1.0035	0.0533	1 287	1.0265	0.0598	1 316
		OT	1 827	1.2617	0.0917	2 305		1.1985	0.0856	2 190	1.2789	0.1024	2 337
		US	1 648	1.3405	0.2087	2 209		1.3041	0.2237	2 149	1.3088	0.2366	2 157
		Total	7 139			8 185				8 079			8 303
		LCL				7 141				7 004			7 121
		UCL				9 229				9 155			9 484
Subsequent	Euro-Direct	EP	18 399	0.9785	0.0570	18 003		0.9926	0.0626	18 263	1.0159	0.0704	18 691
		JA	10 920	1.1155	0.0842	12 181		1.1473	0.0888	12 528	1.1593	0.0945	12 659
		OT	2 549	1.1027	0.0827	2 811		1.1745	0.0728	2 994	1.2397	0.0801	3 160
		US	9 311	0.8145	0.1519	7 584		0.9911	0.0615	9 228	1.0375	0.0603	9 660
		Total	41 179			40 579				43 013			44 171
		LCL				36 886				39 653			40 452
		UCL				44 273				46 373			47 890
Subsequent	Euro-PCT-IP	EP	40 337	1.0333	0.0274	41 680		1.0535	0.0294	42 495	1.0777	0.0345	43 472
		JA	13 853	1.0234	0.0472	14 177		1.0609	0.0534	14 697	1.1148	0.0580	15 444
		OT	11 212	1.0320	0.0955	11 571		1.2712	0.1239	14 253	1.5697	0.1554	17 599
		US	39 465	1.2423	0.2220	49 026		1.4073	0.2716	55 540	1.4946	0.2662	58 985
		Total	104 867			116 455				126 985			135 500
		LCL				94 055				95 411			102 401
		UCL				138 855				158 558			168 598
All	Euro-Direct	EP	30 388			30 550				32 946			33 917
		JA	11 126			12 422				12 771			12 907
		OT	3 151			3 475				3 633			3 816
		US	10 469			8 865				10 506			10 943
		Total	55 134			55 312	57 986			59 855			61 583
		LCL				51 613				55 709			56 985
		UCL				59 012				64 002			66 181
All	Euro-PCT-IP	EP	42 719			44 095				44 949			45 965
		JA	15 135			15 432				15 984			16 760
		OT	13 039			13 876				16 442			19 936
		US	41 113			51 235				57 689			61 142
		Total	112 006			124 639	119 600			135 064			143 802
		LCL				102 663				104 104			111 345
		UCL				146 615				166 024			176 259
Grand Total	Total	EP	73 107			74 645				77 895			79 882
		JA	26 261			27 855				28 755			29 667
		OT	16 190			17 352				20 075			23 752
		US	51 582			60 100				68 194			72 085
		Total	167 140			179 952	177 586			194 919			205 385
		LCL				158 112				164 308			173 259
		UCL				201 791				225 531			237 511
Growth from 2003						7.7%				16.6%			22.9%
Implied Euro-PCT-IP			67.0%			69.3%	67.3%			69.3%			70.0%
Deviation in % of forecast						12.1%				15.7%			15.6%

Table 13: Forecasts for specific questions on filings at the EPO, broken down by residence bloc

Random group
Breakdown by residence bloc ("Other" incorporated in EP)
Q Indices

S.E. indicates Standard Error of logarithm
LCL/UCL indicates Lower/Upper 95% Confidence Limit

			Year											
			2003	2004				2005			2006			
Filings type	Filing route	Res. bloc	Actual filings	Q index 04	SE 04	Predicted filings	Actual filings	Q index 05	SE 05	Predicted filings	Q index 06	SE 06	Predicted filings	
First	Euro-Direct	EP/OT	12 591	1.0478	0.0301	13 193		1.2216	0.0870	15 382	1.2664	0.0932	15 945	
		JA	206	1.1708	0.1110	241		1.1796	0.1214	243	1.2027	0.1200	248	
		US	1 158	1.1061	0.0507	1 281		1.1034	0.0524	1 278	1.1077	0.0500	1 283	
		Total	13 955			14 715				16 902			17 476	
		LCL	13 922			13 922				14 260			14 541	
UCL					15 507				19 545			20 410		
First	Euro-PCT-IP	EP/OT	4 209	1.0197	0.0381	4 292		1.0337	0.0434	4 351	1.0516	0.0500	4 426	
		JA	1 282	0.9795	0.0447	1 256		1.0035	0.0533	1 287	1.0265	0.0598	1 316	
		US	1 648	1.3405	0.2087	2 209		1.3041	0.2237	2 149	1.3088	0.2366	2 157	
		Total	7 139			7 757				7 787			7 899	
		LCL				6 763				6 732			6 759	
UCL				8 750				8 841			9 039			
Subsequent	Euro-Direct	EP/OT	20 948	0.9815	0.0561	20 561		0.9968	0.0618	20 881	1.0204	0.0697	21 375	
		JA	10 920	1.1155	0.0842	12 181		1.1473	0.0888	12 528	1.1593	0.0945	12 659	
		US	9 311	0.8145	0.1519	7 584		0.9911	0.0615	9 228	1.0375	0.0603	9 660	
		Total	41 179			40 327				42 637			43 695	
		LCL				36 520				39 104			39 763	
UCL				44 133				46 170			47 626			
Subsequent	Euro-PCT-IP	EP/OT	51 549	1.0333	0.0268	53 264		1.0583	0.0293	54 554	1.0863	0.0349	55 998	
		JA	13 853	1.0234	0.0472	14 177		1.0609	0.0534	14 697	1.1148	0.0580	15 444	
		US	39 465	1.2423	0.2220	49 026		1.4073	0.2716	55 540	1.4946	0.2662	58 985	
		Total	104 867			116 467				124 791			130 427	
		LCL				94 110				93 350			97 688	
UCL				138 824				156 231			163 166			
All	Euro-Direct	EP/OT	33 539			33 754				36 263			37 320	
		JA	11 126			12 422				12 771			12 907	
		US	10 469			8 865				10 506			10 943	
		Total	55 134			55 041	57 986			59 540			61 170	
		LCL				51 230				55 216			56 363	
UCL				58 852				63 863			65 978			
All	Euro-PCT-IP	EP/OT	55 758			57 556				58 905			60 424	
		JA	15 135			15 432				15 984			16 760	
		US	41 113			51 235				57 689			61 142	
		Total	112 006			124 224	119 600			132 577			138 326	
		LCL				102 292				101 748			106 222	
UCL				146 155				163 406			170 429			
Grand Total	Total	EP/OT	89 297			91 310				95 167			97 745	
		JA	26 261			27 855				28 755			29 667	
		US	51 582			60 100				68 194			72 085	
		Total	167 140			179 265	177 586			192 117			199 496	
		LCL				156 805				167 683			174 092	
UCL				206 772				219 822			227 781			
Growth from 2003						7.3%				14.9%			19.4%	
Implied Euro-PCT-IP			67.0%			69.3%	67.3%			69.0%			69.3%	
Deviation in % of forecast						12.5%				12.7%			12.7%	

Table 14: Forecasts for specific questions on filings at the EPO ("other" incorporated in EP)

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

			Year										
			2003	2004				2005			2006		
Filings type	Filing route	Res. bloc	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
First	Euro-Direct	Total	13 955	1.0699	0.0312	14 930		1.1983	0.0711	16 722	1.2288	0.0746	17 148
		LCL				14 018				14 388			14 636
		UCL				15 843				19 057			19 660
First	Euro-PCT-IP	Total	7 140	1.0827	0.0674	7 731		1.0820	0.0691	7 726	1.0986	0.0739	7 844
		LCL				6 708				6 678			6 705
		UCL				8 754				8 773			8 982
Subsequent	Euro-Direct	Total	41 179	0.9587	0.0556	39 477		1.0108	0.0547	41 625	1.0333	0.0600	42 549
		LCL				35 173				37 160			37 543
		UCL				43 782				46 090			47 555
Subsequent	Euro-PCT-IP	Total	104 867	1.0766	0.0517	112 896		1.1148	0.0624	116 903	1.1471	0.0658	120 292
		LCL				101 450				102 600			104 752
		UCL				124 341				131 207			135 832
All	Euro-Direct	Total	55 134			54 408	57 986			58 347			59 697
		LCL				50 096				53 409			54 208
		UCL				58 720				63 285			65 186
All	Euro-PCT-IP	Total	112 007			120 626	119 600			124 629			128 136
		LCL				109 365				110 574			112 866
		UCL				131 888				138 684			143 405
Grand Total		Total	167 141			175 034	177 586			182 976			187 832
		LCL				163 216				168 377			171 930
		UCL				186 852				197 575			203 734
Growth from 2003						4.7%				9.5%			12.4%
Implied % Euro-PCT-IP			67.0%			68.9%	67.3%			68.1%			68.2%
Deviation in % of forecast						6.8%				8.0%			8.5%

Table 15: Forecasts for EPO filings (excluding companies with qualifying comments)

Random group
Breakdown by residence bloc (excl. companies with qualifying comments)
Q Indices

S.E. indicates Standard Error of logarithm
LCL/UCL indicates Lower/Upper 95% Confidence Limit

			Year										
			2003	2004			2005			2006			
Filings type	Filing route	Res. bloc	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
First	Euro-Direct	EP	11 989	1.0402	0.0330	12 471		1.2252	0.0982	14 689	1.2694	0.1052	15 219
		JA	206	1.1882	0.1329	245		1.1971	0.1468	247	1.2217	0.1453	252
		OT	602	1.1462	0.1143	690		1.0830	0.0478	652	1.1221	0.0684	676
		US	1 158	1.0955	0.0581	1 269		1.0974	0.0641	1 271	1.0804	0.0580	1 251
		Total	13 955			14 675				16 859			17 397
		LCL			13 837				14 005			14 229	
	UCL				15 512				19 712			20 565	
First	Euro-PCT-IP	EP	2 382	1.0055	0.0389	2 395		1.0211	0.0449	2 432	1.0373	0.0521	2 471
		JA	1 282	0.9786	0.0525	1 255		1.0035	0.0634	1 287	1.0275	0.0713	1 317
		OT	1 827	1.2757	0.1110	2 331		1.2536	0.1102	2 290	1.3219	0.1324	2 415
		US	1 648	1.4415	0.2397	2 376		1.3662	0.2624	2 252	1.3807	0.2801	2 275
		Total	7 139			8 356				8 261			8 479
		LCL			7 064				6 916			6 976	
	UCL				9 648				9 605			9 981	
Subsequent	Euro-Direct	EP	18 399	0.9685	0.0632	17 819		0.9784	0.0686	18 002	0.9995	0.0772	18 390
		JA	10 920	1.1276	0.0965	12 313		1.1490	0.1030	12 547	1.1535	0.1099	12 596
		OT	2 549	1.0850	0.0944	2 766		1.1550	0.0792	2 944	1.2149	0.0827	3 097
		US	9 311	0.7250	0.1864	6 750		0.9612	0.0743	8 949	1.0065	0.0708	9 372
		Total	41 179			39 648				42 442			43 455
		LCL			35 515				38 654			39 300	
	UCL				43 780				46 230			47 610	
Subsequent	Euro-PCT-IP	EP	40 337	1.0407	0.0278	41 978		1.0545	0.0302	42 537	1.0727	0.0351	43 271
		JA	13 853	1.0053	0.0526	13 926		1.0552	0.0587	14 618	1.0911	0.0641	15 114
		OT	11 212	0.9720	0.1036	10 898		1.0586	0.1128	11 869	1.2612	0.0755	14 141
		US	39 465	1.3725	0.2820	54 164		1.5650	0.3527	61 762	1.6452	0.3462	64 928
		Total	104 867			120 966				130 787			137 454
		LCL			88 998				83 728			89 061	
	UCL				152 935				177 845			185 847	
All	Euro-Direct	EP	30 388			30 290				32 691			33 609
		JA	11 126			12 558				12 793			12 848
		OT	3 151			3 456				3 596			3 772
		US	10 469			8 019				10 220			10 623
		Total	55 134			54 323	57 986			59 301			60 852
		LCL			50 190				54 653			55 731	
	UCL			58 455				63 949			65 973		
All	Euro-PCT-IP	EP	42 719			44 373				44 969			45 742
		JA	15 135			15 181				15 905			16 432
		OT	13 039			13 229				14 160			16 556
		US	41 113			56 540				64 014			67 203
		Total	112 006			129 322	119 600			139 047			145 933
		LCL			97 968				92 911			98 484	
	UCL			160 677				185 184			193 381		
Grand Total	Total	EP	73 107			74 663				77 661			79 351
		JA	26 261			27 739				28 698			29 280
		OT	16 190			16 684				17 756			20 328
		US	51 582			64 559				74 234			77 826
		Total	167 140			183 645	177 586			198 348			206 785
		LCL			152 652				152 906			160 015	
	UCL			214 638				243 791			253 554		
Growth from 2003						9.9%				18.7%			23.7%
Implied Euro-PCT-IP			67.0%			70.4%	67.3%			70.1%			70.6%
Deviation in % of forecast						16.9%				22.9%			22.6%

Table 16: Forecasts for specific questions on filings at the EPO, broken down by residence bloc (excl. 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

			Year											
			2003	2004				2005			2006			
Filings type	Filing route	Res. bloc	Actual filings	Q index 04	SE 04	Predicted filings	Actual filings	Q index 05	SE 05	Predicted filings	Q index 06	SE 06	Predicted filings	
First	Euro-Direct	EP/OT	12 591	1.0421	0.0324	13 121		1.2231	0.0967	15 399	1.2670	0.1034	15 953	
		JA	206	1.1882	0.1329	245		1.1971	0.1468	247	1.2217	0.1453	252	
		US	1 158	1.0955	0.0581	1 269		1.0974	0.0641	1 271	1.0804	0.0580	1 251	
		Total	13 955			14 635				16 917			17 455	
		LCL				13 787				13 973			14 192	
		UCL				15 482				19 861			20 719	
First	Euro-PCT-IP	EP/OT	4 209	1.0103	0.0391	4 252		1.0248	0.0449	4 314	1.0420	0.0521	4 386	
		JA	1 282	0.9786	0.0525	1 255		1.0035	0.0634	1 287	1.0275	0.0713	1 317	
		US	1 648	1.4415	0.2397	2 376		1.3662	0.2624	2 252	1.3807	0.2801	2 275	
		Total	7 139			7 882				7 852			7 979	
		LCL				6 666				6 564			6 567	
		UCL				9 099				9 139			9 390	
Subsequent	Euro-Direct	EP/OT	20 948	0.9712	0.0622	20 346		0.9823	0.0678	20 577	1.0035	0.0764	21 021	
		JA	10 920	1.1276	0.0965	12 313		1.1490	0.1030	12 547	1.1535	0.1099	12 596	
		US	9 311	0.7250	0.1864	6 750		0.9612	0.0743	8 949	1.0065	0.0708	9 372	
		Total	41 179			39 409				42 073			42 989	
		LCL				35 156				38 104			38 607	
		UCL				43 662				46 043			47 372	
Subsequent	Euro-PCT-IP	EP/OT	51 549	1.0391	0.0271	53 566		1.0546	0.0297	54 364	1.0753	0.0350	55 430	
		JA	13 853	1.0053	0.0526	13 926		1.0552	0.0587	14 618	1.0911	0.0641	15 114	
		US	39 465	1.3725	0.2820	54 164		1.5650	0.3527	61 762	1.6452	0.3462	64 928	
		Total	104 867			121 657				130 745			135 472	
		LCL				89 721				83 722			87 067	
		UCL				153 592				177 768			183 877	
All	Euro-Direct	EP/OT	33 539			33 467				35 977			36 974	
		JA	11 126			12 558				12 793			12 848	
		US	10 469			8 019				10 220			10 623	
		Total	55 134			54 044	57 986			58 990			60 445	
		LCL				49 793				54 147			55 090	
		UCL				58 294				63 833			65 800	
All	Euro-PCT-IP	EP/OT	55 758			57 818				58 678			59 816	
		JA	15 135			15 181				15 905			16 432	
		US	41 113			56 540				64 014			67 203	
		Total	112 006			129 539	119 600			138 597			143 451	
		LCL				98 219				92 496			95 993	
		UCL				160 858				184 697			190 908	
Grand Total	Total	EP/OT	89 297			91 285				94 655			96 790	
		JA	26 261			27 739				28 698			29 280	
		US	51 582			64 559				74 234			77 826	
		Total	167 140			183 582	177 586			197 587			203 895	
		LCL				161 632				173 543			178 851	
		UCL				211 857				225 281			232 131	
Growth from 2003						9.8%				18.2%			22.0%	
Implied Euro-PCT-IP			67.0%			70.6%	67.3%			70.1%			70.4%	
Deviation in % of forecast						12.0%				12.2%			12.3%	

Table 17: Forecasts for specific questions on filings at the EPO ("other" incorporated in EP; excl. companies with qualifying comments)

This method predicts total filings of 182 833 in 2005 (approximate 95% confidence limits of 170 228 and 195 439) and 188 957 in 2006 (approximate 95% confidence limits of 175 084 and 202 830).

The next analysis takes the residence blocs into account. Numerical values of the Q-indices are shown with standard errors in **Table 13**. The overall forecast for total filings in 2004 is now 179 952, with approximate 95% confidence limits of 158 112 to 201 791, resulting in a much higher deviation of +/- 12.1%. The estimated percentage of Euro-PCT-IP filings among total filings for 2004 is 69.3%.

This method predicts total filings of 194 919 in 2005 (approximate 95% confidence limits of 164 308 and 225 531) and 205 385 in 2006 (approximate 95% confidence limits of 173 259 and 237 511). Compared to the results in **Table 12**, the analysis in **Table 13** shows a much larger span between the confidence limits, even though the 2004 total filings forecast is somewhat closer to the actual known figure.

Since there are few responses available from the "other" category, the next analysis is a repeat of the previous analysis by bloc, after combining "other" with EPC. The numerical values of the Q-indices are shown with their standard errors in **Table 14**.

The overall forecast for total filings in 2004 is now 179 265, with approximate 95% confidence limits of 156 805 to 206 772, resulting in an even higher deviation of +/- 12.5%. The estimated percentage of Euro-PCT-IP filings among total filings in 2004 is 69.3%. The growth indices and standard errors are the same as in **Table 13** for Japan and the US.

This method predicts total filings of 192 117 in 2005 (approximate 95% confidence limits of 167 683 and 219 822) and 199 496 in 2006 (approximate 95% confidence limits of 174 092 and 227 781). The span of these confidence limits is only slightly smaller than that of the previous scenario, suggesting that the impact of the combination is low.

An attempt was then made to clean the data from the Random group by removing cases in which the researchers made qualifying comments. This reduced the overall sample size from 688 to 530.

First, the analysis not taking account of residence bloc (**Table 12**) was repeated on the cleaned subset of data. The numerical values of the Q-indices are shown with their standard errors in **Table 15**. The resulting predicted filings are indicated together with 95% confidence limits for combined counts of total filings.

The overall forecast for total filings in 2004 is now 175 034 (compared with 174 456 before cleaning), with approximate 95% confidence limits of 163 216 to 186 852, resulting in a deviation of +/- 6.8%, and an estimated percentage of Euro-PCT-IP filings in 2004 of 68.9%. The deviation of the results after excluding respondents with qualifying comments is higher than before, thus the quality of the forecasts is not increased.

This method predicts total filings of 182 976 in 2005 (approximate 95% confidence limits of 168 377 and 197 575, compared with an estimate of 182 833 before cleaning) and 187 832 in 2006 (approximate 95% confidence limits of 171 930 and 203 734, compared with an estimate of 188 957 before cleaning). The 95% confidence limits after cleaning are higher than for the uncleaned data. Compared with last year's survey, the impact of companies with qualifying comments seems to be significantly lower.

The analysis taking the residence blocs into account (**Table 13**) was repeated on the cleaned data. The numerical values of the Q-indices are shown with their standard errors in **Table 16**. The overall forecast for total filings in 2004 is now 183 645 (compared with 179 952 before cleaning), with approximate 95% confidence limits of 152 652 to 214 638, resulting in a deviation of +/- 16.9%. The estimated percentage of Euro-PCT-IP filings among total filings in 2004 is 70.4%.

This method predicts total filings of 198 348 in 2005 (approximate 95% confidence limits of 152 906 and 243 791, compared with an estimate of 194 919 before cleaning) and 206 785 in 2006 (approximate 95% confidence limits of 160 015 and 253 554, compared with an estimate of 205 385 before cleaning). The span of the confidence limits is significantly wider than before cleaning the data, arguing against the efficacy of the method.

However, it was argued above that most of the variability of the bloc-based analysis arises from the small number of respondents from the "other" category. Therefore, the previous analysis by bloc after combining "other" with EPC (**Table 14**) was repeated on the cleaned data. The numerical values of the Q-indices are shown with their standard errors in **Table 17**. The overall forecast for total filings in 2004 is now 183 582 (compared with 179 265 before cleaning) with approximate 95% confidence limits of 161 632 to 211 857, resulting in a deviation of 12.0%. The estimated percentage of Euro-PCT-IP filings among total filings in 2004 is 70.6%. The growth indices and standard errors for Japan and the US are the same as in **Table 16**.

This method predicts total filings of 197 587 in 2005 (approximate 95% confidence limits of 173 543 and 225 281, compared with an estimate of 192 117 before cleaning) and 203 895 in 2006 (approximate 95% confidence limits of 178 851 and 232 131, compared with an estimate of 199 496 before cleaning). The impact of companies with qualifying comments seems to be significantly lower than in last year's survey. The widths of the confidence limits are only slightly different than those before cleaning, although they have the lowest deviation among the analyses incorporating breakdowns of applicants by blocs of residence. Among this series of analyses that incorporate bloc breakdowns, **Table 13** and **Table 17** give the best results.

However, it is apparent that the scenario in **Table 12** shows the narrowest confidence limits, even though it does not account for different opinions between blocs.

This overall forecast for total filings in 2004 is 174 456, with approximate 95% confidence limits of 164 250 to 184 661, resulting in a deviation of +/- 5.9%. The estimated percentage of Euro-PCT-IP filings among total filings for 2004 is 68.4%.

This method predicts total filings of 182 833 in 2005 (approximate 95% confidence limits of 170 228 and 195 439) and 188 957 in 2006 (approximate 95% confidence limits of 175 084 and 202 830).

7.3 Biggest and Random group broken down by joint cluster

All applicants in the survey were asked to describe themselves in terms of membership in one or more of the EPO joint clusters (questionnaire **Section C**). **Figure 5** shows the distribution of responses by number of clusters chosen. The following **Table 18** shows a two-way matrix describing the joint clusters combined by the interviewees. On average, the interviewees reported data for 1.7 joint clusters.

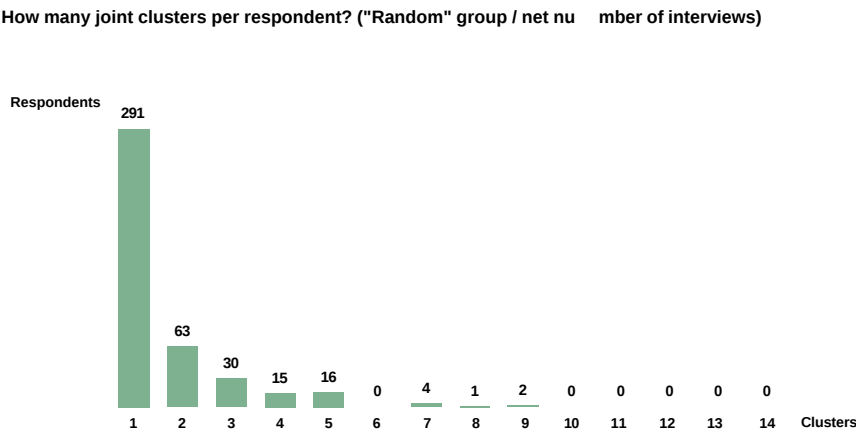


Figure 5: Number of chosen joint clusters by respondent – Random group

Joint Cluster	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Other Area
1. Audio, Video and Media	17	1	2	5	5	4	3	1	1	4	2	3	3	4	
2. Biotechnology	1	75	1	4	7	7	8	9	16	11	21	28	3	4	2
3. Civil Engineering, Thermodynamics	2	1	37		4	3	4	2	5	5	2	2	3	2	
4. Computers	5	4		19	4	5	2	1		4	2	3	6	3	
5. Electricity/Semiconductor Tech.	5	7	4	4	48	15	6	3	8	19	9	7	13	9	1
6. Electronics	4	7	3	5	15	42	11	1	5	12	5	5	11	10	
7. Handling and Processing	3	8	4	2	6	11	105	5	6	7	4	5	8	10	1
8. Human Necessities	1	9	2	1	3	1	5	38	5	2	7	9	1	4	2
9. Industrial Chemistry	1	16	5		8	5	6	5	53	7	16	16	3	5	
10. Measuring and Optics	4	11	5	4	19	12	7	2	7	44	10	8	11	6	1
11. Polymers	2	21	2	2	9	5	4	7	16	10	46	20	4	9	2
12. Pure/Applied Organic Chemistry	3	28	2	3	7	5	5	9	16	8	20	57	3	6	2
13. Telecommunications	3	3	3	6	13	11	8	1	3	11	4	3	33	7	1
14. Vehicles and General Technology	4	4	2	3	9	10	10	4	5	6	9	6	7	78	3
Other Area		2			1		1	2		1	2	2	1	3	9

Table 18: Two-way-matrix for responses regarding joint clusters – Random group

The forecasts for EPO filings provided in **Section B** of the questionnaire were analysed with primary breakdowns by joint cluster rather than residence bloc, and again, both the composite index and the Q-index method were applied. For the Q-index method, the indices were again transformed to natural logarithms. **Tables 19 to 24** show the results of this exercise.

First, the composite index was analysed based on the Biggest group (**Tables 19 to 21**). This resulted in an overall forecast for total filings in 2004 of 172 322. For 2005 and 2006, the forecasts are 203 573 and 211 130. Due to the relatively low number of valid answers per joint cluster (less than 10 valid answers were considered for 23 of the 56 clusters), the results shown for the Biggest group should be interpreted cautiously.

Then the Q-index was analysed based on the Random group (**Tables 22 to 24**). **Figure 6** shows a plot of the overall forecasts derived by aggregating forecasts per joint cluster².

Random group [# of filings]

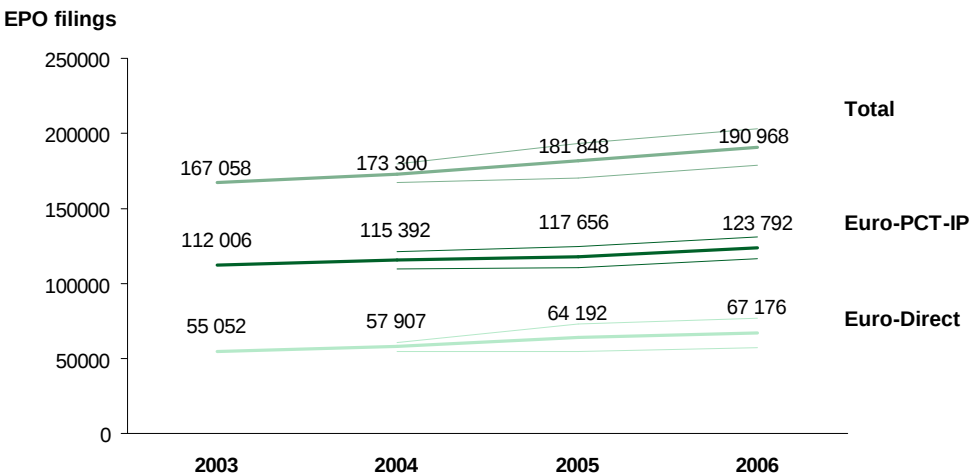


Figure 6: Forecasts for EPO filings, including 95% confidence limits – based on breakdown by joint cluster

In order to avoid a distortion of the standard errors and the confidence limits due to the multiple choice option in Section C of the questionnaire, an approximate correction factor has been introduced for the standard error in **Tables 22 to 24** (compared to **Table 43**). This correction factor takes into account the average repetition factor of 1.7 and widens the confidence limits by multiplying standard errors by 1.3 (square root of 1.7). The aggregated forecasts for total filings seem to be reasonable, and the span of the associated approximate 95% confidence intervals is narrower than that determined for a breakdown by residence bloc (**Table 12**). The overall forecast for total filings in 2004 is 173 300, with approximate 95% confidence limits of 167 202 to 179 397, resulting in a deviation of +/- 3.5%. The estimated percentage of Euro-PCT-IP filings among total filings in 2004 is 66.6%.

² Data not cleaned or corrected for non-response.

This method predicts total filings of 181 848 in 2005 (approximate 95% confidence limits of 170 618 and 193 079) and 190 968 in 2006 (approximate 95% confidence limits of 178 423 and 203 513).

Biggest group
Breakdown by EPO Joint Cluster
Composite Indices

			Year							
			2003	2004		2005		2006		
Filings type	Filing route	Cluster	Actual filings	Index 04	Predicted filings	Actual filings	Index 05	Predicted filings	Index 06	Predicted filings
First	Euro-Direct	Audio, Video & Media	1 083	1.1111	1 203		1.2222	1 324	1.2222	1 324
		Biotechnology	1 126	0.9653	1 087		2.8765	3 239	2.7832	3 134
		Civil Engineering & Thermodynamics	889	1.5556	1 383		2.0000	1 778	2.2222	1 976
		Computer	940	0.8889	836		1.1111	1 044	1.3333	1 253
		Electricity & Electrical Machines	1 151	1.0456	1 204		1.0480	1 206	1.8571	2 138
		Electronics	944	1.0345	977		0.8780	829	0.8829	833
		Handling and Processing	1 057	1.2813	1 354		1.4375	1 519	1.7500	1 850
		Human Necessities	955	0.4375	418		2.0000	1 910	2.0000	1 910
		Industrial Chemistry	686	1.2500	858		11.0952	7 611	10.6506	7 306
		Measuring, Optics	935	0.8319	778		0.9027	844	0.9646	902
		Polymers	575	1.2222	703		19.3111	11 104	18.5909	10 690
		Pure & Applied Organic Chemistry	1 593	1.1004	1 753		2.5440	4 053	2.5150	4 006
		Telecommunications	1 185	1.0854	1 286		1.0488	1 243	1.1667	1 383
		Vehicles & General Technology	758	0.7988	606		1.2622	957	1.2945	981
		Total	13 877		14 443			38 661		39 685
First	Euro-PCT-IP	Audio, Video & Media	334	1.1082	370		1.2371	413	1.3918	465
		Biotechnology	290	1.1098	322		1.2210	354	1.3356	387
		Civil Engineering & Thermodynamics	507	1.1117	564		1.2437	631	1.4010	710
		Computer	423	1.1050	467		1.2431	526	1.3812	584
		Electricity & Electrical Machines	412	1.0769	444		1.1942	492	1.3632	562
		Electronics	372	1.1337	422		1.2450	463	1.3950	519
		Handling and Processing	770	1.1095	854		1.2095	931	1.3524	1 041
		Human Necessities	883	1.2155	1 073		1.4641	1 293	1.6575	1 464
		Industrial Chemistry	564	1.1121	627		1.2477	704	1.4930	842
		Measuring, Optics	328	1.1000	361		1.2250	402	1.3750	451
		Polymers	234	1.0909	255		1.2201	286	1.3606	318
		Pure & Applied Organic Chemistry	867	1.0896	945		1.2139	1 052	1.3400	1 162
		Telecommunications	661	1.0461	691		1.1292	746	1.2030	795
		Vehicles & General Technology	494	1.1759	581		1.4121	698	1.5859	783
		Total	7 139		7 976			8 990		10 084

Table 19: Forecasts for specific questions on filings at the EPO (first filings broken down by joint cluster; composite index for Biggest group)

Biggest group
Breakdown by EPO Joint Cluster
Composite Indices

			Year							
Filings type	Filing route	Cluster	2003	2004		Actual filings	2005		2006	
			Actual filings	Index 04	Predicted filings		Index 05	Predicted filings	Index 06	Predicted filings
Subsequent	Euro-Direct	Audio, Video & Media	2 563	0.9848	2 524		1.0038	2 573	1.0038	2 573
		Biotechnology	731	1.0473	766		0.9660	706	0.9830	719
		Civil Engineering & Thermodynamics	4 200	0.9058	3 804		0.9783	4 109	1.0145	4 261
		Computer	2 063	0.9615	1 984		0.9615	1 984	0.9615	1 984
		Electricity & Electrical Machines	4 019	1.0732	4 313		1.0549	4 240	1.0728	4 312
		Electronics	2 373	1.4901	3 536		1.5660	3 716	1.6709	3 965
		Handling and Processing	4 458	0.9649	4 301		1.0068	4 488	1.0427	4 649
		Human Necessities	4 409	1.2415	5 474		0.9817	4 328	0.9817	4 328
		Industrial Chemistry	2 483	1.0886	2 703		1.0992	2 729	1.1812	2 933
		Measuring, Optics	2 607	0.9886	2 577		1.0099	2 633	1.0241	2 670
		Polymers	1 653	1.0880	1 798		1.0352	1 711	1.0543	1 743
		Pure & Applied Organic Chemistry	1 942	0.9840	1 911		0.9565	1 858	1.0024	1 947
		Telecommunications	2 556	1.0309	2 635		1.0584	2 705	1.0600	2 709
		Vehicles & General Technology	5 118	1.1039	5 650		1.0796	5 525	1.1207	5 736
		Total	41 175		43 976			43 305		44 527
Subsequent	Euro-PCT-IP	Audio, Video & Media	4 815	1.0196	4 909		1.0549	5 079	1.0677	5 141
		Biotechnology	7 591	1.0491	7 963		1.0524	7 989	1.0677	8 105
		Civil Engineering & Thermodynamics	6 392	0.9475	6 057		1.0694	6 835	1.1320	7 236
		Computer	7 364	1.0853	7 992		1.2481	9 191	1.3140	9 676
		Electricity & Electrical Machines	7 867	1.0348	8 140		1.0787	8 486	1.1211	8 820
		Electronics	4 503	1.0653	4 797		1.1304	5 090	1.1626	5 235
		Handling and Processing	7 868	0.9787	7 701		1.0146	7 983	1.0632	8 365
		Human Necessities	11 143	0.9425	10 502		1.0622	11 836	1.1068	12 333
		Industrial Chemistry	8 229	0.9918	8 161		1.0315	8 488	1.0638	8 754
		Measuring, Optics	6 500	1.0551	6 858		1.0545	6 854	1.0705	6 958
		Polymers	5 430	1.0152	5 512		1.0387	5 640	1.0534	5 720
		Pure & Applied Organic Chemistry	14 282	0.9792	13 985		1.0452	14 927	1.0976	15 676
		Telecommunications	6 381	1.0213	6 517		1.0711	6 834	1.0947	6 986
		Vehicles & General Technology	6 502	1.0506	6 831		1.1353	7 382	1.2039	7 827
		Total	104 867		105 926			112 616		116 834

Table 20: Forecasts for specific questions on filings at the EPO (subsequent filings broken down by joint cluster; composite index for Biggest group)

Biggest group
Breakdown by EPO Joint Cluster
Composite Indices

			Year							
			2003	2004		2005		2006		
Filings type	Filing route	Cluster	Actual filings	Index 04	Predicted filings	Actual filings	Index 05	Predicted filings	Index 06	Predicted filings
All	Euro-Direct	Audio, Video & Media	3 646		3 728			3 896		3 896
		Biotechnology	1 857		1 852			3 945		3 852
		Civil Engineering & Thermodynamics	5 089		5 187			5 887		6 236
		Computer	3 003		2 819			3 028		3 237
		Electricity & Electrical Machines	5 170		5 517			5 446		6 449
		Electronics	3 317		4 513			4 545		4 799
		Handling and Processing	5 515		5 656			6 008		6 498
		Human Necessities	5 364		5 892			6 238		6 238
		Industrial Chemistry	3 169		3 561			10 341		10 239
		Measuring, Optics	3 542		3 355			3 477		3 572
		Polymers	2 228		2 501			12 815		12 433
		Pure & Applied Organic Chemistry	3 535		3 664			5 910		5 953
		Telecommunications	3 741		3 921			3 948		4 092
		Vehicles & General Technology	5 876		6 255			6 482		6 717
			Total	55 052		58 420	57 986		81 966	
All	Euro-PCT-IP	Audio, Video & Media	5 149		5 279			5 493		5 606
		Biotechnology	7 881		8 285			8 343		8 492
		Civil Engineering & Thermodynamics	6 899		6 620			7 466		7 946
		Computer	7 787		8 459			9 717		10 260
		Electricity & Electrical Machines	8 279		8 584			8 978		9 381
		Electronics	4 875		5 219			5 553		5 754
		Handling and Processing	8 638		8 555			8 914		9 407
		Human Necessities	12 026		11 575			13 129		13 797
		Industrial Chemistry	8 793		8 789			9 192		9 596
		Measuring, Optics	6 828		7 219			7 256		7 409
		Polymers	5 664		5 768			5 926		6 039
		Pure & Applied Organic Chemistry	15 149		14 930			15 980		16 838
		Telecommunications	7 042		7 208			7 581		7 781
		Vehicles & General Technology	6 996		7 412			8 080		8 611
			Total	112 006		113 903	119 600		121 607	
Grand Total	Total	Audio, Video & Media	8 795		9 007			9 389		9 502
		Biotechnology	9 738		10 138			12 288		12 345
		Civil Engineering & Thermodynamics	11 988		11 808			13 353		14 182
		Computer	10 790		11 279			12 745		13 497
		Electricity & Electrical Machines	13 449		14 101			14 424		15 831
		Electronics	8 192		9 731			10 098		10 553
		Handling and Processing	14 153		14 211			14 922		15 905
		Human Necessities	17 390		17 467			19 367		20 035
		Industrial Chemistry	11 962		12 349			19 532		19 836
		Measuring, Optics	10 370		10 574			10 733		10 981
		Polymers	7 892		8 269			18 741		18 471
		Pure & Applied Organic Chemistry	18 684		18 593			21 890		22 791
		Telecommunications	10 783		11 129			11 529		11 873
		Vehicles & General Technology	12 872		13 667			14 561		15 328
			Total	167 058		172 322	177 586		203 573	
Growth from 2003					3.2%			21.9%		26.4%
Implied Euro-PCT-IP				67.0%	66.1%	67.3%		59.7%		60.1%

Table 21: Forecasts for specific questions on filings at the EPO (first and subsequent filings combined, broken down by joint cluster; composite index for Biggest 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

			Year										
			2003	2004				2005			2006		
Filings type	Filing route	Cluster	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
First	Euro-Direct	Audio, Video & Media	1 083	1.0136	0.0269	1 098		1.0569	0.0619	1 145	1.0382	0.0427	1 124
		Biotechnology	1 126	1.0749	0.0554	1 210		1.8863	0.5798	2 124	1.9306	0.5713	2 174
		Civil Engineering & Thermodynamics	889	1.1696	0.1483	1 040		1.2621	0.2134	1 122	1.2891	0.2422	1 146
		Computer	940	0.9843	0.0352	925		1.1257	0.1438	1 058	1.0471	0.0459	984
		Electricity & Electrical Machines	1 151	1.0011	0.0811	1 152		1.1279	0.1171	1 298	1.1476	0.1452	1 321
		Electronics	944	1.0250	0.0978	968		1.0544	0.1240	995	1.0709	0.1520	1 011
		Handling and Processing	1 057	1.1056	0.1274	1 169		1.2191	0.1246	1 289	1.2678	0.1406	1 340
		Human Necessities	955	0.9836	0.1542	939		1.1345	0.1401	1 083	1.2620	0.1374	1 205
		Industrial Chemistry	686	1.2733	0.0830	873		2.6233	0.6007	1 800	2.8546	0.6009	1 958
		Measuring, Optics	935	1.0301	0.0826	963		1.1100	0.1299	1 038	1.1330	0.1513	1 059
		Polymers	575	1.0770	0.0669	619		2.5753	0.8300	1 481	2.7331	0.8514	1 572
		Pure & Applied Organic Chemistry	1 593	1.1005	0.0570	1 753		2.2418	0.6626	3 571	2.3679	0.6880	3 772
		Telecommunications	1 185	0.9643	0.0709	1 143		1.0368	0.0482	1 229	1.0689	0.0569	1 267
		Vehicles & General Technology	758	0.9795	0.1634	742		1.2291	0.1453	932	1.2387	0.1638	939
		Total	13 877			14 595				20 164			20 872
		LCL				13 865				11 400			11 181
		UCL				15 325				28 929			30 564
First	Euro-PCT-IP	Audio, Video & Media	334	0.9979	0.0199	333		1.0191	0.0308	340	1.0379	0.0582	347
		Biotechnology	290	1.0448	0.0859	303		1.0370	0.0908	301	1.0306	0.1035	299
		Civil Engineering & Thermodynamics	507	1.0238	0.0506	519		1.0266	0.0724	521	1.0937	0.1121	555
		Computer	423	1.1676	0.1444	494		1.3555	0.1966	573	1.5648	0.3222	662
		Electricity & Electrical Machines	412	1.1055	0.0866	455		1.1031	0.0791	454	1.1387	0.1147	469
		Electronics	372	1.5643	0.2041	582		1.5486	0.2253	576	1.7532	0.2256	652
		Handling and Processing	770	0.9970	0.0605	768		1.0423	0.0867	803	1.1439	0.1111	881
		Human Necessities	883	0.9806	0.0251	866		0.9657	0.0448	853	0.9784	0.0279	864
		Industrial Chemistry	564	1.1007	0.1213	621		1.2222	0.1708	689	1.2832	0.2111	724
		Measuring, Optics	328	1.0418	0.0400	342		1.0495	0.0487	344	1.0804	0.0783	354
		Polymers	234	1.0232	0.0840	239		1.0455	0.1049	245	1.0570	0.1136	247
		Pure & Applied Organic Chemistry	867	0.9966	0.0833	864		1.0642	0.1084	923	1.0575	0.1097	917
		Telecommunications	661	1.0578	0.0520	699		1.0693	0.0834	707	1.1798	0.1409	780
		Vehicles & General Technology	494	0.9887	0.0248	488		1.0380	0.0470	513	1.0087	0.0283	498
		Total	7 139			7 574				7 841			8 249
		LCL				7 187				7 318			7 503
		UCL				7 961				8 365			8 994

Table 22: Forecasts for specific questions on filings at the EPO (first filings broken down by joint cluster; 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

			Year										
			2003	2004			2005			2006			
Filings type	Filing route	Cluster	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
Subsequent	Euro-Direct	Audio, Video & Media	2 563	0.9859	0.0084	2 527		1.0257	0.0543	2 629	1.0283	0.0565	2 636
		Biotechnology	731	1.0992	0.0791	803		1.0327	0.1101	755	1.0426	0.1145	762
		Civil Engineering & Thermodynamics	4 200	1.0957	0.1137	4 602		1.1268	0.1227	4 732	1.2423	0.1316	5 218
		Computer	2 063	1.0694	0.1757	2 206		1.2803	0.3192	2 641	1.7048	0.2768	3 517
		Electricity & Electrical Machines	4 019	1.0941	0.0796	4 397		1.1043	0.0838	4 438	1.1327	0.1083	4 552
		Electronics	2 373	1.0184	0.0845	2 417		1.0083	0.1263	2 393	1.0111	0.1711	2 399
		Handling and Processing	4 458	0.9594	0.1101	4 277		0.9574	0.1356	4 268	1.0002	0.1440	4 459
		Human Necessities	4 409	1.0616	0.1630	4 680		0.9968	0.1295	4 395	1.0101	0.1351	4 454
		Industrial Chemistry	2 483	1.1100	0.0893	2 756		1.0286	0.1395	2 554	1.0362	0.1676	2 573
		Measuring, Optics	2 607	1.0718	0.0720	2 794		1.1085	0.0938	2 890	1.1475	0.1150	2 991
		Polymers	1 653	1.0560	0.0858	1 746		0.9755	0.1220	1 612	0.9865	0.1373	1 631
		Pure & Applied Organic Chemistry	1 942	1.0644	0.0532	2 067		1.0166	0.1022	1 974	1.0367	0.1220	2 013
		Telecommunications	2 556	1.0779	0.0665	2 755		1.1934	0.0902	3 050	1.2395	0.1105	3 168
		Vehicles & General Technology	5 118	1.0326	0.0595	5 285		1.1130	0.0805	5 696	1.1587	0.1001	5 930
		Total	41 175			43 313				44 028			46 303
		LCL				40 750				40 816			42 529
		UCL				45 875				47 240			50 077
Subsequent	Euro-PCT-IP	Audio, Video & Media	4 815	1.0101	0.0190	4 864		1.0232	0.0341	4 927	1.0320	0.0446	4 969
		Biotechnology	7 591	1.0692	0.0581	8 116		1.0472	0.0592	7 949	1.1324	0.0596	8 596
		Civil Engineering & Thermodynamics	6 392	1.0289	0.0916	6 577		1.0776	0.1170	6 888	1.1441	0.1291	7 313
		Computer	7 364	1.1285	0.1012	8 310		1.1359	0.1111	8 365	1.2384	0.1226	9 119
		Electricity & Electrical Machines	7 867	1.0560	0.0581	8 308		1.0522	0.0704	8 277	1.0786	0.0862	8 485
		Electronics	4 503	1.1227	0.0829	5 056		1.1883	0.1378	5 351	1.2241	0.1443	5 512
		Handling and Processing	7 868	0.9850	0.0832	7 750		1.0302	0.0890	8 106	1.0358	0.1001	8 150
		Human Necessities	11 143	0.8807	0.2032	9 813		0.8770	0.2447	9 772	0.9638	0.2363	10 740
		Industrial Chemistry	8 229	1.0444	0.0668	8 594		1.0826	0.0771	8 908	1.1314	0.0932	9 310
		Measuring, Optics	6 500	1.0426	0.0664	6 777		1.0268	0.0604	6 674	1.0275	0.0761	6 679
		Polymers	5 430	1.0495	0.0644	5 699		1.0516	0.0725	5 710	1.1174	0.0757	6 067
		Pure & Applied Organic Chemistry	14 282	1.0403	0.0703	14 858		1.0743	0.0936	15 343	1.1596	0.1007	16 562
		Telecommunications	6 381	1.0691	0.0490	6 822		1.0779	0.0583	6 878	1.1239	0.0712	7 172
		Vehicles & General Technology	6 502	0.9652	0.0927	6 276		1.0252	0.0817	6 666	1.0563	0.0926	6 868
		Total	104 867			107 819				109 815			115 544
		LCL				102 069				102 791			107 675
		UCL				113 568				116 839			123 412

Table 23: Forecasts for specific questions on filings at the EPO (subsequent filings broken down by joint cluster; 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

			Year										
			2003	2004				2005			2006		
Filings type	Filing route	Cluster	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
All	Euro-Direct	Audio, Video & Media	3 646			3 624				3 773			3 760
		Biotechnology	1 857			2 014				2 879			2 936
		Civil Engineering & Thermodynamics	5 089			5 642				5 854			6 364
		Computer	3 003			3 131				3 699			4 501
		Electricity & Electrical Machines	5 170			5 550				5 736			5 873
		Electronics	3 317			3 384				3 388			3 410
		Handling and Processing	5 515			5 445				5 557			5 799
		Human Necessities	5 364			5 620				5 478			5 659
		Industrial Chemistry	3 169			3 630				4 353			4 531
		Measuring, Optics	3 542			3 757				3 928			4 051
		Polymers	2 228			2 365				3 093			3 202
		Pure & Applied Organic Chemistry	3 535			3 820				5 545			5 785
		Telecommunications	3 741			3 898				4 279			4 435
		Vehicles & General Technology	5 876			6 027				6 628			6 869
Total	55 052			57 907	57 986			64 192			67 176		
LCL				55 296				55 044			56 983		
UCL				60 519				73 340			77 368		
All	Euro-PCT-IP	Audio, Video & Media	5 149			5 197				5 267			5 316
		Biotechnology	7 881			8 419				8 250			8 895
		Civil Engineering & Thermodynamics	6 899			7 096				7 409			7 867
		Computer	7 787			8 804				8 938			9 781
		Electricity & Electrical Machines	8 279			8 763				8 732			8 955
		Electronics	4 875			5 638				5 927			6 164
		Handling and Processing	8 638			8 518				8 908			9 031
		Human Necessities	12 026			10 679				10 625			11 604
		Industrial Chemistry	8 793			9 215				9 598			10 034
		Measuring, Optics	6 828			7 118				7 018			7 033
		Polymers	5 664			5 938				5 955			6 315
		Pure & Applied Organic Chemistry	15 149			15 722				16 265			17 479
		Telecommunications	7 042			7 521				7 585			7 952
		Vehicles & General Technology	6 996			6 764				7 178			7 367
Total	112 006			115 392	119 600			117 656			123 792		
LCL				109 745				110 753			116 047		
UCL				121 040				124 559			131 538		
Grand Total	Total	Audio, Video & Media	8 795			8 821				9 040			9 076
		Biotechnology	9 738			10 433				11 129			11 831
		Civil Engineering & Thermodynamics	11 988			12 738				13 263			14 231
		Computer	10 790			11 935				12 638			14 282
		Electricity & Electrical Machines	13 449			14 313				14 468			14 828
		Electronics	8 192			9 022				9 315			9 575
		Handling and Processing	14 153			13 963				14 465			14 830
		Human Necessities	17 390			16 299				16 103			17 263
		Industrial Chemistry	11 962			12 845				13 951			14 565
		Measuring, Optics	10 370			10 876				10 946			11 084
		Polymers	7 892			8 303				9 048			9 517
		Pure & Applied Organic Chemistry	18 684			19 542				21 811			23 264
		Telecommunications	10 783			11 419				11 864			12 386
		Vehicles & General Technology	12 872			12 791				13 806			14 235
Total	167 058			173 300	177 586			181 848			190 968		
LCL				167 202				170 618			178 423		
UCL				179 397				193 079			203 513		
Growth from 2003					3.7%				8.9%			14.3%	
Implied Euro-PCT-IP		67.0%			66.6%	67.3%			64.7%			64.8%	
Deviation in % of forecast					3.5%				6.2%			6.6%	

Table 24: Forecasts for specific questions on filings at the EPO (first and subsequent filings combined, broken down by joint cluster; Q index based on Random group)

Since the breakdown of the sample into 14 sub-groups results in rather few observations per group, the individual Q-indices per joint cluster have relatively large standard errors.

The breakdown by joint cluster yields lower forecasts for total filings than the breakdown by bloc, and the forecasts are closer to the forecasts given without breakdown. But just because the span of the confidence limits on the total filings forecasts calculated with this method are narrower than in the case of the residence bloc breakdown, it is not suggested that these total filings forecasts should be adopted. As mentioned before, the respondents were allowed to choose more than one cluster to indicate their main business, with the result that there are significantly more respondents per joint cluster than last year. This means a decrease in the standard error, but one has to take into account the fact that all of the answers provided in **Section B** of the questionnaire are used to calculate the Q-index for each joint cluster that is reported for that applicant. Differing respondent behaviour as a function of cluster is not considered. For this year's survey, it appears to be better to use a forecast with no subsidiary breakdown rather than a breakdown by joint cluster. Nevertheless, the approach based on joint clusters is interesting because it provides forecasts for individual joint clusters of the various primary combinations (first filings/subsequent filings, Euro-direct/Euro-PCT-IP).

7.4 Comparison of results

Bearing in mind the statistical errors resulting from the sampling methods that were used, there is a reasonable level of agreement between the results acquired for the Biggest group (**Tables 10** and **11**) and those for the Random group under the scenario of **Tables 12** and **13** and **Figure 4**. Unusually, it appears that in this survey the most accurate forecasts have been obtained for the Random group without a breakdown due to the blocs of residence of the applicants (**Table 12**).

The 2004 forecasts reported in the *Applicant panel survey 2003* were lower than the forecasts in the current survey. There was likely a slight increase in enthusiasm regarding filing expectations among the applicant population in the interval between the two surveys (summer 2003 and summer 2004).

Table 25 compares the preferred forecasts derived from the surveys since 2001.

Survey	Forecasting year		
	2003	2004	2005
2001	198 092		
2002	176 425	188 214	
2003	160 766	169 511	175 029
2004	167 141 (actual)	174 456	182 833

Table 25: Comparison of forecasts derived since 2001

8 Results 2: Forecasts for national applications (excluding PCT) by country

Intentions regarding future patent filings were obtained for questions (c) to (i) in **Section B** of the questionnaire (**Annex 1**). Further investigations were carried out using the results from the Random group and applying the Q-index method after transforming the data into natural logarithms. **Table 26** shows the results of the Q-index calculation. In addition, the standard errors of the logarithms of the growth indices and number of cases considered are shown. At the time of writing, figures for the base year (2003) by first filing/subsequent filing and residence bloc are not known for most of the patent systems outside the EPO. For this reason, the results are presented in terms of growth rate estimates only. For some national applications, the calculation of the Q-index was not applicable (e.g. applications of Japanese companies in France). In this case the Q-index was set to 1.0 and the standard error to 0.0 in order to indicate that no change is predictable for the numbers of applications for the following years.

Since it was established in the *Applicant panel 2003 survey* that the variability of the estimates could be reduced in some cases by cleaning the data, results are given twice, once for the whole set of available data and again after removing cases where the researchers made qualifying comments. The effect of the cleaning process has already been discussed. In general, the process of cleaning seems not to have had a great impact on the results obtained from the other questions. **Table 27** provides an overview of the calculated Q-indices for national applications.

Random Group
Breakdown by residence bloc
Q Indices

			2004			2005			2006		
Filings type	Nation	Res. bloc	# of Cases	Q Index 04	S.E. 04	# of Cases	Q Index 05	S.E. 05	# of Cases	Q Index 06	S.E. 06
First	Germany (c)	EP	206	1.0094	0.0225	196	0.9147	0.1187	189	0.9340	0.1238
		JA	54	1.0332	0.0282	51	1.0352	0.0295	50	1.0358	0.0299
		OT	8	1.0839	0.0741	5	1.0238	0.0204	5	1.0664	0.0558
		US	53	1.0656	0.0259	51	1.0293	0.0217	48	1.0276	0.0240
	United Kindom (d)	EP	104	1.0420	0.0425	99	1.0734	0.0226	93	1.0644	0.0209
		JA	54	1.0389	0.0278	51	1.0456	0.0294	50	1.0503	0.0305
		OT	7	1.0998	0.0734	6	1.0607	0.0335	6	1.1515	0.0866
		US	53	1.0263	0.0634	51	1.0370	0.0435	49	1.0339	0.0470
	France (e)	EP	112	1.0269	0.0254	104	1.0480	0.0293	97	1.0605	0.0211
		JA	54	1.0000	0.0000	51	1.0000	0.0000	50	1.0000	0.0000
		OT	8	1.1019	0.0892	5	1.0000	0.0000	5	1.0829	0.0692
		US	50	1.0385	0.0286	48	1.0348	0.0286	46	1.0341	0.0305
	Japan (f)	EP	94	1.2866	0.1441	90	1.1025	0.0327	84	1.0906	0.0287
		JA	106	1.0415	0.0157	102	1.0949	0.0246	101	1.1193	0.0274
		OT	9	1.4689	0.1942	7	1.3103	0.2061	7	1.4027	0.2268
		US	60	1.0362	0.0776	57	0.9580	0.0549	55	0.9547	0.0575
	United States (g)	EP	144	0.9853	0.0335	134	1.0162	0.0368	124	1.0373	0.0412
		JA	65	1.1452	0.0582	61	1.2012	0.0695	60	1.2131	0.0808
		OT	12	0.9466	0.1455	8	0.9282	0.1204	8	0.9901	0.1307
		US	94	1.0018	0.0332	89	1.0545	0.0372	86	1.0912	0.0461
	Other Countries (h)	EP	120	1.0582	0.0631	111	1.1813	0.1019	106	1.2030	0.1026
		JA	56	1.1045	0.0479	52	1.1223	0.0499	51	1.1579	0.0477
		OT	12	1.0234	0.1277	8	0.8824	0.1334	7	0.9896	0.0760
		US	53	1.1228	0.1010	51	1.0759	0.0971	49	1.1947	0.1689
	Worldwide total (i)	EP	363	0.9816	0.0225	348	1.0415	0.0212	326	1.0629	0.0239
		JA	111	1.0357	0.0157	107	1.0541	0.0282	106	1.0830	0.0299
		OT	18	1.1662	0.0960	15	1.0608	0.0735	14	1.1043	0.0907
		US	112	0.9991	0.0330	108	1.1060	0.0401	103	1.1649	0.0638
Subsequent	Germany (c)	EP	96	1.0768	0.0295	94	1.0973	0.0376	91	1.0998	0.0387
		JA	71	1.0103	0.0336	66	1.0524	0.0355	66	1.0677	0.0356
		OT	5	0.8817	0.1707	5	0.7358	0.3251	5	0.8817	0.1689
		US	52	1.0487	0.0317	49	1.0038	0.0336	48	1.0315	0.0381
	United Kindom (d)	EP	94	0.9763	0.0514	92	1.0240	0.0459	89	1.0086	0.0414
		JA	66	1.0049	0.0210	61	0.9912	0.0224	61	1.0072	0.0174
		OT	6	0.8163	0.1855	6	0.7012	0.3244	6	0.8163	0.1824
		US	52	1.0260	0.0332	49	0.9781	0.0173	49	0.9847	0.0191
	France (e)	EP	93	1.0104	0.0143	88	0.9986	0.0171	84	1.0044	0.0187
		JA	66	1.0077	0.0153	61	1.0173	0.0137	61	1.0188	0.0142
		OT	5	1.0279	0.3070	5	0.8578	0.4430	5	1.0279	0.3070
		US	49	0.9899	0.0519	46	0.9317	0.0455	46	0.9350	0.0465
	Japan (f)	EP	135	0.6000	0.4338	124	0.5772	0.4232	121	0.5687	0.4331
		JA	69	1.0651	0.0348	63	1.1071	0.0392	63	1.2434	0.0932
		OT	8	1.1889	0.0938	8	1.0871	0.0623	8	1.1188	0.0749
		US	59	0.9890	0.1998	56	1.0101	0.0356	56	1.0376	0.0385
	United States (g)	EP	171	0.9758	0.0517	158	0.9478	0.0632	156	0.9633	0.0681
		JA	86	1.0530	0.0260	82	1.0715	0.0352	82	1.1029	0.0356
		OT	12	0.9012	0.1293	9	1.3163	0.1007	7	1.2752	0.1025
		US	71	0.9625	0.0520	68	0.9588	0.0889	68	1.0624	0.0490
	Other Countries (h)	EP	134	0.5451	0.5168	127	0.5442	0.5307	129	0.5524	0.5348
		JA	79	1.1068	0.0269	74	1.2018	0.0378	74	1.2628	0.0464
		OT	11	1.0235	0.1216	9	1.0415	0.1331	7	1.0904	0.1750
		US	53	0.8701	0.1385	52	0.9751	0.0954	51	0.9589	0.0938

Table 26: Q-indices, standard errors and number of cases for national applications (excluding PCT)

Random Group
Breakdown by residence bloc (excluding companies with qualifying comments)
Q Indices

Filings type	Nation	Res. bloc	2004			2005			2006		
			# of Cases	Q Index 04	S.E. 04	# of Cases	Q Index 05	S.E. 05	# of Cases	Q Index 06	S.E. 06
First	Germany (c)	EP	166	1.0084	0.0252	156	0.8900	0.1388	151	0.9089	0.1457
		JA	45	1.0390	0.0321	42	1.0418	0.0338	41	1.0426	0.0343
		OT	5	1.0000	0.0000	3	1.0000	0.0000	3	1.0000	0.0000
		US	39	1.0824	0.0313	38	1.0305	0.0248	35	1.0257	0.0272
	United Kindom (d)	EP	86	1.0383	0.0464	83	1.0615	0.0220	77	1.0474	0.0192
		JA	45	1.0390	0.0321	42	1.0418	0.0339	41	1.0426	0.0344
		OT	4	1.0233	0.0202	4	1.0471	0.0403	4	1.0714	0.0605
		US	40	1.0291	0.0744	39	1.0315	0.0478	37	1.0245	0.0518
	France (e)	EP	98	1.0267	0.0281	91	1.0521	0.0324	84	1.0643	0.0235
		JA	45	1.0000	0.0000	42	1.0000	0.0000	41	1.0000	0.0000
		OT	5	1.0000	0.0000	3	1.0000	0.0000	3	1.0000	0.0000
		US	38	1.0618	0.0306	37	1.0545	0.0300	35	1.0528	0.0321
	Japan (f)	EP	82	1.3004	0.1484	79	1.1049	0.0342	73	1.0916	0.0300
		JA	84	1.0381	0.0172	81	1.0760	0.0220	81	1.0991	0.0252
		OT	6	1.6110	0.2763	5	1.4369	0.2844	5	1.5185	0.3152
		US	42	1.0414	0.0956	41	0.9233	0.0662	39	0.9162	0.0706
	United States (g)	EP	125	0.9774	0.0364	117	1.0103	0.0388	107	1.0311	0.0436
		JA	52	1.1150	0.0595	48	1.1668	0.0698	47	1.1751	0.0858
		OT	9	0.8694	0.1777	6	0.8908	0.1554	6	0.9329	0.1667
		US	66	0.9986	0.0333	63	1.0275	0.0408	60	1.0498	0.0509
	Other Countries (h)	EP	99	1.0528	0.0710	93	1.1855	0.1122	88	1.2067	0.1133
		JA	46	1.0612	0.0532	42	1.0776	0.0559	41	1.1125	0.0519
		OT	9	0.8506	0.0869	6	0.8092	0.1634	5	0.9209	0.0761
		US	37	1.1628	0.1204	37	1.0589	0.1178	36	1.2062	0.2114
	Worldwide total (i)	EP	294	0.9931	0.0232	283	1.0384	0.0213	265	1.0634	0.0248
		JA	88	1.0298	0.0172	85	1.0363	0.0321	85	1.0669	0.0334
		OT	13	1.0367	0.0955	11	1.0258	0.0921	10	1.0710	0.1220
		US	81	0.9888	0.0358	78	1.0813	0.0456	73	1.1361	0.0777
Subsequent	Germany (c)	EP	82	1.0589	0.0294	80	1.0692	0.0367	76	1.0673	0.0376
		JA	61	0.9971	0.0362	56	1.0362	0.0374	56	1.0437	0.0353
		OT	3	1.0816	0.0623	3	1.0816	0.0567	3	1.0816	0.0567
		US	37	1.0041	0.0222	34	1.0008	0.0200	33	1.0199	0.0231
	United Kindom (d)	EP	78	0.9742	0.0578	76	1.0107	0.0492	72	0.9876	0.0427
		JA	57	0.9965	0.0219	52	0.9900	0.0256	52	1.0082	0.0199
		OT	4	1.0000	0.0000	4	1.0000	0.0000	4	1.0000	0.0000
		US	36	0.9959	0.0166	34	0.9866	0.0181	34	0.9850	0.0190
	France (e)	EP	78	1.0068	0.0149	74	0.9904	0.0161	69	0.9923	0.0174
		JA	57	1.0087	0.0174	53	1.0195	0.0155	53	1.0212	0.0160
		OT	3	1.4715	0.2790	3	1.4715	0.2790	3	1.4715	0.2790
		US	35	0.9441	0.0587	33	0.9370	0.0504	33	0.9339	0.0507
	Japan (f)	EP	112	0.5629	0.4681	103	0.5333	0.4522	100	0.5225	0.4629
		JA	58	1.0703	0.0408	53	1.1151	0.0457	53	1.2736	0.1099
		OT	6	1.2514	0.1190	6	1.1144	0.0796	6	1.1566	0.0950
		US	40	0.9268	0.2594	37	1.0052	0.0312	37	1.0275	0.0336
	United States (g)	EP	146	0.9819	0.0574	134	0.9382	0.0678	131	0.9509	0.0731
		JA	72	1.0395	0.0281	68	1.0868	0.0302	68	1.0787	0.0381
		OT	9	0.9326	0.1588	7	1.4172	0.1154	5	1.3940	0.1223
		US	49	0.9336	0.0657	47	0.9179	0.1145	47	1.0313	0.0522
	Other Countries (h)	EP	115	0.5142	0.5532	109	0.5117	0.5668	108	0.5145	0.5749
		JA	68	1.0932	0.0285	63	1.1774	0.0386	63	1.2315	0.0485
		OT	8	0.9824	0.1426	7	1.1224	0.1506	5	1.2222	0.2100
		US	36	0.7985	0.1664	35	0.9573	0.1148	34	0.9250	0.1085

Table 27: Q-indices, standard errors and number of cases for national applications (excluding PCT) excluding qualifying comments

The most interesting figures are perhaps the worldwide total first filings (i). These suggest that fewer first filings would be made in 2004 than in 2003 for the EPC and US residence blocs, with only limited growth expected for Japan. Others are growing with 16.6%, but on a lower basis. This is potentially bad news for filings in 2005 in supranational systems, such as the EPO and PCT systems, which get most of their volume from subsequent filings. But the intentions for worldwide total first filings turn to positive growth for 2005 and 2006 for all residence blocs.

This suggests the possibility of further growth in filings for the EPO and PCT systems from 2005 to 2006. A high rate of growth is estimated for applicants in the "other" bloc, but this is based on a small number of responses and may reflect a sampling bias.

9 Results 3: Forecasts for PCT national/regional phase applications

New questions were added to **Section B** of the questionnaire in 2004, asking about the numbers of PCT applications in the EPO regional phase and in the national phases in the US, Japan and Germany. The results for PCT national/regional phase applications show that, for the different patent offices, there is generally an intention to increase numbers of filings entering the national/regional phase in 2005, although US based applicants remain subdued. In **Annex IV Tables 44** and **45** the details of all the results for the random group are shown. As in the previous analysis, the calculations were carried out twice, once including companies with qualifying comments and once excluding them.

Especially applicants residing in Japan are fairly positive about increasing their filings that will enter the national/regional phase. The expected growth rates are the highest of all respondents. Applicants residing in EPC countries seem to be less optimistic: their expected growth rates are the second lowest, just ahead of US applicants. However, the situation changes in 2005: with the exception of US applicants, all respondents expect increasing numbers of applications for all patent offices.

The results should be interpreted with care, as the sampling frame covered only applicants that had previously applied at the EPO. No conclusions should be drawn regarding the intentions of those applicants that did not apply at the EPO in 2003.

Since historical filing data are only available in the EPO databases for the EPO regional phase PCT applications, forecasts of filings numbers were calculated for Euro-PCT-RP filings at the EPO only. **Tables 28** to **33** show the results.

Apparently the number of applications may decrease in 2005 after a sharp increase in 2004. In 2006, there will be renewed growth and the level of 2004 will be exceeded. However, this may simply reflect statistical variability in the results, particularly the variations in the small numbers of responses from the bloc Others.

As for Euro-direct and PCT-IP filings, the analysis was conducted starting with the Biggest group, with a calculation of the simple composite index taking into account a breakdown by residence bloc. The results of this analysis are shown in **Table 28**.

The overall forecast for total filings in 2004 is 71 042. For 2005 and 2006, the respective forecasts are 64 416 and 66 566.

The results fluctuate more than in the following analyses based on the more extensive Random group, but due to the relatively low number of valid answers (1 to 2) particularly for applicants residing in Japan and Others, the results shown for the Biggest group should be interpreted cautiously.

Next, the analysis was conducted for the Random group starting with a calculation of the Q-indices taking no subsidiary breakdown into account. In a second step, companies with qualifying comments were excluded. The results of this analysis are shown in **Tables 29** and **30**.

The overall forecast for total filings based on the complete data set in 2004 is 64 524, with approximate 95% confidence limits of 60 234 to 68 814, resulting in a deviation of 6.6%.

This method predicts total filings of 63 910 in 2005 (approximate 95% confidence limits of 57 082 and 70 739) and 71 147 in 2006 (approximate 95% confidence limits of 65 008 and 77 286).

The overall forecast for total filings based on a data set excluding companies with qualifying comments in 2004 is 63 964, with approximate 95% confidence limits of 58 948 to 68 980, resulting in a higher deviation of 7.8%.

This method predicts total filings of 62 357 in 2005 (approximate 95% confidence limits of 54 492 and 70 222) and 70 061 in 2006 (approximate 95% confidence limits of 62 997 and 77 125). The conclusion is the same as for the Euro-direct and PCT-IP filings: cleaning the data does not increase the quality of the forecasts.

Afterwards, the analysis was repeated with respect to the breakdown by residence bloc. The results are shown in **Tables 31** and **32**.

The overall forecast for total filings in 2004 according to this approach is 64 616, with approximate 95% confidence limits of 60 374 to 68 858, resulting in a deviation of 6.6%.

This method predicts total filings of 62 532 in 2005 (approximate 95% confidence limits of 54 447 and 70 616) and 73 442 in 2006 (approximate 95% confidence limits of 67 272 and 79 613).

After excluding companies with qualifying comments, the annual growth rates are quite similar, but the deviation of the forecasts is significantly higher than before.

The overall forecast for total filings in 2004 is 63 821, with approximate 95% confidence limits of 58 858 to 68 784, resulting in a deviation of 11.9%.

This method predicts total filings of 60 405 in 2005 (approximate 95% confidence limits of 50 832 and 69 978) and 72 984 in 2006 (approximate 95% confidence limits of 65 507 and 80 461).

After conducting the analysis broken down by residence bloc, the same data were analysed with respect to the breakdown by joint cluster. As mentioned in **Section 7.3** of the report, an approximate correction factor was introduced for the standard error. This correction factor takes into account the average repetition factor of 1.7 and widens the confidence limits. **Table 33** shows the results in greater detail.

The overall forecast for total filings in 2004 according to the breakdown by joint cluster is 64 466, with approximate 95% confidence limits of 60 368 to 68 564, resulting in a deviation of 6.4%.

This method predicts total filings of 64 914 in 2005 (approximate 95% confidence limits of 60 130 and 69 698) and 68 346 in 2006 (approximate 95% confidence limits of 62 617 and 74 076).

Biggest group
Breakdown by residence bloc
Composite Indices

		2003	2004			2005		2006	
Patent Office	Res. bloc	Actual filings	Index 04	Predicted filings	Actual filings	Index 05	Predicted filings	Index 06	Predicted filings
EPO	EP	27 939	0.9693	27 082		0.9542	26 658	0.9926	27 734
	JA	8 543	1.3014	11 118		1.2962	11 074	1.3481	11 517
	OT	5 053	0.6250	3 158		0.8750	4 421	1.0000	5 053
	US	22 263	1.3333	29 684		1.0000	22 263	1.0000	22 263
Total	Total	63 798		71 042	64 442		64 416		66 566
Growth from 2003				11.4%			1.0%		4.3%

Table 28: Forecasts for Euro-PCT-RP applications (breakdown by residence bloc; composite index based on Biggest group)

Random group
No subsidiary breakdown
Q Indices

		2003	2004				2005			2006		
Patent Office	Res. bloc	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
EPO	Total	61 529	1.0487	0.0339	64 524	64 442	1.0387	0.0545	63 910	1.1563	0.0440	71 147
	LCL				60 234				57 082			65 008
	UCL				68 814				70 739			77 286
Growth from 2003					4.9%				3.9%			15.6%
Deviation in % of forecast					6.6%				10.7%			8.6%

Table 29: Forecasts for Euro-PCT-RP applications (no subsidiary breakdown; Q index based on Random group)

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

		2003	2004				2005			2006		
Patent Office	Res. bloc	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
EPO	Total	61 529	1.0396	0.0400	63 964	64 442	1.0135	0.0643	62 357	1.1387	0.0514	70 061
	LCL				58 948				54 492			62 997
	UCL				68 980				70 222			77 125
Growth from 2003					4.0%				1.3%			13.9%
Deviation in % of forecast					7.8%				12.6%			10.1%

Table 30: Forecasts for Euro-PCT-RP applications (no subsidiary breakdown; excluding companies with qualifying comments; Q index based on Random group)

Random group
Breakdown by residence bloc
Q Indices

		2003	2004				2005			2006		
Patent Office	Res. bloc	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
EPO	EP	27 939	0.9881	0.0330	27 606		1.0098	0.0441	28 214	1.0521	0.0531	29 394
	JA	7 408	1.3464	0.0913	9 974		1.3715	0.0814	10 160	1.3905	0.0837	10 301
	OT	4 775	1.3030	0.1088	6 222		1.2061	0.1174	5 759	1.4860	0.1471	7 096
	US	21 407	0.9723	0.0763	20 815		0.8595	0.1995	18 399	1.2450	0.0881	26 652
Total	Total	61 529			64 616	64 442			62 532			73 442
	LCL				60 374				54 447			67 272
	UCL				68 858				70 616			79 613
Growth from 2003					5.0%				1.6%			19.4%
Deviation in % of forecast					6.6%				12.9%			8.4%

Table 31: Forecasts for Euro-PCT-RP applications (broken down by residence bloc; Q index based on Random group)

Random group
Breakdown by residence bloc (excluding companies with qualifying comments)
Q Indices

		2003	2004				2005			2006		
Patent Office	Res. bloc	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
EPO	EP	27 939	0.9746	0.0368	27 229		0.9826	0.0487	27 453	1.0250	0.0595	28 637
	JA	7 408	1.4001	0.1048	10 372		1.3998	0.0933	10 369	1.4103	0.0957	10 447
	OT	4 775	1.3062	0.1401	6 237		1.1837	0.1498	5 652	1.5183	0.2097	7 250
	US	21 407	0.9335	0.0920	19 983		0.7908	0.2540	16 930	1.2449	0.1062	26 650
Total	Total	61 529			63 821	64 442			60 405			72 984
	LCL				58 858				50 832			65 507
	UCL				68 784				69 978			80 461
Growth from 2003					3.7%				-1.8%			18.6%
Deviation in % of forecast					7.8%				15.8%			10.2%

Table 32: Forecasts for Euro-PCT-RP applications (broken down by residence bloc; excluding companies with qualifying comments; 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

		Year										
		2003	2004				2005			2006		
Patent Office	Cluster	Actual filings	Q Index 04	S.E. 04	Predicted filings	Actual filings	Q Index 05	S.E. 05	Predicted filings	Q Index 06	S.E. 06	Predicted filings
EPO	Audio, Video & Media	2 856	0.8169	0.1218	2 333		0.7491	0.1558	2 139	0.7527	0.2179	2 150
	Biotechnology	5 343	1.1316	0.0856	6 046		1.1232	0.0677	6 001	1.1923	0.0818	6 371
	Civil Engineering & Thermodynamics	3 393	1.0610	0.1306	3 600		1.0781	0.1444	3 658	1.0710	0.1655	3 634
	Computer	3 888	1.2113	0.2257	4 710		1.2848	0.2319	4 995	1.4318	0.2671	5 567
	Electricity & Electrical Machines	4 281	0.8640	0.1198	3 699		0.8136	0.1675	3 483	0.8321	0.2132	3 562
	Electronics	2 714	1.0590	0.1505	2 874		1.0379	0.2112	2 817	1.2465	0.1944	3 383
	Handling and Processing	4 414	1.0062	0.0769	4 441		1.0847	0.0858	4 788	1.1009	0.0934	4 859
	Human Necessities	5 443	1.2913	0.1292	7 028		1.1912	0.1491	6 484	1.3877	0.1403	7 553
	Industrial Chemistry	4 915	1.0658	0.0770	5 239		1.0973	0.0868	5 393	1.1269	0.1008	5 539
	Measuring, Optics	3 669	0.9120	0.1517	3 346		0.8799	0.2046	3 228	0.8592	0.2283	3 152
	Polymers	3 810	1.0713	0.0593	4 082		1.0925	0.0736	4 162	1.1388	0.0846	4 339
	Pure & Applied Organic Chemistry	9 139	1.0611	0.0669	9 697		1.1382	0.0856	10 402	1.1539	0.1023	10 546
	Telecommunications	4 138	1.0492	0.1075	4 342		1.0376	0.1186	4 294	1.1504	0.1186	4 760
	Vehicles & General Technology	3 523	0.8597	0.0923	3 029		0.8712	0.1487	3 069	0.8320	0.1625	2 931
	Total	61 526			64 466				64 914			68 346
	LCL				60 368				60 130			62 617
	UCL				68 564				69 698			74 076
Growth from 2003				4.8%				5.5%			11.1%	
Deviation in % of forecast				6.4%				7.4%			8.4%	

Comment: Difference of 82 filings unclassified.

Table 33: Forecasts for Euro-PCT-RP applications (broken down by joint cluster; Q index based on Random group)

10 Results 4: Analysis of R&D budgets (Random group)

In **Section C** of the questionnaire, applicants were asked to provide more detailed information on their R&D budget, the number of inventions, and the number of first patent filings split by joint cluster in 2003. Regarding the R&D budget, the approximate size of the R&D budget used for working on activities that might lead to patent applications and the percentage of the R&D budget that was spent before the point of decision on patenting was specifically asked for. The analysis is based on the Random group only in order to provide a representative result for the EPO applicants. The same weighting factor as for the calculation of the Q-indices was used to balance distortions resulting from the sampling method.

Before analysing **Section C** of the questionnaire, the answers given for the R&D budget had to be recalculated to EUR. The exchange rate as of 15 August 2004 was applied to the applicants' R&D budget. **Table 34** shows the main statistics for the responses regarding activities in various sectors.

In **Section C**, respondents were asked to allocate their information on R&D budgets, inventions and first patent filings to the specific joint clusters. Therefore, no artificial multiplication of data occurs in the analysis for this section, and no correction factor is necessary. If a company provided only total figures without indicating any cluster breakdown, this case was eliminated from the respective analysis. If the company provided only total R&D budgets, but ticked at least the clusters it is active in, then the total figures were distributed among these clusters equally or according to the number of inventions/first filings (if provided).

Bearing in mind the low number of responses and the resulting skewness of the data, the median is introduced as a more stable average parameter in terms of statistics. However, the results are based on low numbers of responses. Therefore, it was decided to present also Poisson weighted mean values - proceeding as previously described in **Section 6** for the Q index growth index calculation method.

Random group
Activities in various sectors
Breakdown by Joint Cluster

Bloc of Origin	Joint Cluster	Statistics	Approximate size of R&D budget used for working on activities that might lead to patent applications 2003 [EUR]	R&D budget that was spent before the point of decision on patenting 2003 [EUR]	Number of inventions that led to consider making a patent application 2003	Number of first patent filings made 2003
Total	Audio, Video & Media	N	11	7	9	11
		MIN	20 000	800	1	0
		MAX	354 200 000	283 360 000	202	198
		MEAN	165 898 586	43 053 337	175	86
		MEDIAN	200 000 000	1 050 790	200	100
		STD	1 035 270 114	703 807 825	860	500
	Biotechnology	N	46	26	49	61
		MIN	44 861	37 600	0	0
		MAX	808 300 000	61 987 500	226	180
		MEAN	147 650 834	8 956 220	43	38
		MEDIAN	16 166 000	780 010	10	14
		STD	1 664 981 229	107 571 567	448	401
	Civil Engineering & Thermodynamics	N	22	17	29	32
		MIN	10 000	10 000	0	0
		MAX	144 540 000	16 965 000	1 500	920
		MEAN	30 406 320	2 966 146	123	73
		MEDIAN	2 500 000	375 000	9	7
		STD	341 923 538	36 507 021	2 240	1 436
	Computer	N	11	7	14	15
		MIN	15 000	2 400	0	0
		MAX	503 300 000	402 640 000	2 534	2 534
		MEAN	59 237 553	63 319 572	271	212
		MEDIAN	10 000 000	52 500	5	2
		STD	984 574 515	1 001 327 536	4 562	4 406
	Electricity & Electrical Machines	N	31	12	33	36
		MIN	64 240	25 000	1	1
		MAX	1 100 000 000	416 080 000	1 800	1 000
		MEAN	535 964 033	57 749 412	880	470
		MEDIAN	219 857 600	18 279 200	500	150
		STD	5 094 427 567	771 707 563	8 080	4 410
	Electronics	N	34	18	31	34
		MIN	30 000	0	1	0
		MAX	614 600 000	491 680 000	500	1 143
		MEAN	63 655 431	30 254 934	144	138
		MEDIAN	4 512 000	451 200	80	40
		STD	863 170 525	780 734 245	1 247	2 103
	Handling and Processing	N	65	45	74	89
		MIN	10 000	1 000	0	0
		MAX	855 560 000	40 415 000	1 902	700
		MEAN	44 243 931	3 358 978	107	57
		MEDIAN	2 920 000	660 000	20	14
		STD	1 048 131 734	60 948 505	2 006	801
	Human Necessities	N	18	12	25	34
		MIN	14 000	9 100	1	1
		MAX	179 580 000	73 237 500	450	1 020
		MEAN	42 748 519	13 091 666	58	87
		MEDIAN	10 000 000	2 336 000	15	10
		STD	452 645 295	170 776 678	751	1 652
	Industrial Chemistry	N	28	17	39	45
		MIN	40 350	10 000	1	0
		MAX	404 150 000	100 000 000	334	280
		MEAN	121 608 691	16 636 707	72	56
		MEDIAN	29 098 800	3 577 000	12	12
		STD	1 399 137 878	268 081 468	803	596
	Measuring, Optics	N	29	12	30	35
		MIN	0	0	0	0
		MAX	186 000 000	92 981 250	405	180
		MEAN	66 868 171	15 550 718	105	67
		MEDIAN	100 000 000	1 845 672	160	100
		STD	473 459 468	189 123 431	787	492
	Polymers	N	30	12	26	34
		MIN	40 415	20 208	0	0
		MAX	275 000 000	75 190 000	200	980
		MEAN	93 531 912	13 015 646	37	95
		MEDIAN	26 000 000	1 295 000	15	18
		STD	919 315 393	150 431 753	346	1 501
	Pure & Applied Organic Chemistry	N	31	11	28	42
		MIN	60 623	30 311	1	1
		MAX	1 654 400 000	178 108 905	351	600
		MEAN	332 346 116	30 138 700	85	82
		MEDIAN	186 000 000	7 628 500	50	50
		STD	4 170 060 885	373 770 038	732	926
	Telecommunications	N	24	9	23	26
		MIN	52 640	15 040	1	1
		MAX	1 627 500 000	202 160 000	1 503	800
		MEAN	510 247 361	34 230 283	576	228
		MEDIAN	89 425 000	3 066 000	500	114
		STD	6 059 319 700	434 925 612	4 485	2 051
	Vehicles & General Technology	N	49	32	58	63
		MIN	0	300	0	0
		MAX	4 041 500 000	160 000 000	1 800	2 265
		MEAN	536 908 602	16 198 735	679	422
		MEDIAN	31 025 000	300 000	175	127
		STD	6 689 624 704	281 241 791	6 820	4 446
Total	Average cluster	N	429	237	468	557
		MEAN	208 319 904	18 385 276	248	148
		MEDIAN	56 817 298	2 275 050	111	51

Table 34: Main statistics for activities in various sectors

It is quite obvious that the results differ among the joint clusters, and fall into a wide range. The high standard deviation should be taken into account when interpreting the following results.

Figure 7 provides an overview of the average R&D budget spent per company in the different joint clusters (Poisson-weighted average) for activities that might lead to a patent application in 2003. The joint clusters are listed in descending order, so that the joint cluster with the highest mean R&D budget appears first.

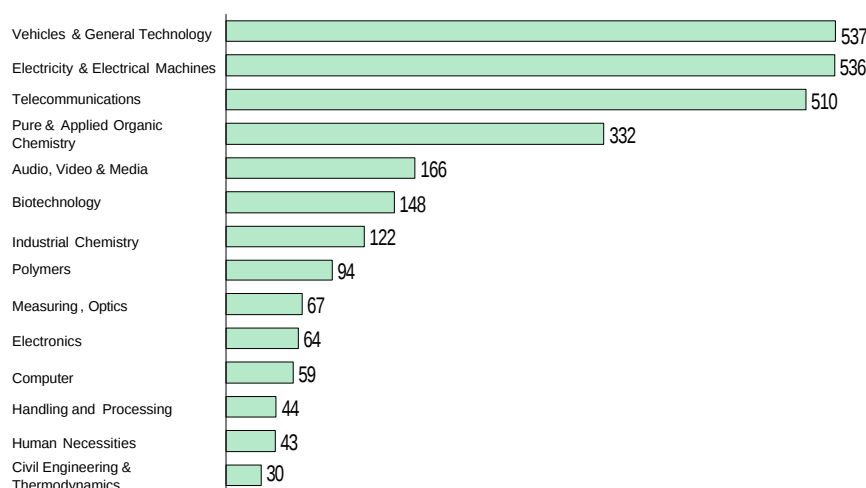


Figure 7: 2003 R&D budget ([EUR m] per company) that might lead to a patent application, broken down by joint cluster – Random group

Companies allocated to the clusters vehicles & general technology, electricity & electrical machines, and telecommunications use the highest R&D budgets (more than EUR 500 m) for activities that might lead to patent applications. Handling and processing, human necessities, and civil engineering & thermodynamics use the lowest budgets (less than EUR 50 m).

Taking into account the percentage of the R&D budget that was spent before a decision was made on patenting in 2003 yields a different ranking (**Figure 8**).

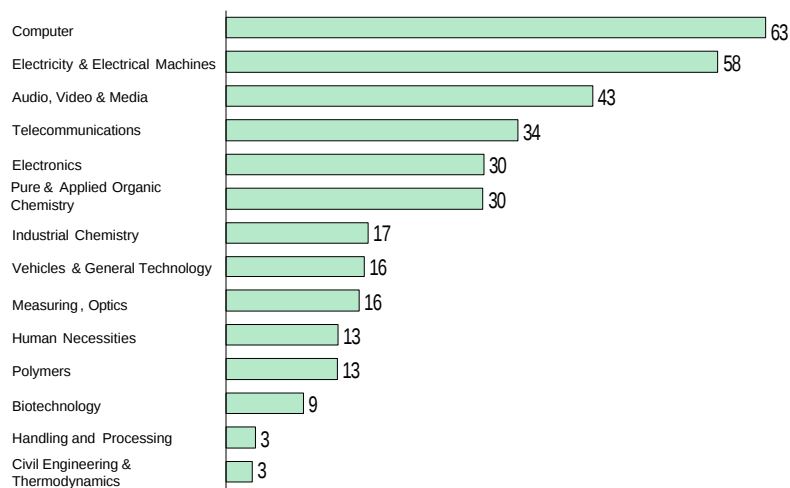


Figure 8: 2003 R&D budget spent ([EUR m] per company) before making a decision on patenting – Random group

The companies in the clusters computer, electricity & electrical machines, and audio, video and media spent more than EUR 40 m before a decision is made in 2003, while companies belonging to biotechnology, handling and processing, and civil engineering & thermodynamics spent less than EUR 10 m.

Figures 7 and 8 show that the R&D budget spent before the point of decision on patenting is, on average, much smaller than the total R&D budget spent for activities that might lead to patent applications.

The ranking differs yet again in terms of numbers of inventions that led the companies to consider filing patent applications (**Figure 9**).

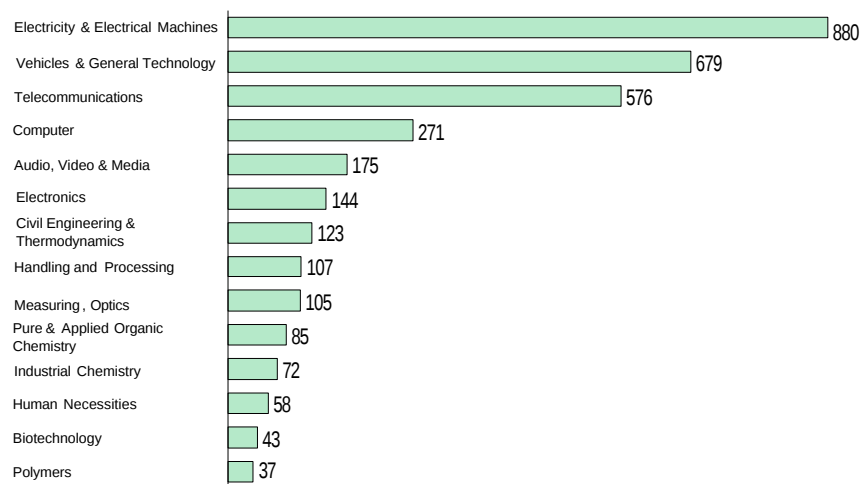


Figure 9: Number of inventions in 2003 (per company) that led to considering patenting – Random group

Again, the companies in the clusters vehicles & general technology, electricity & electrical machines, and telecommunications are the leaders, with more than 500 inventions in 2003 on average. Human necessities, biotechnology and polymers companies have the lowest figures, considering about 30 to 60 inventions.

Taking the number of first patent filings into consideration resulted in a very similar ranking (**Figure 10**).

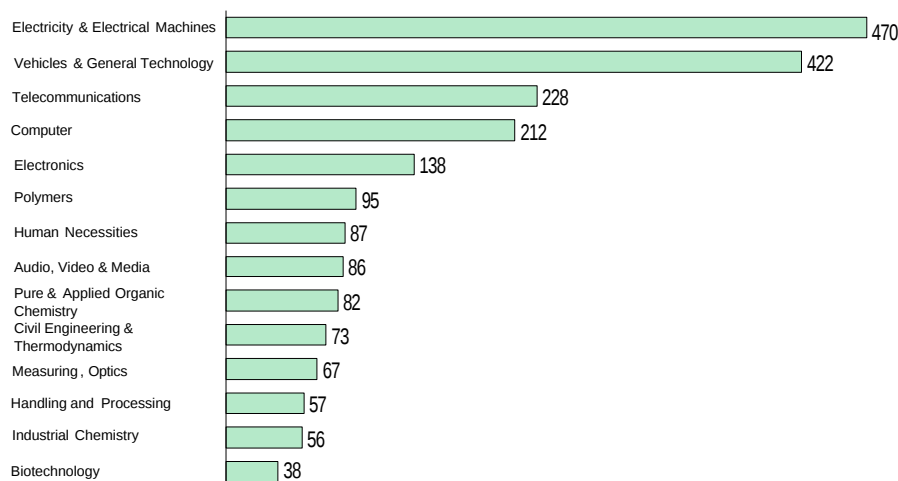


Figure 10: Number of first patent filings per company in 2003 – Random group

Companies belonging to the clusters vehicles & general technology, electricity & electrical machines, telecommunications, and computer are the leaders, with more than 200 filings on average in 2003.

Figures 9 and 10, as well as an analysis of individual cases, show that for two clusters the mean numbers of first patent filings is higher than the number of inventions that led to considering patenting in 2003 (human necessities, polymers). This is also reflected in the medians reported for two clusters in **Table 34** (biotechnology, polymers). Reasons for this might be that, in the end, the company developed more products than expected, or backlogged applications from the previous year were filed in 2003. It might also be the case that one and the same invention lead to simultaneous first filings in different procedures, or that only provisional filings could be traced and provided as inventions. However, some means displayed in **Figures 9 and 10** might also be influenced by missing values.

Another analysis was conducted regarding the proportion of inventions that get patented. Rather than analysing the number of inventions and first patent filings separately, the number of patented inventions was calculated as a percentage of all inventions that led to considering patenting and Poisson weighting was applied. **Table 35** provides an overview of the results by cluster. In **Figure 11**, the clusters are ranked in descending order, showing the average proportions of inventions that get patented.

Random group
Proportion of inventions that get patented
Breakdown by Joint Cluster

Residence bloc	Joint Cluster	Statistics	Proportion of inventions that get patented [in %, poisson weighted]
Total	Audio, Video & Media	N	11
		MIN	0%
		MAX	100%
		MEAN	50%
		MEDIAN	50%
		STD	222%
	Biotechnology	N	48
		MIN	0%
		MAX	100%
		MEAN	72%
		MEDIAN	75%
		STD	193%
	Civil Engineering & Thermodynamics	N	27
		MIN	14%
		MAX	100%
		MEAN	67%
		MEDIAN	67%
		STD	186%
	Computer	N	14
		MIN	0%
		MAX	100%
		MEAN	54%
		MEDIAN	50%
		STD	239%
	Electricity & Electrical Machines	N	36
		MIN	10%
		MAX	100%
		MEAN	66%
		MEDIAN	55%
		STD	174%
	Electronics	N	31
		MIN	0%
		MAX	100%
		MEAN	59%
		MEDIAN	63%
		STD	230%
	Handling and Processing	N	77
		MIN	0%
		MAX	100%
		MEAN	66%
		MEDIAN	67%
		STD	196%
	Human Necessities	N	29
		MIN	9%
		MAX	100%
		MEAN	70%
		MEDIAN	75%
		STD	183%
	Industrial Chemistry	N	39
		MIN	0%
		MAX	100%
		MEAN	71%
		MEDIAN	72%
		STD	190%
	Measuring, Optics	N	30
		MIN	0%
		MAX	100%
		MEAN	66%
		MEDIAN	63%
		STD	195%
	Polymers	N	26
		MIN	0%
		MAX	100%
		MEAN	73%
		MEDIAN	80%
		STD	187%
	Pure & Applied Organic Chemistry	N	28
		MIN	30%
		MAX	100%
		MEAN	76%
		MEDIAN	85%
		STD	199%
	Telecommunications	N	25
		MIN	10%
		MAX	100%
		MEAN	53%
		MEDIAN	47%
		STD	189%
	Vehicles & General Technology	N	60
		MIN	0%
		MAX	100%
		MEAN	61%
		MEDIAN	55%
		STD	191%
Total	Average cluster	N	481
		MEAN	66%
		MEDIAN	66%

Table 35: Proportion of inventions that got patented in 2003 (per company) [in %, Poisson weighted] – Random group

The last row of **Table 35** contains the mean and the median of an "average cluster" (both 66%), calculated as the average of all clusters, weighted by the number of interviewees belonging to the clusters. For this analysis, means and medians are generally similar within each cluster, suggesting that the skewness of the data on proportion of inventions is relatively low.



Figure 11: Average proportion of inventions that got patented in 2003 (per company) – Random group

For 12 individual cases, the proportion was greater than 100% and these cases were thus excluded from the analysis. Interviewees that did not report information on inventions or first patent filings were excluded as well.

The proportion varies from at least 50% for audio, video & media to a maximum of 76% for pure & applied organic chemistry. Small proportions of less than 60% are also reported for the clusters electronics, computer and telecommunications. Large proportions of more than 70% are reported for human necessities, industrial chemistry, biotechnology and polymers. The normal average proportion of 60% to 70% of inventions that get patented is reported for civil engineering & thermodynamics, handling and processing, measuring, optics, electricity & electrical machines and vehicles & general technology.

11 Results 5: Other matters

In this year's survey, some additional questions regarding other matters were included in **Section D** of the questionnaire. Beside questions regarding the time lag between initial expenditure on R&D and the first patent filing and the intended and actual usage of epoline® (EPO's electronic filing system), questions regarding the size of the patent portfolio and the license fees spent and received were asked. In order to obtain a representative analysis, the statistics are based on the Random group and, except for the final analysis of data for epoline®, results are again given in terms of medians and Poisson weighted means as in **Section 10**. Due to a high number of non-responders, the number of valid cases is also shown for each statistic.

In some cases this number of valid cases is low, so the following results should be interpreted cautiously.

The analysis of **Section D** of the questionnaire is divided into two parts. First, the continuous information was analysed similarly to **Section C**. For each variable, the main statistics were calculated broken down by residence bloc. **Table 36** shows the detailed results.

Bearing in mind the low number of responses and the resulting skewness of the data, the median is introduced as a more stable average parameter in terms of statistics. However, the results are still distorted due to the low number of responses. Another problem is the high number of interviewees who reported values of zero. Thus, the median is frequently zero. Therefore, it was decided to present also Poisson weighted mean values - proceeding as previously described in **Section 6** for the Q index growth index calculation method.

Random group
Other matters
Breakdown by residence bloc

Bloc of Origin	Statistics	Average time between initial expenditure on R&D that might lead to patent applications and the first patent filing [months]	Share of licenses in patent portfolio in 2003 [%]	Fees spent in 2003 [EUR]	Fees received in 2003 [EUR]
EP	N	276	253	84	96
	MIN	0	0	0	0
	MAX	144	100	13 050 000	462 000 000
	MEAN	15	11	142 746	486 464
	MEDIAN	12	0	0	7 000
	STD	17	25	822 511	12 213 549
JA	N	64	59	43	47
	MIN	1	0	0	0
	MAX	36	50	73 000 000	511 000 000
	MEAN	11	8	2 150 811	10 634 852
	MEDIAN	6	0	73 000	21 900
	STD	7	12	4 308 401	27 828 277
OT	N	15	13	1	3
	MIN	2	0	0	23 700
	MAX	30	75	0	7 000 000
	MEAN	11	8	0	1 167 238
	MEDIAN	12	9	0	23 700
	STD	9	31	0	2 837 572
US	N	52	56	16	17
	MIN	1	0	0	0
	MAX	75	100	8 083 000	80 830 000
	MEAN	13	15	124 779	1 599 397
	MEDIAN	7	0	25 866	0
	STD	15	39	1 088 568	10 207 389
Average region	MEAN	14	11	739 389	3 541 288
	MEDIAN	10	0	24 673	10 874

Table 36: Other matters, broken down by residence bloc – Random group; Poisson weighted

As mentioned above, the median is frequently zero, which implies that more than 50% of all interviewees reported a value of zero. The last row of the table contains the mean and the median of an "average region", calculated as the average of all blocs, weighted by the number of interviewees belonging to the bloc.

The results for the different blocs are quite similar. On average, the time lag between initial expenditure on R&D that might lead to patent applications and the first patent filings differs from 11 months (Japan) to 15 months (Europe) and seems to be very similar across all blocs. A similar result can be observed for the average share of licenses in the patent portfolio, which varies depending on the residence bloc, from 8% in Japan to 15% in the US.

There is little difference in the average license fees paid by applicants residing in Europe and the US in 2003 (EUR 142 746 for Europe and EUR 124 779 for the US), while Japan has a significantly higher figure of EUR 2 150 811. The "other" bloc did not provide any data. For license fees received, the results differ significantly. While applicants residing in Europe receive the lowest license fees on average (EUR 486 464), those residing in Japan receive the highest license fees (EUR 10 634 852). These differences might be due to the fact that the sample of Japanese companies applying at the EPO consists mostly of larger companies, whereas the sample of European companies also comprises a more substantial share of smaller EPO applicant companies (see **Section 5.3**).

The other questions regarding the usage of epoline® were analysed by weighted counts and percentages.

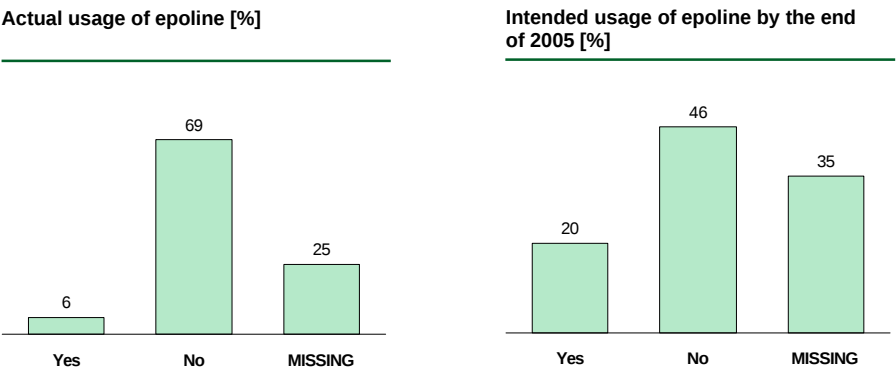


Figure 12: Actual and intended usage of epoline® – Random group; weighted by structural weight

The percentages are weighted by a structural weight that reflects the population structure of the EPO database in 2003 regarding region and number of applications. Please refer to **Annex V** for a more detailed description of the weighting procedure used for this part of the questionnaire.

Only 6% of applicants currently use epoline® for their applications. This small number should increase in the coming years, since 20% of all applicants intend to use epoline® by end of 2005.

12 Conclusions

The recommended forecasts for future filings at the EPO are those from the Random group, without additional breakdown and including companies with qualifying comments, due to the narrower upper and lower confidence limits compared with the other methods. **Table 12** summarises the forecasts.

The applicants responding to the survey in 2004 represented an appreciable percentage of applications from the total population (see **Annex VI**). There is a reasonable level of agreement between the results for the Biggest group and for the Random group, although the groups do, in fact, largely overlap. Thus, the result should be fairly representative of future filing intentions. However, there is always the possibility that the applicants who did not respond have different intentions. A follow-up study addressing the non-responders in particular could be an option to cope with this problem. In addition, a more detailed analysis of the present non-responders could be conducted in order to examine the reasons for non-responses and optimise the survey for the future.

The survey provides an estimate of the intentions of existing clients of the EPO regarding future filings in all major patent systems. Increasing numbers of filings are predicted for 2005 and 2006, except by clients residing in the US.

This survey was conducted in mid-2004, so for the forecasts to be valid, it must be assumed that filing intentions currently remain similar.

A small number of responses were received late, after having conducted the above-described analyses of the growth indices. Thus they are not included, but the researchers checked these cases manually. Heavy outliers that might distort the shown results to some extent were not observed.

Some new member states have joined the EPC after the sample for this survey had been drawn. This might lead to higher numbers of applications than predicted, but as the number of applications of these smaller countries is estimated to be relatively low, little impact is expected on the surveys' results.

Especially for applicants residing in the US, the results of this year's survey were more variable than last year, particularly regarding subsequent PCT-IP filings. A possible explanation for this greater variability may be general confusion on the part of the interviewees due to a declaration by the EPO that it would not examine PCT applications from US applicants in the three joint clusters biotechnology, computers and telecommunications as from 1 January 2002, and that filings would still be allowed, but full examinations would not be carried out.

Since then, the EPO has resumed allowing full examinations of PCT applications from US applicants as from 1 January 2004 for biotechnology, and 1 July 2004 for telecommunications. Currently, the restriction of competence for computers still remains in force. These changes in the treatment of filings for particular joint clusters may have led interviewees to exhibit distorted answering behaviour. Several tests were conducted excluding the above-mentioned joint clusters, but this actually lowered the quality of the forecasts. It was not possible to substantially improve the forecasting results.

13 Annex I: Questionnaire



European Patent Office

APPR
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LEITER PATENTABTL
ABTEILUNG
STRASSE

GROUP

ORT
LAND

Questionnaire

for Applicant Panel Survey on Patent Filings

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 corporate entity you can speak for.

A. Contact Details

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

Contact Name: _____

Phone Number: _____

E-mail-Address: _____

Organisation Name: _____

Organisation Address: _____

B. Estimation of levels of patenting activity

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. 2004 compared with 2003; 2005 compared with 2004; 2006 compared with 2005).

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 last calendar year and that you expect to file in present and future calendar years.

		Filed		Expected		Expected		Expected	
		2003		2004		2005		2006	
		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 (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, in respect of the same invention.

² Including provisional filings under the columns for first filings.

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

PCT national/regional phase applications at	Entered 2003	Expected 2004	Expected 2005	Expected 2006
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)				

Do you have any specific comments to make regarding the above section B of the questionnaire?

C. Your activities in various sectors

We are interested in **classifying your company** in terms of the *Joint Cluster* organisational groupings used for examinations at the European Patent Office.

We would also like to know more detailed information on your **R&D and patenting activities in each of the below mentioned areas** in which you were active in **2003**. Please complete the following table as far as possible.

a) Please indicate which of the following you believe contain(s) the main area(s) of your business . Please tick appropriate box(es).	b) Approximate size of your R&D budget used for working on activities that might lead to patent applications (in your national currency)	c) Percentage of your R&D budget under b) that was spent before the point of decision on patenting	d) Number of inventions where you considered making patent applications	e) Number of first patent filings actually made
1. Audio, Video and Media..... ☐				
2. Biotechnology ☐				
3. Civil Engineering Thermodynamics ☐				
4. Computers ☐				
5. Electricity and Semiconductor Technology..... ☐				
6. Electronics ☐				
7. Handling and Processing..... ☐				
8. Human Necessities... ☐				
9. Industrial Chemistry .. ☐				
10. Measuring and Optics ☐				
11. Polymers ☐				
12. Pure and Applied Organic Chemistry..... ☐				
13. Telecommunications. ☐				
14. Vehicles and General Technology..... ☐				
15. Other area,..... ☐ please specify: _____				
Total				

D. Other matters

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

Time lag: _____

Does your company already use epoline® on-line filing (electronic patent filing services)?

Yes ☐

No ☐

If not, and given the fee reduction of EUR 35 for European Applications filed on line as well as the prospective fee increase for all paper filings of EUR 35 from 1st January 2005, does your company intend to start using the system before the end of 2005?

Yes ☐

No ☐

Out of your patent portfolio³, please indicate the share of patents licensed to other companies (excluding inter-group licensing):

Share: %

³ All patents and pending patent applications in force at the end of 2003 world-wide

Please indicate the license fees your company spent and received in 2003.

(Please indicate the currency used here: _____)	To other patent holders (fees spent)	From your patents (fees received)
Total license fees		

E. Company details

Please indicate the nature of your worldwide company/organisation: Tick appropriate boxes!

Type:	Private enterprise..... ☐	Persons Employed:	1 - 9..... ☐
	Public sector..... ☐		10 - 49..... ☐
	Educational institution..... ☐		50 - 249..... ☐
	Individual inventor..... ☐		250 - 999..... ☐
	Other..... ☐		1 000 or more..... ☐

F. Comments

Please comment on any matter arising from this questionnaire. Use a separate sheet for extended comments.

A summary of the results of the survey will be published on the Web in early 2005 under www.european-patent-office.org/aps/. We will remind you of this if you leave your E-mail address under Section A of this questionnaire.

14 Annex II: Comments received from participating members of the Applicant Panel (selection)

14.1 Comments on Section B

14.1.1 General comments on Section B

- Difficult to provide precise figures for forecasts; data are estimates (e.g. because restructuring is expected) (15 mentions)
- Forecasts for 2004, 2005 and 2006 are not yet possible, e.g. because R&D projects have not yet been defined, restructuring and mergers, difficult economic situation, R&D activities are too variable (15 mentions)
- Development is expected to remain at the same level (9 mentions)
- A rise in number of applications is expected (7 mentions)
- First filings are generally filed nationally, then (mainly) PCT subsequent filings/EP filings (2 mentions)
- Development is expected to decline (2 mentions)

14.1.2 Individual comments on Section B

- The decision on the filing route depends on the type of invention (among other things)
- We never use the PCT route for first filings
- EPC and PCT filings are not cost effective or strategically aligned with our filing strategy
- These days, China is of greater interest commercially than Japan
- We have our set route (first filing UK, then PCT), but it looks like you're suggesting that there are alternative routes. I'll check with our external patent attorney about whether or not we have the most beneficial route
- Due to the modified price policy of the EPO, our PCT filings may decline significantly
- The majority of companies like ours use external patent attorneys, so a lot of the terms are "legalese" to us
- We're considering going straight through the EPC route from 2005 onwards. The reason we have not done this so far is because it's cheaper in the short term to file in the UK, so that if we find out that the application doesn't have much merit, at least we haven't spent much money on it. Also, it's more likely to get granted more quickly this way, and then other countries can follow on
- The number of PCT filings is expected to increase, particularly in the US, EP, and China
- Many first filings are within the same patent family, leading to a single international application within the priority year
- We are a small company and it has been our experience that if we describe an invention too precisely, others will copy it

- We are considering shifting from UK filings to EPC filings. It has not yet been decided, but the examination procedure in the UK is very fast
- Please note that we immediately file a US national application at the same time we file a PCT application
- We will be using PCT only in the most extreme cases of time constraints
- Filings fluctuate significantly based on factors over which we have no control, and which are not very predictable
- We file priority applications in UK, SE and US, sometimes through the EPO (for inventions in FR), and usually follow up with PCT – there is some attrition and, of course, claiming of multiple priorities
- We usually file in the US and then a PCT, or we file in NL and then a PCT designating the US – depending on the nationality of the invention
- We normally file only under PCT and designate EP countries. We select various countries for national filings depending on the technology/market
- There is a tendency towards European and international patents
- We are increasing applications in the US, Korea, Taiwan and China, but decreasing applications in Europe
- We try to limit our European applications to only those inventions that we think are clearly commercially valuable
- There will probably be more filings in Asia in the years ahead

14.2 Comments on Section C

14.2.1 General comments on Section C

- Data are not available/not known (e.g. we just come up with ideas in the normal course of business) (35 mentions)
- The data are confidential (particularly R&D budgets) (25 mentions)
- Detailed breakdown according to the specific clusters is not possible/very difficult (e.g. for public organisations) (10 mentions)

14.2.2 Individual comments on Section C

- No answer possible for universities or research centres, as the single research units are organised separately and also apply for third-party funds
- The budget is not spent primarily to achieve a patent filing, but for more general R&D objectives. If the objectives are achieved, then the result is protected by a patent filing, if possible
- We act as a deputy applicant for our parent company, but we do not have any own R&D budget
- Our research budgets always vary due to third-party funds and other allowances. In addition, some patents have been developed at our university, but the patent filings have been managed by the companies associated with third-party funds
- Due to restructuring, we are not able to obtain the budget information requested

- Some of the requested numbers and questions are a bit strange (e.g. Section C/Q. c). The filing decisions are distributed over the year and across the entire R&D organisation
- We are a pharmaceutical company. We file patent applications throughout the research and development phase. We simply cannot answer Section C appropriately
- We do not have a main area of interest because we are part of a university that has as many diverse interests as there are faculties

14.3 Comments on Section D

14.3.1 Average time between initial expenditure on R&D that might lead to patent applications and first patent filings

- The time span varies a lot (8 mentions)
- This information is not available/not known (6 mentions)
- "Prophetic patenting": The priority document is submitted before there is any R&D expenditure, which leads to a negative time span of 3 months to 1 year
- The time span depends on the technical area

14.3.2 Usage of epoline®

- An external attorney handles the filing procedure/the usage of epoline® depends on the attorney (42 mentions)
- There has not yet been any definite decision about the future usage of epoline® (8 mentions)
- We use epoline® only sometimes/to a limited extent only (3 mentions)
- epoline® is used on a trial basis (2 mentions)
- We intend to use epoline® in the future, but not as a result of the fee reductions
- No answer is possible because applications are filed by another office in the company
- We do not use epoline® for filing, but we use post-filing to track applications
- The usage of epoline® depends on the country in which the filing is done
- We use epoline® for PCT applications only
- The risks currently outweigh fee reductions

14.3.3 Share of patents licensed to other companies

- The data are confidential (8 mentions)
- The data are not known/no answer possible (7 mentions)

14.3.4 Licence fees paid and received

- The data are confidential/we don't want to answer (19 mentions)
- The data are not known/not available/no answer possible (10 mentions)

- In the past, we had a negative licence balance; now it is positive/licence fees have increased during the last years (2 mentions)
- Expenses for damages and patent infringement earnings should be included

14.4 Comments on Section F

14.4.1 General comments on Section F

- The questions are difficult to understand/the questionnaire is difficult to answer (7 mentions)
- The questions are not geared towards small companies/startups/companies with a small number of patents (3 mentions)
- The question about licence fees has nothing to do with the purpose of this questionnaire; it is not clear why the EPO wants to know about licence fees (5 mentions)
- In general, patent applications are handled by external attorneys (e.g. it is not possible to answer the question about the usage of epoline®) (8 mentions)
- The questionnaire is very time consuming/the questions ask for details that require extraordinary effort (2 mentions)

14.4.2 Individual comments on Section F

- Please let us know about "epoline®"
- Any research that can help make patent application processing faster and/or less expensive for small companies is most welcome. Thank you for inviting us to participate
- It's interesting that you're collecting this data
- You should speak in a more common tongue
- We have had different patent policies over the years, so it is difficult to pull it all together
- epoline® and the extended search report are great tools and may also trigger a higher number of applications
- An electronic version of the questionnaire would be more convenient than a hardcopy version
- The comprehensive European patent is missing – it would be easier and faster
- What we get from the EPO is quite efficient and we are pleased that they are trying to improve
- It would be appreciated if we could have a filing system that is cost competitive with the US – one EU filing – and one language
- We are very pleased and impressed with the professionalism and expertise of the EPO and EPO staff
- The European Patent Offices takes too long to examine patent applications
- The number of patent applications we file varies a lot from year to year, so we cannot forecast it. The questions are unrealistic for a medium-sized company

- As I think you have heard from other universities, these statistics are really quite impossible to predict with any accuracy. It is indeed an exercise that is, frankly, meaningless. We don't collect data in the fashion you request

15 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 2005 and 2006 (lines j, k, l or m) should be comparable (say, not more than three times as high) to the combined figures under PCT international phase first filings and subsequent filings (line b) in 2003 and 2004.
- 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 an indicator of no change compared to the base year. Compared to last year, Q-indices for combined filings were not calculated, as forecasts are actually derived by adding up the forecasts for first and subsequent filings.

16 Annex IV: Detailed forecasting results

The detailed results of the predictive analysis are shown below. For each forecast the Q-index is shown as well as the number of cases the forecast is based on and the estimated standard error of the forecast.

Filings type	Filing route	Res. block	Cases 04	Q Index 04	S.E. 04	Cases 05	Q Index 05	S.E. 05	Cases 06	Q Index 06	S.E. 06
First	Euro-Direct	Total	369	1.0754	0.0279	347	1.1937	0.0618	328	1.2271	0.0647
First	Euro-PCT-IP	Total	300	1.0755	0.0595	286	1.0804	0.0611	272	1.0959	0.0650
Sub	Euro-Direct	Total	395	0.9758	0.0488	376	1.0242	0.0480	360	1.0501	0.0527
Sub	Euro-PCT-IP	Total	422	1.0641	0.0449	402	1.1089	0.0540	390	1.1516	0.0571

Table 37: Detailed forecasting results (no further breakdown) – Random group

Filings type	Filing route	Res. block	Cases 04	Q Index 04	S.E. 04	Cases 05	Q Index 05	S.E. 05	Cases 06	Q Index 06	S.E. 06
First	Euro-Direct	All	295	1.0699	0.0312	277	1.1983	0.0711	261	1.2288	0.0746
First	Euro-PCT-IP	All	246	1.0827	0.0674	234	1.0820	0.0691	220	1.0986	0.0739
Sub	Euro-Direct	All	310	0.9587	0.0556	295	1.0108	0.0547	281	1.0333	0.0600
Sub	Euro-PCT-IP	All	334	1.0766	0.0517	319	1.1148	0.0624	307	1.1471	0.0658

Table 38: Detailed forecasting results (no further breakdown), excluding companies with qualifying comments – Random group

Filings type	Filing route	Res. block	Cases 04	Q Index 04	S.E. 04	Cases 05	Q Index 05	S.E. 05	Cases 06	Q Index 06	S.E. 06
First	Euro-Direct	EP	222	1.0465	0.0309	213	1.2247	0.0887	196	1.2699	0.0951
First	Euro-Direct	JA	63	1.1708	0.1110	56	1.1796	0.1214	55	1.2027	0.1200
First	Euro-Direct	OT	11	1.1041	0.0852	8	1.0616	0.0379	8	1.0902	0.0543
First	Euro-Direct	US	73	1.1061	0.0507	70	1.1034	0.0524	69	1.1077	0.0500
First	Euro-PCT-IP	EP	145	1.0138	0.0380	138	1.0303	0.0437	127	1.0467	0.0501
First	Euro-PCT-IP	JA	68	0.9795	0.0447	64	1.0035	0.0533	63	1.0265	0.0598
First	Euro-PCT-IP	OT	10	1.2617	0.0917	8	1.1985	0.0856	8	1.2789	0.1024
First	Euro-PCT-IP	US	77	1.3405	0.2087	76	1.3041	0.2237	74	1.3088	0.2366
Sub	Euro-Direct	EP	224	0.9785	0.0570	212	0.9926	0.0626	199	1.0159	0.0704
Sub	Euro-Direct	JA	89	1.1155	0.0842	86	1.1473	0.0888	85	1.1593	0.0945
Sub	Euro-Direct	OT	12	1.1027	0.0827	11	1.1745	0.0728	9	1.2397	0.0801
Sub	Euro-Direct	US	70	0.8145	0.1519	67	0.9911	0.0615	67	1.0375	0.0603
Sub	Euro-PCT-IP	EP	239	1.0333	0.0274	225	1.0535	0.0294	215	1.0777	0.0345
Sub	Euro-PCT-IP	JA	90	1.0234	0.0472	87	1.0609	0.0534	87	1.1148	0.0580
Sub	Euro-PCT-IP	OT	13	1.0320	0.0955	12	1.2712	0.1239	10	1.5697	0.1554
Sub	Euro-PCT-IP	US	80	1.2423	0.2220	78	1.4073	0.2716	78	1.4946	0.2662

Table 39: Detailed forecasting results broken down by residence bloc – Random group

Filings type	Filing route	Res. block	Cases 04	Q Index 04	S.E. 04	Cases 05	Q Index 05	S.E. 05	Cases 06	Q Index 06	S.E. 06
First	Euro-Direct	EP	187	1.0402	0.0330	179	1.2252	0.0982	165	1.2694	0.1052
First	Euro-Direct	JA	49	1.1882	0.1329	43	1.1971	0.1468	42	1.2217	0.1453
First	Euro-Direct	OT	8	1.1462	0.1143	6	1.0830	0.0478	6	1.1221	0.0684
First	Euro-Direct	US	51	1.0955	0.0581	49	1.0974	0.0641	48	1.0804	0.0580
First	Euro-PCT-IP	EP	124	1.0055	0.0389	117	1.0211	0.0449	106	1.0373	0.0521
First	Euro-PCT-IP	JA	55	0.9786	0.0525	51	1.0035	0.0634	50	1.0275	0.0713
First	Euro-PCT-IP	OT	7	1.2757	0.1110	6	1.2536	0.1102	6	1.3219	0.1324
First	Euro-PCT-IP	US	60	1.4415	0.2397	60	1.3662	0.2624	58	1.3807	0.2801
Sub	Euro-Direct	EP	181	0.9685	0.0632	171	0.9784	0.0686	160	0.9995	0.0772
Sub	Euro-Direct	JA	74	1.1276	0.0965	71	1.1490	0.1030	70	1.1535	0.1099
Sub	Euro-Direct	OT	10	1.0850	0.0944	9	1.1550	0.0792	7	1.2149	0.0827
Sub	Euro-Direct	US	45	0.7250	0.1864	44	0.9612	0.0743	44	1.0065	0.0708
Sub	Euro-PCT-IP	EP	195	1.0407	0.0278	186	1.0545	0.0302	176	1.0727	0.0351
Sub	Euro-PCT-IP	JA	76	1.0053	0.0526	73	1.0552	0.0587	73	1.0911	0.0641
Sub	Euro-PCT-IP	OT	10	0.9720	0.1036	8	1.0586	0.1128	6	1.2612	0.0755
Sub	Euro-PCT-IP	US	53	1.3725	0.2820	52	1.5650	0.3527	52	1.6452	0.3462

Table 40: Detailed forecasting results broken down by residence bloc, excluding companies with qualifying comments – Random group

Filings type	Filing route	Res. block	Cases 04	Q Index 04	S.E. 04	Cases 05	Q Index 05	S.E. 05	Cases 06	Q Index 06	S.E. 06
First	Euro-Direct	EP/OT	233	1.0478	0.0301	221	1.2216	0.0870	204	1.2664	0.0932
First	Euro-Direct	JA	63	1.1708	0.1110	56	1.1796	0.1214	55	1.2027	0.1200
First	Euro-Direct	US	73	1.1061	0.0507	70	1.1034	0.0524	69	1.1077	0.0500
First	Euro-PCT-IP	EP/OT	155	1.0197	0.0381	146	1.0337	0.0434	135	1.0516	0.0500
First	Euro-PCT-IP	JA	68	0.9795	0.0447	64	1.0035	0.0533	63	1.0265	0.0598
First	Euro-PCT-IP	US	77	1.3405	0.2087	76	1.3041	0.2237	74	1.3088	0.2366
Sub	Euro-Direct	EP/OT	236	0.9815	0.0561	223	0.9968	0.0618	208	1.0204	0.0697
Sub	Euro-Direct	JA	89	1.1155	0.0842	86	1.1473	0.0888	85	1.1593	0.0945
Sub	Euro-Direct	US	70	0.8145	0.1519	67	0.9911	0.0615	67	1.0375	0.0603
Sub	Euro-PCT-IP	EP/OT	252	1.0333	0.0268	237	1.0583	0.0293	225	1.0863	0.0349
Sub	Euro-PCT-IP	JA	90	1.0234	0.0472	87	1.0609	0.0534	87	1.1148	0.0580
Sub	Euro-PCT-IP	US	80	1.2423	0.2220	78	1.4073	0.2716	78	1.4946	0.2662

Table 41: Detailed forecasting results broken down by residence bloc ("Other" incorporated in EP) – Random group

Filings type	Filing route	Res. block	Cases 04	Q Index 04	S.E. 04	Cases 05	Q Index 05	S.E. 05	Cases 06	Q Index 06	S.E. 06
First	Euro-Direct	EP/OT	195	1.0421	0.0324	185	1.2231	0.0967	171	1.2670	0.1034
First	Euro-Direct	JA	49	1.1882	0.1329	43	1.1971	0.1468	42	1.2217	0.1453
First	Euro-Direct	US	51	1.0955	0.0581	49	1.0974	0.0641	48	1.0804	0.0580
First	Euro-PCT-IP	EP/OT	131	1.0103	0.0391	123	1.0248	0.0449	112	1.0420	0.0521
First	Euro-PCT-IP	JA	55	0.9786	0.0525	51	1.0035	0.0634	50	1.0275	0.0713
First	Euro-PCT-IP	US	60	1.4415	0.2397	60	1.3662	0.2624	58	1.3807	0.2801
Sub	Euro-Direct	EP/OT	191	0.9712	0.0622	180	0.9823	0.0678	167	1.0035	0.0764
Sub	Euro-Direct	JA	74	1.1276	0.0965	71	1.1490	0.1030	70	1.1535	0.1099
Sub	Euro-Direct	US	45	0.7250	0.1864	44	0.9612	0.0743	44	1.0065	0.0708
Sub	Euro-PCT-IP	EP/OT	205	1.0391	0.0271	194	1.0546	0.0297	182	1.0753	0.0350
Sub	Euro-PCT-IP	JA	76	1.0053	0.0526	73	1.0552	0.0587	73	1.0911	0.0641
Sub	Euro-PCT-IP	US	53	1.3725	0.2820	52	1.5650	0.3527	52	1.6452	0.3462

Table 42: Detailed forecasting results broken down by residence bloc ("Other" incorporated in EP), excluding companies with qualifying comments – Random group

Filings type	Filing route	Joint Cluster	Res. block	Cases 04	Q Index 04	S.E. 04	Cases 05	Q Index 05	S.E. 05	Cases 06	Q Index 06	S.E. 06
First	Euro-Direct	Audio, Video & Media	Total	12	1.0136	0.0206	12	1.0569	0.0474	11	1.0382	0.0328
First	Euro-Direct	Biotechnology	Total	46	1.0749	0.0425	44	1.8863	0.4447	43	1.9306	0.4382
First	Euro-Direct	Civil Engineering & Thermodynamics	Total	20	1.1696	0.1137	20	1.2621	0.1637	20	1.2891	0.1858
First	Euro-Direct	Computer	Total	9	0.9843	0.0270	9	1.1257	0.1103	7	1.0471	0.0352
First	Euro-Direct	Electricity & Electrical Machines	Total	30	1.0011	0.0622	28	1.1279	0.0898	23	1.1476	0.1114
First	Euro-Direct	Electronics	Total	22	1.0250	0.0750	22	1.0544	0.0951	21	1.0709	0.1166
First	Euro-Direct	Handling and Processing	Total	51	1.1056	0.0977	46	1.2191	0.0956	45	1.2878	0.1078
First	Euro-Direct	Human Necessities	Total	23	0.9836	0.1183	20	1.1345	0.1074	18	1.2620	0.1054
First	Euro-Direct	Industrial Chemistry	Total	33	1.2733	0.0637	33	2.6233	0.4607	31	2.8546	0.4608
First	Euro-Direct	Measuring, Optics	Total	18	1.0301	0.0633	18	1.1100	0.0996	17	1.1330	0.1161
First	Euro-Direct	Polymers	Total	26	1.0770	0.0513	25	2.5753	0.6366	23	2.7331	0.6530
First	Euro-Direct	Pure & Applied Organic Chemistry	Total	31	1.1005	0.0437	29	2.2418	0.5082	26	2.3679	0.5277
First	Euro-Direct	Telecommunications	Total	18	0.9643	0.0543	18	1.0368	0.0370	17	1.0689	0.0436
First	Euro-Direct	Vehicles & General Technology	Total	38	0.9795	0.1253	37	1.2291	0.1114	34	1.2387	0.1257
First	Euro-PCT-IP	Audio, Video & Media	Total	11	0.9979	0.0152	11	1.0191	0.0237	10	1.0379	0.0447
First	Euro-PCT-IP	Biotechnology	Total	34	1.0448	0.0659	32	1.0370	0.0697	31	1.0306	0.0794
First	Euro-PCT-IP	Civil Engineering & Thermodynamics	Total	18	1.0238	0.0388	18	1.0266	0.0555	18	1.0937	0.0860
First	Euro-PCT-IP	Computer	Total	9	1.1676	0.1108	9	1.3555	0.1508	7	1.5648	0.2471
First	Euro-PCT-IP	Electricity & Electrical Machines	Total	24	1.1055	0.0664	23	1.1031	0.0607	20	1.1387	0.0880
First	Euro-PCT-IP	Electronics	Total	14	1.5643	0.1565	13	1.5486	0.1728	13	1.7532	0.1730
First	Euro-PCT-IP	Handling and Processing	Total	36	0.9970	0.0464	33	1.0423	0.0665	32	1.1439	0.0852
First	Euro-PCT-IP	Human Necessities	Total	17	0.9806	0.0193	16	0.9657	0.0343	15	0.9784	0.0214
First	Euro-PCT-IP	Industrial Chemistry	Total	26	1.1007	0.0930	26	1.2222	0.1310	24	1.2832	0.1619
First	Euro-PCT-IP	Measuring, Optics	Total	16	1.0418	0.0307	16	1.0495	0.0374	15	1.0804	0.0601
First	Euro-PCT-IP	Polymers	Total	22	1.0232	0.0644	22	1.0455	0.0805	20	1.0570	0.0871
First	Euro-PCT-IP	Pure & Applied Organic Chemistry	Total	28	0.9966	0.0639	28	1.0642	0.0832	25	1.0575	0.0842
First	Euro-PCT-IP	Telecommunications	Total	16	1.0578	0.0399	18	1.0693	0.0640	17	1.1798	0.1081
First	Euro-PCT-IP	Vehicles & General Technology	Total	27	0.9887	0.0190	28	1.0380	0.0361	24	1.0087	0.0217
Sub	Euro-Direct	Audio, Video & Media	Total	9	0.9859	0.0064	9	1.0257	0.0416	9	1.0283	0.0433
Sub	Euro-Direct	Biotechnology	Total	45	1.0992	0.0607	42	1.0327	0.0845	41	1.0426	0.0878
Sub	Euro-Direct	Civil Engineering & Thermodynamics	Total	19	1.0957	0.0872	19	1.1268	0.0941	18	1.2423	0.1009
Sub	Euro-Direct	Computer	Total	10	1.0694	0.1348	10	1.2803	0.2448	9	1.7048	0.2123
Sub	Euro-Direct	Electricity & Electrical Machines	Total	34	1.0941	0.0611	33	1.1043	0.0643	30	1.1327	0.0831
Sub	Euro-Direct	Electronics	Total	27	1.0184	0.0648	29	1.0083	0.0969	28	1.0111	0.1312
Sub	Euro-Direct	Handling and Processing	Total	54	0.9594	0.0844	52	0.9574	0.1040	52	1.0002	0.1104
Sub	Euro-Direct	Human Necessities	Total	23	1.0616	0.1251	21	0.9968	0.0993	21	1.0101	0.1036
Sub	Euro-Direct	Industrial Chemistry	Total	34	1.1100	0.0685	33	1.0286	0.1070	30	1.0362	0.1286
Sub	Euro-Direct	Measuring, Optics	Total	30	1.0718	0.0552	30	1.1085	0.0719	30	1.1475	0.0882
Sub	Euro-Direct	Polymers	Total	26	1.0560	0.0658	25	0.9755	0.0935	23	0.9865	0.1053
Sub	Euro-Direct	Pure & Applied Organic Chemistry	Total	35	1.0644	0.0408	34	1.0166	0.0784	30	1.0367	0.0936
Sub	Euro-Direct	Telecommunications	Total	27	1.0779	0.0510	27	1.1934	0.0692	26	1.2395	0.0847
Sub	Euro-Direct	Vehicles & General Technology	Total	46	1.0326	0.0457	47	1.1130	0.0617	44	1.1587	0.0768
Sub	Euro-PCT-IP	Audio, Video & Media	Total	8	1.0101	0.0146	8	1.0232	0.0261	8	1.0320	0.0342
Sub	Euro-PCT-IP	Biotechnology	Total	60	1.0692	0.0445	58	1.0472	0.0454	56	1.1324	0.0457
Sub	Euro-PCT-IP	Civil Engineering & Thermodynamics	Total	20	1.0289	0.0703	20	1.0776	0.0897	19	1.1441	0.0991
Sub	Euro-PCT-IP	Computer	Total	11	1.1285	0.0776	11	1.1359	0.0852	10	1.2384	0.0940
Sub	Euro-PCT-IP	Electricity & Electrical Machines	Total	36	1.0560	0.0446	35	1.0522	0.0540	33	1.0786	0.0661
Sub	Euro-PCT-IP	Electronics	Total	26	1.1227	0.0636	25	1.1883	0.1057	25	1.2241	0.1107
Sub	Euro-PCT-IP	Handling and Processing	Total	55	0.9850	0.0638	51	1.0302	0.0683	51	1.0358	0.0768
Sub	Euro-PCT-IP	Human Necessities	Total	20	0.8807	0.1558	19	0.8770	0.1877	19	0.9638	0.1813
Sub	Euro-PCT-IP	Industrial Chemistry	Total	41	1.0444	0.0512	41	1.0826	0.0592	38	1.1314	0.0715
Sub	Euro-PCT-IP	Measuring, Optics	Total	34	1.0426	0.0509	35	1.0268	0.0464	35	1.0275	0.0583
Sub	Euro-PCT-IP	Polymers	Total	33	1.0495	0.0494	33	1.0516	0.0556	32	1.1174	0.0580
Sub	Euro-PCT-IP	Pure & Applied Organic Chemistry	Total	44	1.0403	0.0539	43	1.0743	0.0718	40	1.1596	0.0773
Sub	Euro-PCT-IP	Telecommunications	Total	29	1.0691	0.0376	30	1.0779	0.0447	29	1.1239	0.0546
Sub	Euro-PCT-IP	Vehicles & General Technology	Total	41	0.9652	0.0711	41	1.0252	0.0627	39	1.0563	0.0710

Table 43: Detailed forecasting results broken down by joint cluster – Random group

Random group
Breakdown by residence block
Q Indices

Patent Office	Res. block	2004			2005			2006		
		# of Cases	Q Index 04	S.E. 04	# of Cases	Q Index 05	S.E. 05	# of Cases	Q Index 06	S.E. 06
EPO	EP	266	0.9881	0.0330	245	1.0098	0.0441	233	1.0521	0.0531
	JA	89	1.3464	0.0913	83	1.3715	0.0814	82	1.3905	0.0837
	OT	18	1.3030	0.1088	15	1.2061	0.1174	13	1.4860	0.1471
	US	97	0.9723	0.0763	90	0.8595	0.1995	87	1.2450	0.0881
USPTO	EP	207	1.0369	0.0273	193	1.0593	0.0328	187	1.1045	0.0354
	JA	89	1.3632	0.0965	83	1.4424	0.0995	82	1.4007	0.0983
	OT	15	1.0706	0.1507	12	1.1953	0.1387	10	1.4484	0.1423
	US	82	0.9248	0.1327	76	0.8930	0.1777	74	1.1398	0.0856
JPO	EP	187	1.0330	0.0293	174	1.0395	0.0351	168	1.0820	0.0353
	JA	92	1.1967	0.0636	83	1.2273	0.0602	82	1.3123	0.0784
	OT	13	1.1908	0.1591	10	1.1681	0.1075	9	1.3060	0.1491
	US	87	0.9659	0.0622	82	0.8922	0.1956	79	1.2842	0.1015
DPMA	EP	143	0.9955	0.0343	134	1.0218	0.0378	128	1.0176	0.0367
	JA	74	1.0760	0.0374	69	1.0871	0.0353	69	1.0939	0.0333
	OT	11	1.0596	0.1708	8	1.0000	0.0000	7	0.0000	0.0000
	US	65	0.9787	0.0250	63	0.9867	0.0413	62	0.9890	0.0429

Table 44: Detailed forecasting results for PCT applications entering the national and regional phase – Random group

Random Group
Breakdown by residence block (excluding companies with qualifying comments)
Q Indices

Patent Office	Res. block	2004			2005			2006		
		# of Cases	Q Index 04	S.E.	# of Cases	Q Index 04	S.E.	# of Cases	Q Index 04	S.E.
EPO	EP	210	0.9746	0.0368	195	0.9826	0.0487	183	1.0250	0.0595
	JA	70	1.4001	0.1048	67	1.3998	0.0933	66	1.4103	0.0957
	OT	13	1.3062	0.1401	10	1.1837	0.1498	8	1.5183	0.2097
	US	66	0.9335	0.0920	60	0.7908	0.2540	57	1.2449	0.1062
USPTO	EP	164	1.0209	0.0297	155	1.0378	0.0350	149	1.0883	0.0379
	JA	71	1.4180	0.1107	67	1.4775	0.1145	66	1.4133	0.1139
	OT	11	1.1585	0.1908	8	1.1514	0.1704	6	1.4410	0.1841
	US	58	0.9043	0.1648	52	0.8677	0.2280	50	1.1786	0.1076
JPO	EP	149	1.0180	0.0285	141	1.0059	0.0365	135	1.0535	0.0358
	JA	72	1.2152	0.0756	66	1.2355	0.0690	65	1.3375	0.0915
	OT	10	1.2510	0.2019	7	1.2403	0.1436	6	1.3730	0.2048
	US	62	0.9476	0.0725	58	0.8685	0.2463	55	1.3521	0.1201
DPMA	EP	110	0.9952	0.0397	103	1.0115	0.0429	97	1.0024	0.0408
	JA	58	1.0852	0.0450	55	1.0922	0.0408	55	1.0955	0.0366
	OT	9	1.0726	0.2065	6	1.0000	0.0000	5	0.0000	0.0000
	US	45	0.9626	0.0255	43	0.9566	0.0478	42	0.9533	0.0485

Table 45: Detailed forecasting results for PCT applications entering the national and regional phase, excluding companies with qualifying comments – Random group

17 Annex V: Explanation of structural weight

The weighting procedure (Poisson weights) used for forecasting does not provide case-specific weights that can be used for frequency distributions, as they are used to analyse the usage of epoline® (questionnaire **Section D**). In addition, it does not compensate a disproportional sample structure.

Therefore, separate case-specific structural weights were calculated and applied to the frequency distributions analysed for the usage of epoline® (questionnaire **Section D**). These structural weights proportionate the results of the survey according to the number of filings and region in order to obtain total results that represent the structure of the population in terms of these criteria (see **Table 46**).

All applicants			EP			JA			US			OT		
No. of applications 2003	No. of applicants	%	No. of applicants	% line	% column	No. of applicants	% line	% column	No. of applicants	% line	% column	No. of applicants	% line	% column
1	21 191	67%	12 049	57%	70%	1 244	6%	53%	5 088	24%	62%	2 810	13%	76%
2	4 332	14%	2 293	53%	13%	353	8%	15%	1 230	28%	15%	456	11%	12%
3	1 792	6%	936	52%	5%	156	9%	7%	543	30%	7%	157	9%	4%
4	946	3%	479	51%	3%	88	9%	4%	293	31%	4%	86	9%	2%
5-6	1 012	3%	514	51%	3%	113	11%	5%	309	31%	4%	76	8%	2%
7-9	693	2%	343	49%	2%	89	13%	4%	219	32%	3%	42	6%	1%
10-14	548	2%	268	49%	2%	78	14%	3%	169	31%	2%	33	6%	1%
15-19	259	1%	124	48%	1%	43	17%	2%	81	31%	1%	11	4%	0%
20 or more	737	2%	303	41%	2%	175	24%	7%	232	31%	3%	27	4%	1%
Total	31 510	100%	17 309	55%	100%	2 339	7%	100%	8 164	26%	100%	3 698	12%	100%

Table 46: Structure of the 2003 population (EPO database April 2004, Euro-direct and Euro-PCT regional phase applicants) according to number of filings and region

The case-specific weight y_i is calculated as follows:

$$y_i = \left(\frac{FR_{di}}{FR_{si}} \right) \left(\frac{n}{\sum_i \left(\frac{FR_{di}}{FR_{si}} \right)} \right)$$

- FR_{di} = Share of applicants with certain **numbers of filings** (categories) in a certain region to which the specific APPR belongs in the **EPO database**
- FR_{si} = Share of applicants with certain **numbers of filings** (categories) in a certain region to which the specific APPR belongs in the **sample**
- n = Number of **cases** in the sample

18 Annex VI: Sizes of Populations and Samples for the EPO Applicant Panel Survey 2004

1. Population in 2003	Euro-applications in 2003				Euro-applicants in 2003			
	Direct	PCT IP	Total (Direct + PCT-IP)	PCT RP	Direct	PCT IP	Total (Direct + PCT-IP)	PCT RP
	55 134*	112 006*	167 140*	61 529*	14 357*	35 225*	45 946*	20 259*
Sample group A: Biggest								
2. Number asked as a percentage of 1.	25 726* 46.7%	29 854* 26.7%	55 580* 33.3%	21 455* 34.9%	423* 3.0%	414* 1.2%	473* 1.0%	410* 2.0%
Number of quantitative responses as a percentage of 1. as a percentage of 2.	14 736 26.7% 57.3%	22 037 19.7% 73.8%	36 773 22.0% 66.2%	12 640 20.5% 58.9%	161 1.1% 38.1%	173 0.5% 41.8%	193 0.4% 40.8%	157 0.8% 38.3%
Sample group B: Random								
3. Number asked as a percentage of 1.	29 189* 52.9%	34 879* 31.1%	64 068* 38.3%	25 952* 42.2%	1 332* 9.3%	1 174** 3.3%	2 159* 4.7%	1 567* 7.7%
Number of quantitative responses as a percentage of 1. as a percentage of 3.	17 087 31.0% 58.5%	25 731 23.0% 73.8%	42 818 25.6% 66.8%	16 090 26.2% 62.0%	476 3.3% 35.7%	476 1.4% 40.6%	688 1.5% 31.9%	443 2.2% 28.3%

* From the EPO database

Other numbers are based on figures given by the respondents

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