

## **The rigour of EPO's patentability criteria: an insight into the "induced withdrawals"**

**G. Lazaridis and B. van Pottelsberghe de la Potterie**

The EPO traditionally grants at least 60% of all patent applications, the rest being either withdrawn (30-35 %) or refused (5%). This paper provides quantitative evidence suggesting that up to 54% of all patent withdrawals could be considered as induced by the work of EPO examiners, and hence may be taken as a more appropriate indicator of the rigour of the EPO. "Induced withdrawals" and refusals occur for up to 23% of all applications at the EPO. This share varies according to 1) the route chosen for an EPO filing; 2) the technological field that is considered; and 3) the country of residence of the assignee. The number of claims only slightly affects the share of withdrawals. However, on average, two additional claims induce an additional communication from the EPO, which in turn prolongs the procedural duration by an additional year.

JEL Classifications: K1, K3, L1, O3

Keywords: European Patent Office, grant, patent filing, induced withdrawals, claims, communications, examination procedure

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**The rigour of EPO's patentability criteria:  
an insight into the "induced withdrawals"<sup>i</sup>**

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<sup>i</sup> The opinions expressed in this paper are the sole responsibility of the authors and do not necessarily reflect any position or policy of the institution to which the authors are affiliated.

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## 1. Introduction

On average, over the past 20 years, the EPO has officially refused 3 to 5 per cent of all patent applications. This share might be perceived as being quite small, especially if compared with the percentage of granted patents (about 65%) and with the percentage of withdrawals (about 30%). As the share of refusals is relatively small, the rigour of the EPO, as the European patent granting authority, may be subject to criticisms.<sup>1</sup> In this respect it could be argued that a more appropriate measure of the rigorousness of the EPO's granting process should take into account the number of withdrawals that are induced by the work of the examiners, instead of focusing exclusively on the share of refusals.

The objective of this paper is to investigate to what extent the patents that have been withdrawn may reflect a reaction of the assignees to communications received from the EPO. This objective requires to identify the withdrawals that have been induced by communications from the EPO (i.e., search report or communications during the examination process). We argue that these withdrawals might indeed be considered in part as a proxy for refusals, as they occur either after the search report or after a communication to the applicant.

The paper is structured as follows. The next section briefly describes the status of applications over the past 20 years and the various working hypotheses that have been used for the identification of "induced" withdrawals. Section 3 is devoted to the statistical analysis, it first presents the broad results and then tests whether there are sector, country or filing strategy specific behaviours. Section 4 is dedicated to the concluding remarks.

## 2. Methodology and working hypotheses

Acting as Europe's patent granting authority the European Patent Office (EPO) treats patent applications according to the criteria laid down in the European Patent Convention (EPC) [2]. For an application to be granted three fundamental requirements, apart from the formal ones, are to be satisfied.<sup>2</sup> They are known as the patentability criteria and refer to the novelty of an invention (with respect to the state of the art), its obviousness (or the inventive step) and its industrial applicability. It is the assessment of these criteria during the search and substantive examination stages that will lead to the grant or refusal of an application.<sup>3</sup>

Throughout the patent granting procedure an application can be withdrawn either proactively by the applicant or be "deemed withdrawn" by the Office if the applicant does not comply with its indications in due time (i.e., pay the fees in due time or answer to the letters from the EPO before a period of maximum 6 months). Figure 1 illustrates the status of patent applications at the EPO over the past 20 years. Taking into consideration the level of pending applications filed after 1998 and for which no decision has been issued so far, one can see that on average 60 per cent of patent filings have been granted, whereas 35 per cent were withdrawn and 5 per cent were refused.

<Insert figure 1 around here>

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<sup>1</sup> A striking illustration of the pressures induced by the EPO's workload and and the quality of its work is provided by Abott [1] in *Nature*, 2004.

<sup>2</sup> Formal requirements mainly refer to the payment of the filing fees, the filing of translations and the accordance of the filing date.

<sup>3</sup> See Stevnsborg and van Pottelsberghe [3] for an in-depth description of the EPO examination process, and the filing strategies that can be adopted by applicants.

During the search phase the examiner, among other things, will retrieve specific information on the technical content relevant to the patentability of the invention - state of the art- in the so-called *patentability* search, produce a search report and communicate it to the applicant [4]. "*Such a report typically represents the end-product obtained by screening thousands of technically relevant references which mainly consists of either patents or non patent literature citations*" (e.g. scientific articles, books, journals) [5]<sup>4</sup>. The substantive examination can then be requested by the applicant. The examiner must evaluate the novelty, non-obviousness and industrial applicability of the invention. One or several communications between the Office and the applicant may take place during the substantive examination. These communications aim at correcting any deficiency (mainly in the content or in the number of its claims) an application might have.

Withdrawals of patent applications can occur at any time during the search and examination procedure. The available information allows to identify 7 main stages of withdrawals, which may gradually occur at each step during the entire patent granting procedure. The seven mutually exclusive stages during which a withdrawal can take place are illustrated in figure 2. They can be summarized as follows:

1. Before the search report (and after filing at the EPO)
2. After the search report and before the examination\*
3. Before a first communication (during the examination procedure)
4. After the first communication (during the examination procedure)\*
5. After the second communication (during the examination procedure)\*
6. Unknown (during the examination procedure)
7. After intention to grant (before validation of grant)

<Insert figure 2 around here>

Of these seven potential occurrences of a withdrawal, we have set the working hypothesis that three can be considered as "*induced withdrawals*", as they occur just after a communication from the EPO; they are marked by a "\*" in the above list. First, the search report, or occurrence 2, may identify prior art that would clearly lead to a refusal of the patent application or to a substantial amendment of the claims. It can therefore be assumed that a withdrawal that takes place just after the receipt of the search report (i.e., before any request for substantive examination) is induced, at least partly, by the content of the search report; a piece of work performed by the EPO's examiners and communicated to the applicant.<sup>5</sup>

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<sup>4</sup> According to Michel J, and Bettels B. [5] there are five different types of searches. These are: the *documentary* search, the *patentability* search, the *clearance/freedom-of-use* search, the *infringement* search and the *cancellation* search. In this paper the focus is on the patentability search.

<sup>5</sup> It must be kept in mind that the analysis is mainly performed for the years 1997 to 1999. A non-binding search opinion has been provided with PCT search reports since 2004, and with Euro-direct applications since July 2005. Such non-binding opinion might clearly increase the number of induced withdrawals after the search

Second come the first and the second (or more) communications which are issued during the examination process (i.e., after the request for examination), occurrences 4 and 5. The substantive examination aims at testing whether there is novelty, an inventive step and industrial applicability of the invention. A patent application that cannot be directly granted would receive at least one letter requesting amendments or suppression of one or several claims. Such a communication could lead the applicant to perceive a reduction in the expected scope of protection. One may therefore logically assume that a withdrawal taking place after such occurrences (first communication and second communication) is at least in part induced by the work of examiners.

In what follows it is important to keep in mind that the results are driven by the assumptions that the withdrawals that occur after a communication (search report or communications during the substantive examination stage) are considered to be "*induced withdrawals*". This assumption may be challenged, as a share of these withdrawals would probably have occurred, with or without communications, triggered by other factors. These are for example: 1) defensive publication strategy; 2) EPO formalities problems or errors performed by patent attorneys; 3) the sudden appearance of new and relevant prior art; and 4) diminishing benefits associated with the patent, because the invention does not work, or has no market potentials, or for other strategic reasons.

Table 1 shows the most probable stages associated with each of these withdrawal factors. For instance, EPO induced withdrawals can only occur after a communication, hence the highest probabilities (filled circle) occur during the three stages that include a communication from the EPO. Defensive publication of an application (factor 1) above), which consists in filing a patent just to keep the freedom to operate, would justify a withdrawal just after the search report (there is no incentive to wait longer). This strategy, well defined by Henkel and Pangerl [6] would take place after the search report is received (before the request for examination), and would less likely occur in the subsequent stages (there would be no request for examination if the strategy is only to publish defensively).

<Insert table 1 around here>

Problems associated with the formal requirements of an application (factor 2) above) would mainly arise at the early stages of the procedure (and be recorded by the receiving section) up to the time when a request for examination has been made. Any withdrawal that takes place before the search report (S1) is highly likely to have occurred for example due to failure to accord a date of filing or to pay the filing and the search fees. Other administrative deficiencies not directly related to the content of the application (the patentability of the invention) such as due payment of the grant and the printing fees fall under the very last stages of the procedure S6 and S7. These factors, however, of apparent withdrawal are probably rare as filing at the EPO is generally performed by large firms or EPO representatives with well defined procedures.

Then comes the sudden appearance of new prior art (factor 3) above), sent by another patent office, or submitted by a competitor, or simply discovered by the company itself (any

other source than the EPO). The first stage, before the search report is received, is not likely to see such a sudden appearance of prior art, because the patent is not yet published at that time. The later stages may well see the disclosure of new prior art at any time during the examination process and even afterwards once the patent has been granted (during the opposition or litigation procedure).

The last alternative reason for the withdrawal of an application would be that the invention does not work, or more generally that the cost incurred by the application does not cover for the expenses associated with the filing of the patent or for other strategic reasons (factor 4) above). This factor would most probably occur at or after the examination stage, as it generally takes time to prototype an invention and make the appropriate market surveys. The later stages may well be subject to this type of withdrawal, and especially the last one, withdrawal after intention to grant. This stage, which includes about 10 per cent of all withdrawals, is typical of the applicant who tries to avoid the significant increase in costs due to the validation of his/her patent in each of the desired countries, the translation requirements and the local renewal fees. These substantial and sudden costs, which have been illustrated by van Pottelsberghe and François [7], are a clear incentive to withdraw a patent during the latest stage.

Looking at the filled circles in table 1, it appears that the only factor underlying a withdrawal during the stages S2, S4 and S5 with a high probability is the work performed by the EPO. Defensive publications may indeed occur during stage 2 (withdrawal after search and before examination), and the sudden appearance of new prior art during stages 4 and 5, but these factors are not specific at all to these stages. In other words, although other factors than the work of the EPO may lead to a withdrawal, Table 1 suggests that the working hypotheses presented here above are not too restrictive, although inevitably limited by these many factors that are not attributable to the work of the EPO patent examiners.

### 3. Induced withdrawals: Basic results

Figure 3 provides an insight into the evolution of the various drop-out stages of all applications withdrawn over the past 20 years (by date of application at the EPO). For the period 1997-1999 the "search report-induced withdrawals" account for about 20% of all withdrawals, whereas the "communications-induced withdrawals" account for about 33% of all withdrawals. In a nutshell, nearly 54% of all withdrawals could be induced by the work of the Office. It is worth mentioning that about 10% of all withdrawals take place after the intention to grant. This figure witnesses that the concerned inventions are either too old, or not profitable enough to cover the cost of translations and validations.

<Insert figure 3 around here>

About 30% of the total number of applications is withdrawn, which means that nearly 18% of all applications could be "induced withdrawals" (conditional to the working hypotheses set in the previous section). Adding this number to the 'official' refusal rate, about

5%, it can be concluded that about 23% of all patent applications (see Figure 4) are either refused by the EPO or are considered induced withdrawals according to our hypotheses.

<Insert figure 4 around here>

In order to better understand these figures, the results can be broken down according to the adopted route for patenting, the country of origin of the assignee, the broad technological class, or the number of claims.

### • 3.1 The filing route

An applicant can approach the EPO either by directly filing a European patent application or by designating the EPO in an international (PCT) application, which could later enter the European phase<sup>6</sup>. A direct European filing can be distinguished between a first filing (EP 1st filing), when there is no previous priority application to claim and a second filing (EP 2nd filing), when the priority of a previous patent application is claimed according to the Paris Convention. In the case of a PCT application that has entered the European phase and depending on the office which had carried out the international search report<sup>7</sup> we can identify three broad categories: i) the EPO has produced the search report (ISA EPO); ii) the Austrian, Swedish or Spanish patent offices have produced the report (ISA euro) and iii) other patent offices in the world have carried out the search (PCT bis).

Figure 5 suggests that the patents applied through the route "EP first filing" are the ones with the higher rate (about 35 % of total applications) of induced withdrawals. Then come the EP 2nd filings with nearly 20% of all applications being induced withdrawals. For the three broad PCT routes, the share of induced withdrawals is smaller, and fluctuates between 10% when the International Search Authority is the EPO (ISA EPO), or the patent office of an EPC member state (ISA Euro) and 17% when the International Search Authority is a non EPC member (PCT bis). The interpretation is straightforward. As the Euro-PCT applications are PCT applications entering the European phase, they have already been subject to a selection process before reaching the EPO (in other words the induced withdrawals due to the search report are much smaller).

<Insert figure 5 around here>

It is also worth mentioning that the grant rate is higher for PCT applications. It underlines the usefulness of the PCT route, a preliminary filter which provides a first search

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<sup>6</sup> An international application is considered to have entered the European phase only when the applicant has paid the appropriate fees. Once payment is made the application will enter the standard EPO procedure. In the present paper the focus is on applications that have entered the European phase.

<sup>7</sup> Patent offices which have the competence to carry out search reports for international applications are called International Searching Authorities (ISA). EPO is one of them, independently of whether later the application will enter the European phase or not.

report on prior art and more time for the applicants to decide whether or not to pursue their international application strategy.<sup>8</sup>

- **3.2 The technological classes (or Joint Clusters at the EPO)**

For its own organizational purposes and for better managing its workload the EPO has grouped its production units, namely its search and examining divisions into 14 Joint Clusters (JC), each of which corresponds to a specific broad area of technology (cf. Appendix 1). Table 2 shows the drop-out stages across the 14 JC technologies. Some joint clusters (VGT, CET, HP)<sup>9</sup> have a relatively high share (at least 25%) of withdrawals after the search, whereas others have a relatively high share of withdrawals, about 40%, that occur after the 1st and 2nd examination communication (IC, PAOC, POL).<sup>10</sup> This heterogeneity suggests that the assignees have an international filing strategy that varies across Joint Clusters.

<Insert table 2 around here>

- **3.3 The country of origin of the assignee**

Table 3 reports the drop-out stages by the country of origin of the applicant. There is a substantial heterogeneity across countries. For instance, Switzerland, Belgium and Italy have a relatively high rate (more than 40% of their withdrawals) of induced withdrawals after the search report. The countries with a large share of induced withdrawals after communication during the examination process are Japan, the USA, the Nordic countries (Denmark, Finland and Sweden) and other non-EPC member states. For these countries nearly 40% or more of their withdrawals are induced by a first or second communication during the examination stage. These differences, which reflect an uneven behaviour of applicants, may partly be explained by the different rate of use of the PCT route.

<Insert table 3 around here>

- **3.4 The number of claims**

Another potential determinant of the outcome of a patent application is its size, or complexity, as witnessed by the number of claims. Figure 6 presents the distribution of the drop out stages for various claim-size classes. It clearly shows that while larger patents have an increased likelihood of being withdrawn during the examination stage, smaller patents have an increased likelihood of being withdrawn after the search report is received. The

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<sup>8</sup> Refer to Guellec and van Pottelsberghe [8] for an in-depth quantitative investigation of what drives the grant probability of a patent filed at the EPO and the particular role played by the PCT process.

<sup>9</sup> VGT: Vehicles and General Technology; CET: Civil Engineering and Thermodynamics; HP: Handling and Processing ; see appendix 1 for the definition of JCs.

<sup>10</sup> IC: Industrial Chemistry; PAOC: Pure and Applied Organic Chemistry; POL: Polymers; see appendix 1 for the definition of JCs.



probability of proceeding to grant also seems to be slightly affected by the number of claims, as illustrated in figure 7.<sup>11</sup>

<Insert figure 6 around here>

<Insert figure 7 around here>

The number of claims play however another interesting role, as illustrated in figure 8, which shows the average number of claims (at application stage) of granted, refused or withdrawn patents according to the number of communications that took place. For the applications for which no communication is issued, the average application refused or patent granted includes on average 11 claims, against nearly 13 claims for withdrawn patents. It clearly appears that, on average, two additional claims induce one additional communication, whereas four additional claims induce two or more additional communications. The policy implication for the EPO is straightforward. A strategy that would tend to reduce the average number of claims per filing would reduce the workload of examiners (there would be less communications, and less claims to read), and hence reduce the backlog.<sup>12</sup>

<Insert figure 8 around here>

This interpretation is clearly validated by figure 9, which shows the increase in procedural duration caused by communications. When no communication is issued a patent is granted on average 30 months after the application date. With one communication the grant occurs one year later, and with two or more communications the grant occurs at least two years later - i.e., after a total of 55 months on average. In a nutshell, a larger number of claims increases the probability of having one or more communications, and an increase in procedural duration of one year on average is induced by each communication. The quasi linear relationship between the number of claims and the procedural duration is illustrated by Archontopoulos et al. [9].

#### 4. Concluding remarks

This paper aimed at identifying and analysing the patent withdrawals that may be induced by the EPO examiners' work - i.e., the withdrawals that occur just after the search report, or after the communications that take place during the substantial examination process. It is assumed that these "*induced withdrawals*" can be considered as a proxy for the refusal

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<sup>11</sup> For very large patents with more than 31 claims the grant rate is lower and the share of pending applications is slightly higher than for smaller patents.

<sup>12</sup> van Zeebroeck et al. [10] provide quantitative evidence on the factors that increase the average number of claims per patent, including the PCT route, the diffusion of the US system, the geographical origin of the applicant and the complexity of inventions.

rate of the EPO, and hence reflect, at least to some extent, the rigour of the EPO examination process.

The quantitative evidence shows that up to 54% of all withdrawals may be considered as induced by the work of the examiners. These induced withdrawals account for about 18% of total applications at the EPO. Therefore, induced withdrawals and refusals add up to 23% of all applications at the EPO; nearly one in four patent applications.

The share of induced withdrawals varies according to the route chosen for an EPO filing. The proportion of induced withdrawals is much larger for EP direct applications (1st filings). Then come the EP second filings and PCT-bis applications. The smallest share of induced withdrawals (and the largest share of grant) are obtained for PCT-EPO (ISA is EPO) or PCT-EURO (ISA is an EPC member state). In a nutshell, the PCT route successfully improves the quality of incoming applications. It is a first filter and provides more time to the applicants to assess the value of their inventions. The share of induced withdrawals also varies across Joint Clusters and across countries. These differences reflect an uneven behaviour of applicants, and most probably different propensities to patent across countries.

The size and/or complexity of patents, as measured by the number of claims, slightly affect the status of applications. Applications with a large number of claims have smaller grant rates. In addition, the examination of larger patents involves more communications, which in turn prolongs the examination and grant process. On average, two additional claims leads to one additional communication, which in turn leads to an extra year in the duration of the examination phase. In other words, a strategy aiming at reducing the number of claims would reduce both the amount of work (e.g. the number of communications) and the average length of the examination/grant procedure.

In a nutshell, this paper has put forward a new methodology of measuring the rigour of the EPO. It was shown that more than half of the withdrawals may be considered as induced by the work of examiners. This share seems to vary according to the country of origin of the applicant, the route chosen by the applicant, the technology it operates in and the number of claims included in the filings. These results however need more empirical work for further validation, along two routes. First, an econometric approach would allow to take simultaneously the various factors that may affect the rate of induced withdrawal and confirm or infirm the role played by each of these factors. Second, a survey attempting to measure the relative importance of the various other (non-EPO) factors that may lead to a withdrawal would validate (or invalidate) the relevance of the working hypotheses that have been set to measure the share of "induced withdrawals".

## Appendix 1: Broad areas of technology at the EPO

<b>Joint Cluster</b>	<b>Abbreviation</b>
Audio Video Media	AVM
Biotechnology	BIO
Civil Engineering & Thermodynamics	CET
Computers	COM
Electricity & Semiconductors Technology	ESC
Electronics	ELE
Handling & Processing	HP
Human Necessities	HN
Industrial Chemistry	IC
Measuring & Optics	MO
Polymers	POL
Pure & Applied Organic Chemistry	PAOC
Telecoms	TEL
Vehicles & General Technology	VGT

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Fig. 1: Status of patent applications at the EPO (as of February 2006)

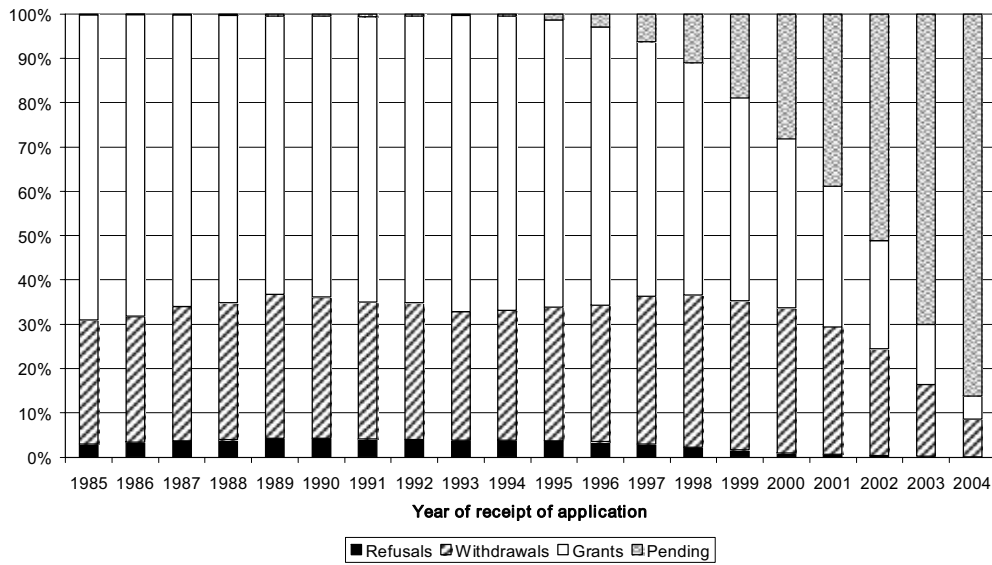
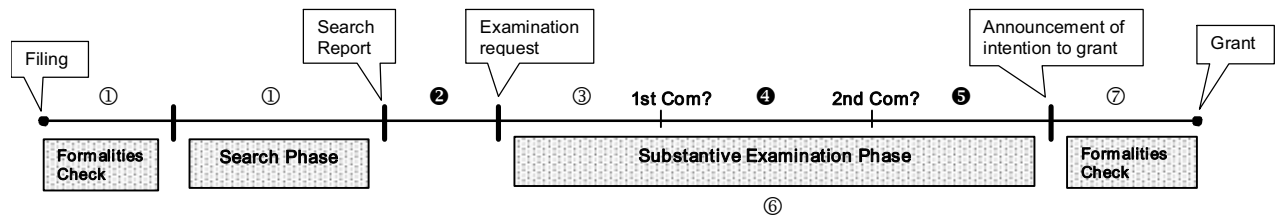


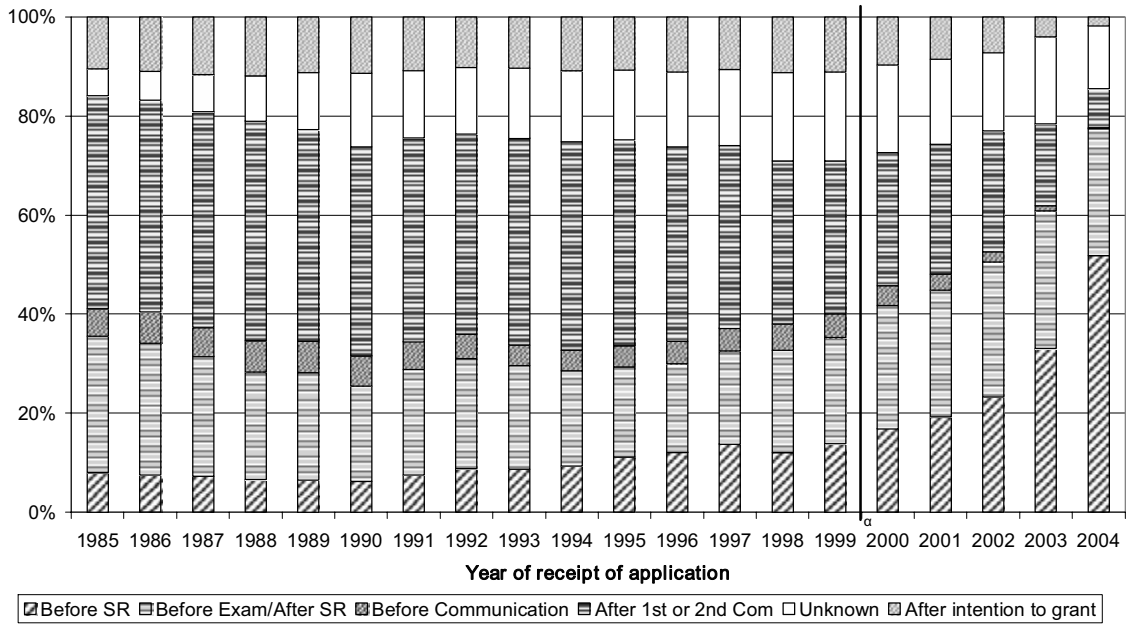
Fig. 2: Withdrawal stages during the entire patent granting procedure



- ①: Before the search report (and after filing at the EPO)
- ②: After the search report and before the examination
- ③: Before a first communication (during the examination procedure)
- ④: After the first communication (during the examination procedure)
- ⑤: After the second communication (during the examination procedure)
- ⑥: Unknown (during the examination procedure)
- ⑦: After intention to grant (before validation of grant)

Source: created by the author

Fig. 3: Drop-out stages of all applications withdrawn (as of February 2006)



a: Since a great share of applications filed after 1999 is not yet processed, results on induced withdrawals after that year should not be considered as final.

Fig. 4: Status of applications with "induced withdrawals" (as of February 2006)

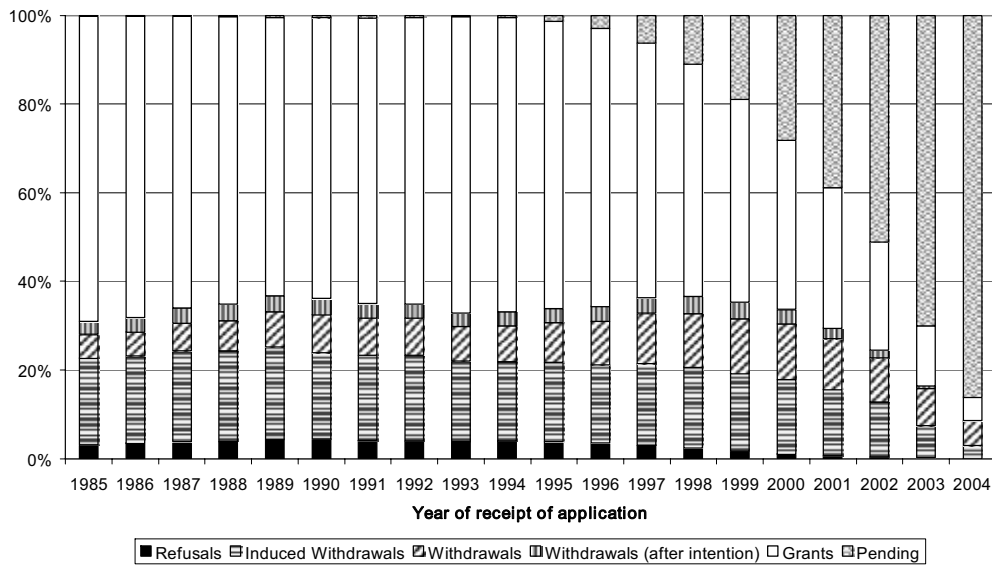


Fig. 5: Status of applications filed between 1997 and 1999 by type of application

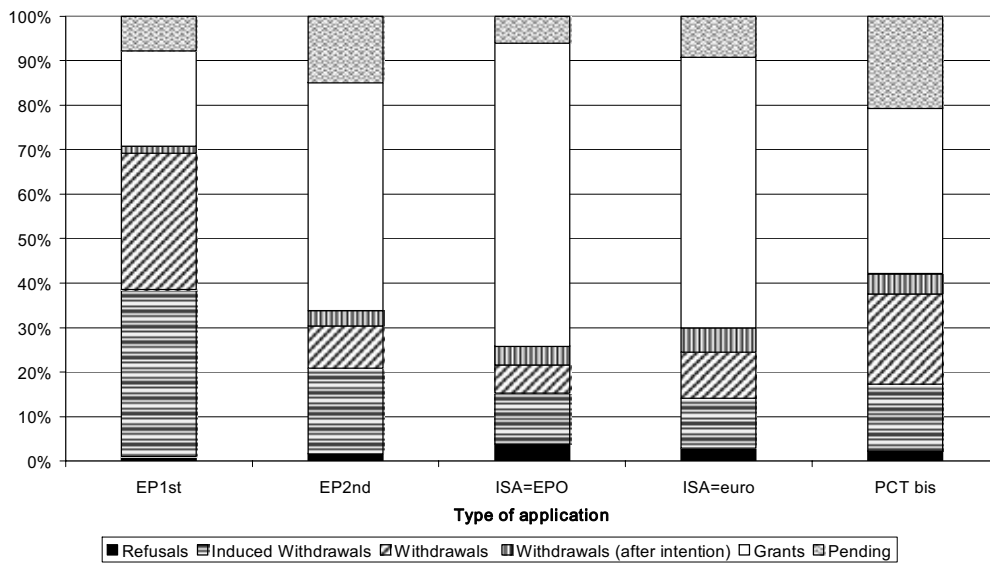


Fig. 6: Drop out stages of applications by number of claims, 1997-1999

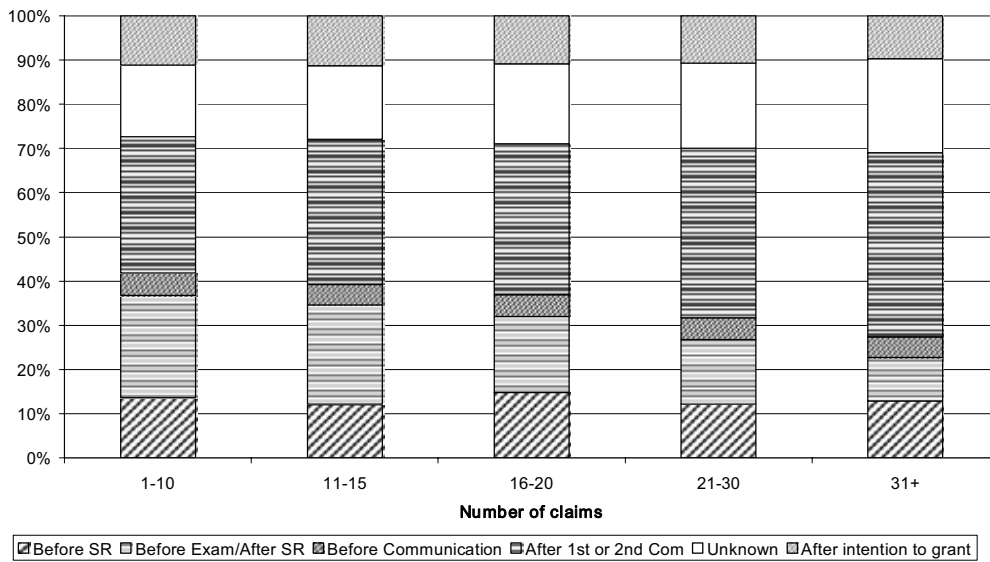


Fig. 7: Status of applications by number of claims, 1997-1999

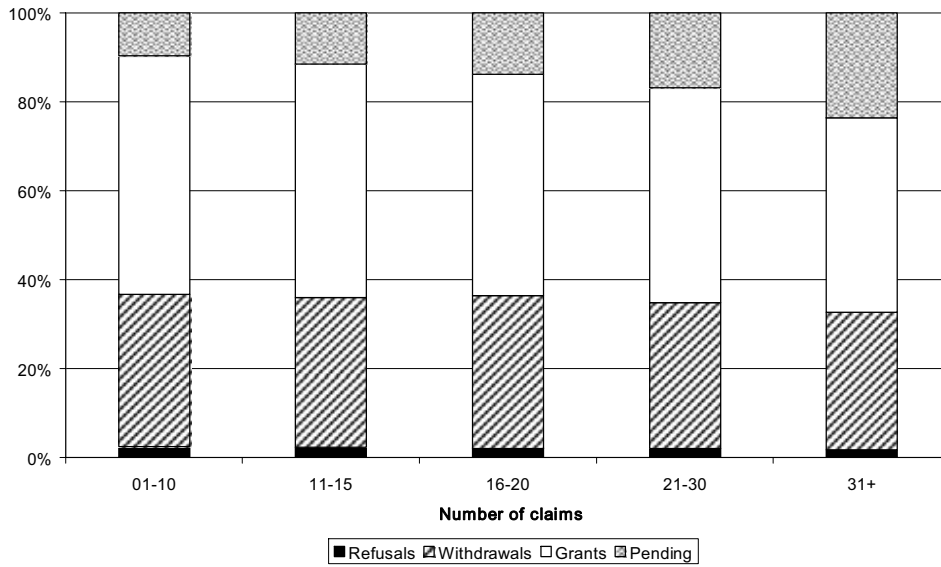


Fig. 8: Average number of claims of applications filed between 1997 and 1999

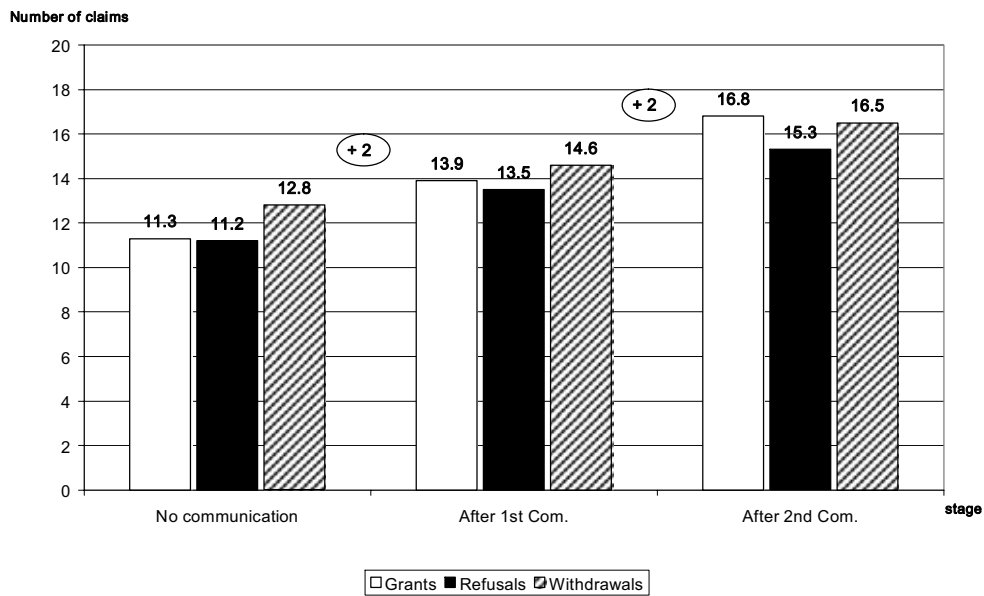




Fig. 9: Average age of granted and withdrawn files, 1985-2004

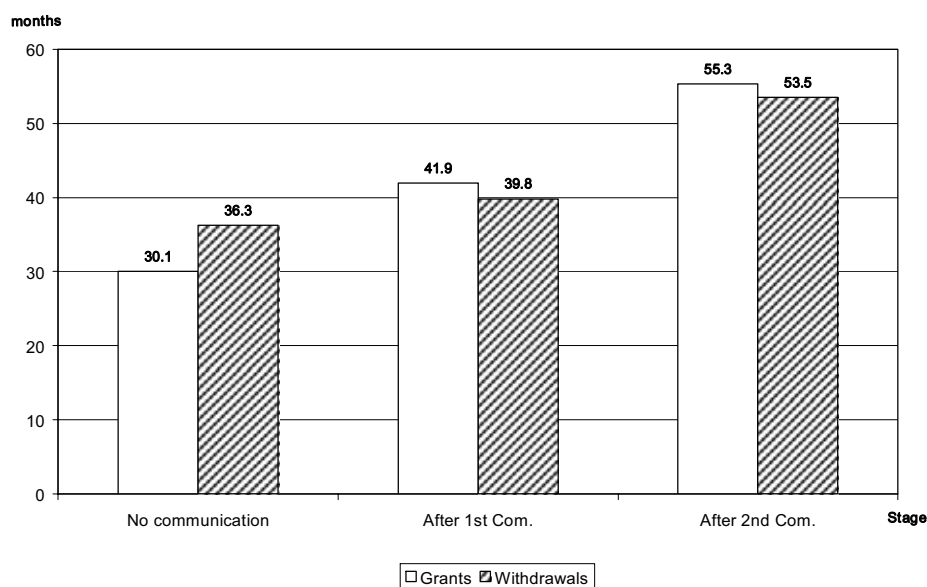


Table 1: Drop-out stages and factors leading to a withdrawal

	Withdrawal stages, see Figure 2						
	Bef. Search	Aft. Search	Bef. 1st Com.	Aft. 1st Com.	Aft. 2nd Com.	Unkno.	Aft. int. Grant
	S1	S2	S3	S4	S5	S6	S7
Induced by EPO	–	●	–	●	●	○	–
Defensive. publication.	–	●	–	–	–	○	–
Formalities Prob./Errors	●	–	–	–	–	○	○
New prior art	–	○	○	○	○	○	○
Invention not profitable	–	–	–	○	○	○	●

● indicates a high probability that the factor underlying a withdrawal occurs during the withdrawal stage.

○ indicates an average probability that the factor underlying a withdrawal occurs during the withdrawal stage (there is no reason for it to occur at a specific withdrawal stage).

– indicates a very low or zero probability that the factor underlying a withdrawal occurs during the withdrawal stage.

Table 2: Drop-out stages of applications by joint cluster, 1997-1999\*

Joint Cluster	Drop-out stages						
	Before SR (1)	Before Exam/After SR (2)	Before Communication (3)	After 1st or 2nd Com (4)	Unknown (5)	After intention to grant (6)	Induced withdrawals (2)+(4)
AVM	26.4%	15.7%	4.8%	27.6%	19.5%	6.0%	<b>43.3%</b>
BIO	21.8%	13.8%	4.1%	35.3%	19.5%	5.5%	<b>49.1%</b>
CET	7.5%	27.3%	3.9%	31.2%	15.1%	15.2%	<b>58.4%</b>
COM	24.0%	20.5%	3.7%	28.0%	17.9%	5.9%	<b>48.6%</b>
ELE	16.2%	16.2%	5.4%	34.3%	18.4%	9.6%	<b>50.4%</b>
ESC	15.5%	18.6%	6.0%	29.5%	21.4%	9.1%	<b>48.0%</b>
HN	9.7%	23.3%	4.1%	30.7%	18.6%	13.6%	<b>54.0%</b>
HP	8.0%	26.4%	5.4%	33.5%	11.9%	15.0%	<b>59.9%</b>
IC	9.4%	18.1%	4.7%	41.4%	12.7%	13.7%	<b>59.8%</b>
MO	10.5%	18.1%	5.4%	32.1%	23.6%	10.4%	<b>50.2%</b>
PAOC	13.6%	16.1%	5.1%	40.8%	14.3%	10.0%	<b>56.9%</b>
POL	8.7%	20.1%	5.4%	39.7%	14.1%	12.0%	<b>59.8%</b>
TEL	17.3%	19.4%	6.8%	26.8%	22.6%	7.1%	<b>46.2%</b>
VGT	8.4%	27.6%	4.2%	29.7%	16.0%	14.1%	<b>57.3%</b>

\* As of February 2006, see Table 1 for the definition of the Joint Clusters

Table 3: Drop-out stages of applications by country of origin

Country of origin	Drop-out stages						Induced withdrawals (2)+(4)
	Before SR (1)	Before Exam/After SR (2)	Before Communication (3)	After 1st or 2nd Com (4)	Unknown (5)	After intention to grant (6)	
AT	6.3%	36.7%	5.7%	27.9%	12.0%	11.4%	<b>64.6%</b>
BE	15.8%	47.1%	3.3%	17.5%	11.2%	5.2%	<b>64.6%</b>
CH	17.5%	43.0%	3.4%	19.5%	9.5%	7.1%	<b>62.5%</b>
DE	11.8%	28.5%	5.4%	29.1%	14.0%	11.2%	<b>57.6%</b>
DK	4.6%	20.1%	6.2%	39.2%	16.4%	13.6%	<b>59.3%</b>
ES	10.2%	26.6%	5.1%	31.7%	16.6%	9.9%	<b>58.3%</b>
FI	4.7%	12.0%	6.1%	37.4%	24.5%	15.3%	<b>49.4%</b>
FR	7.6%	17.9%	6.7%	31.4%	17.1%	19.3%	<b>49.3%</b>
GB	15.9%	26.7%	5.0%	29.9%	11.9%	10.6%	<b>56.6%</b>
GR	14.1%	31.0%	7.0%	23.9%	15.5%	8.5%	<b>54.9%</b>
IE	4.9%	23.6%	4.4%	35.0%	16.3%	15.8%	<b>58.6%</b>
IT	4.8%	42.8%	3.9%	28.3%	9.3%	11.0%	<b>71.1%</b>
LI	5.6%	28.0%	8.4%	30.8%	20.6%	6.5%	<b>58.9%</b>
LU	7.5%	39.3%	3.7%	27.1%	13.1%	9.3%	<b>66.4%</b>
NL	46.4%	24.2%	2.5%	12.7%	8.8%	5.5%	<b>36.8%</b>
SE	2.5%	10.8%	8.0%	37.9%	21.9%	18.9%	<b>48.7%</b>
Other EPC*	6.8%	23.3%	5.3%	35.4%	15.5%	13.6%	<b>58.7%</b>
JP	9.4%	11.4%	3.7%	42.4%	22.2%	10.9%	<b>53.9%</b>
US	11.1%	11.0%	5.3%	40.5%	21.6%	10.6%	<b>51.5%</b>
Non-EPC	8.8%	14.2%	6.2%	37.1%	21.2%	12.5%	<b>51.3%</b>

\* Other EPC: BG, CZ, CY, EE, HU, IS, LT, MC, PL, PT, RO, SI, SK, TR.

For these countries there were less than 40 withdrawals during the period 1997-1999