

## **Chapter 4**

### **PATENT ACTIVITY AT THE TRILATERAL OFFICES**

This chapter presents trends in patent application filings and grants at Trilateral Offices. These statistics are generally available on a more up-to-date basis than those presented in Chapter 3; most information that appears here covers 2006 and 2007. Regarding Europe, statistics are for EPO only. Whereas the EPO is indicated from the viewpoint of a Trilateral Office, the EPC contracting states are still also indicated as a bloc of origin.

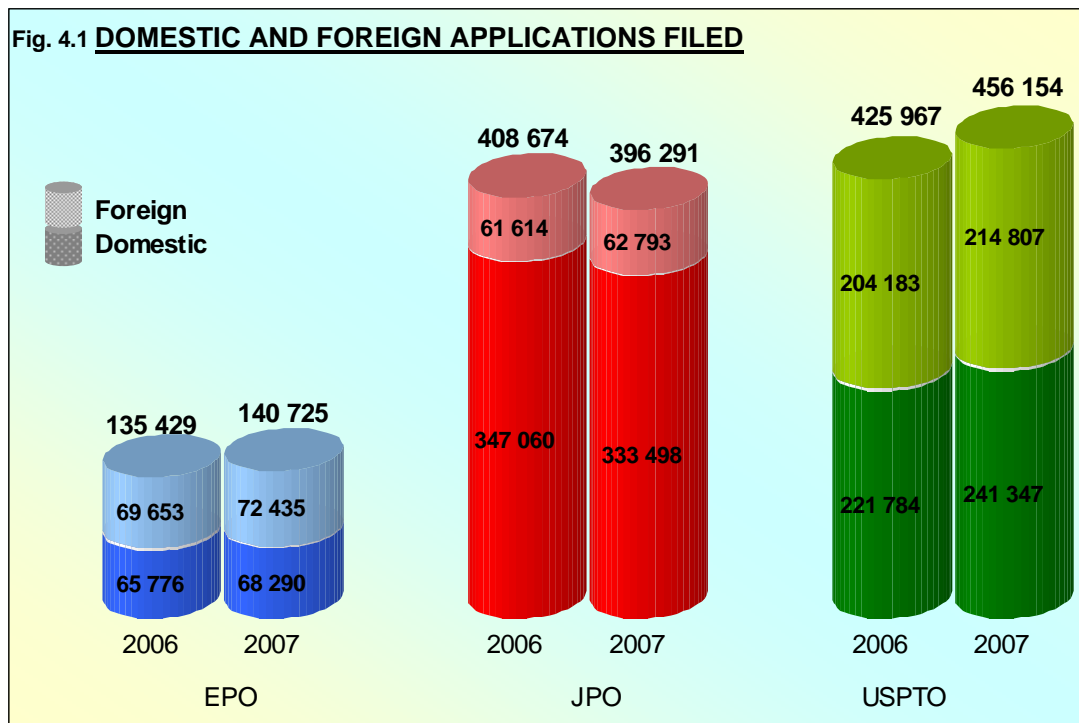
The statistics give insight into the work that is carried out at the Trilateral Offices, rather than on numbers of individual patent rights. The representations are analogous to those of figures 3.5, 3.6 and 3.12.

Demand at Trilateral Offices is demonstrated by counts of the numbers of patent applications that were filed. These counts represent the total of direct national/regional applications filed and PCT applications entering the national/regional phase.

For granted patents, the statistics involve direct, regional and PCT applications by year of grant. The representations here are similar to Fig. 3.10, except that for EPC contracting states only the EPO is considered as the granting authority. Hereinafter "patents granted" will correspond to the number of grant actions (issuances or publications by the Trilateral Offices).

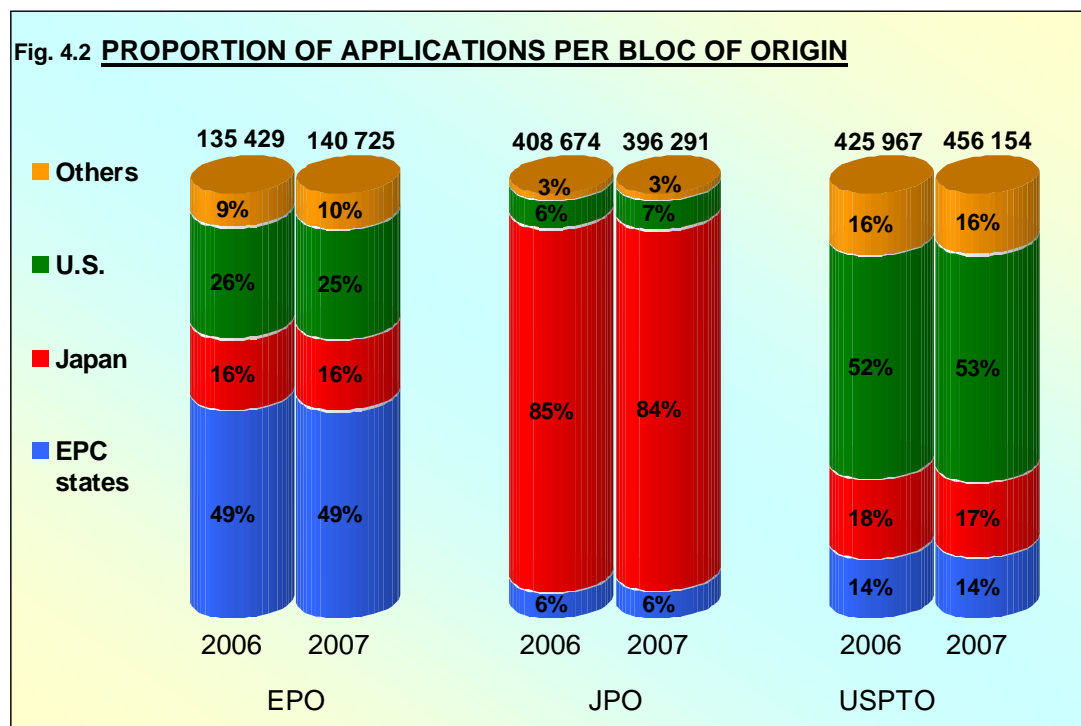
## PATENT APPLICATIONS FILED

The numbers of domestic (residents of the country) and foreign (non-residents) patent applications filed with each of the Trilateral Offices for the years 2006 and 2007 are shown in Fig. 4.1.



There were a total of 140 725 patent applications filed with the EPO in 2007, which is a growth of 3.9 percent. The number of patent application filings at the JPO decreased by 3 percent to 396 291. USPTO recorded 456 154 patent application filings in 2007, a 7.1 percent increase over 2006 levels.

Fig. 4.2 shows the respective shares of patent application filings by origin relative to total filings at each Office for 2006 and 2007.



Due to the differences in behaviour of the applicants from different countries, comparison of the numbers of applications at the Trilateral Offices should only be made with caution. For example, the numbers of claims given in applications are significantly different among the three Offices. On average, in 2007, an application filed at the EPO contained 18.0 claims (18.2 in 2006), one filed at the JPO contained 9.8 claims (9.5 in 2006), while one application at the USPTO had 20.1 claims (20.5 in 2006).

The shares of patent application filings by each bloc of origin are quite consistent for 2006 and 2007. EPO and USPTO show an increase in the number applications from the "Others" bloc. As in the past, patent application filings of domestic origin continue to represent the most significant share of filings at each Trilateral Office. In 2007, the shares of domestic filings at the EPO, JPO and USPTO were 48.5, 84.2 and 52.9 percent, respectively. The numbers of domestic filings at the JPO and the USPTO are considered to be equivalent to the numbers of first filings. Domestic EPO filings are defined as the total of EPO filings by residents of the EPC contracting states. Only part of these are first filings to the EPO, which is explained by the fact that in the EPC contracting states the first application is often filed at a national office. A subsequent filing at the EPO follows if the invention is judged to be worthy of protection in other European countries. Consequently, the number of domestic filings at the EPO is not equivalent to the number of first filings. The direct first filings at the EPO from residents of the EPC contracting states were 18 404 in 2006 and 19 694 in 2007, respectively 28.0 percent and 28.8 percent of all applications at the EPO by residents of the EPC contracting states.

## FIELDS OF TECHNOLOGY

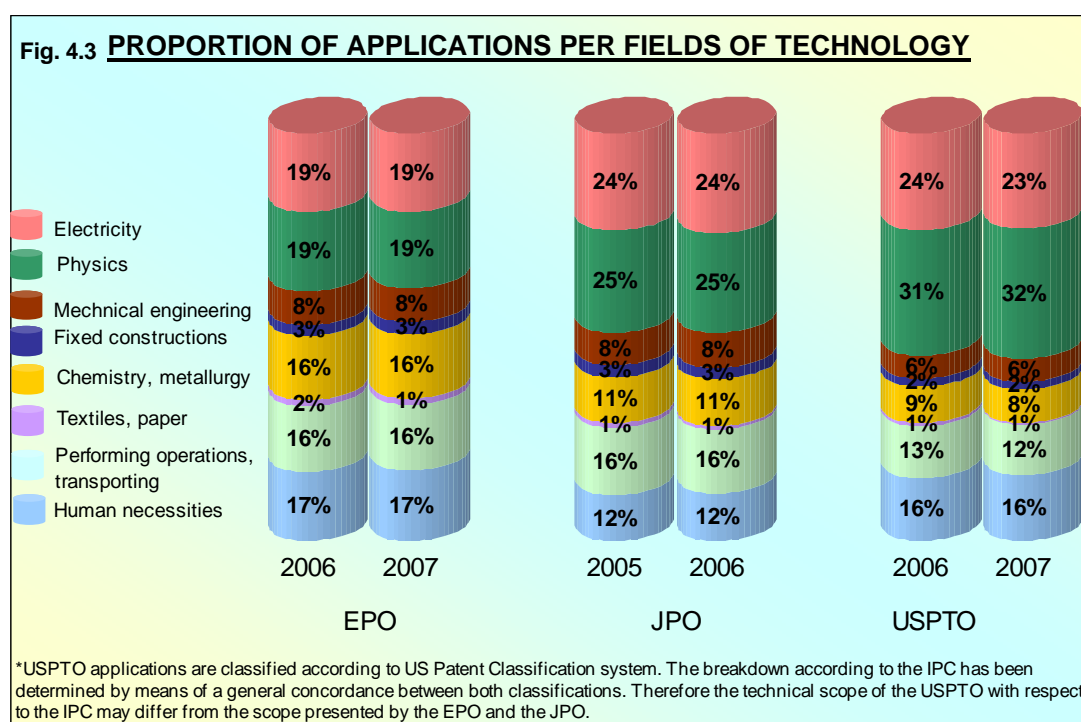
Patents are classified by the Trilateral Offices according to the IPC. This provides for a hierarchical system of language independent symbols for the classification of patents and utility models according to the different areas of technology to which they pertain. Fig 4.3 shows the distribution of applications according to the main sections of the IPC.

The classification takes place at a different stage of the procedure in each Office. Data are shown for the EPO and the USPTO for the filing years 2006 and 2007, while for the JPO the breakdown is given for the filing years 2005 and 2006. The JPO data for 2006 are the most recent available figures because the IPC assignment is completed just before the publication of the Unexamined Patent Application Gazette (18 months after the first filing).

USPTO applications are classified according to U.S. Patent Classification system. The breakdown according to the IPC has been determined by means of a general concordance between both classifications. Therefore the technical scope of the USPTO with respect to the IPC may differ from the scope presented by the EPO and the JPO.

Fig. 4.3 indicates the share of applications by fields of technology at each Trilateral Office. The shares are determined for all applications for which a classification is available.

1. Electricity	2. Physics
3. Mechanical engineering	4. Fixed construction
5. Chemistry, metallurgy	6. Textiles, paper
7. Performing operations, transporting	8. Human necessities

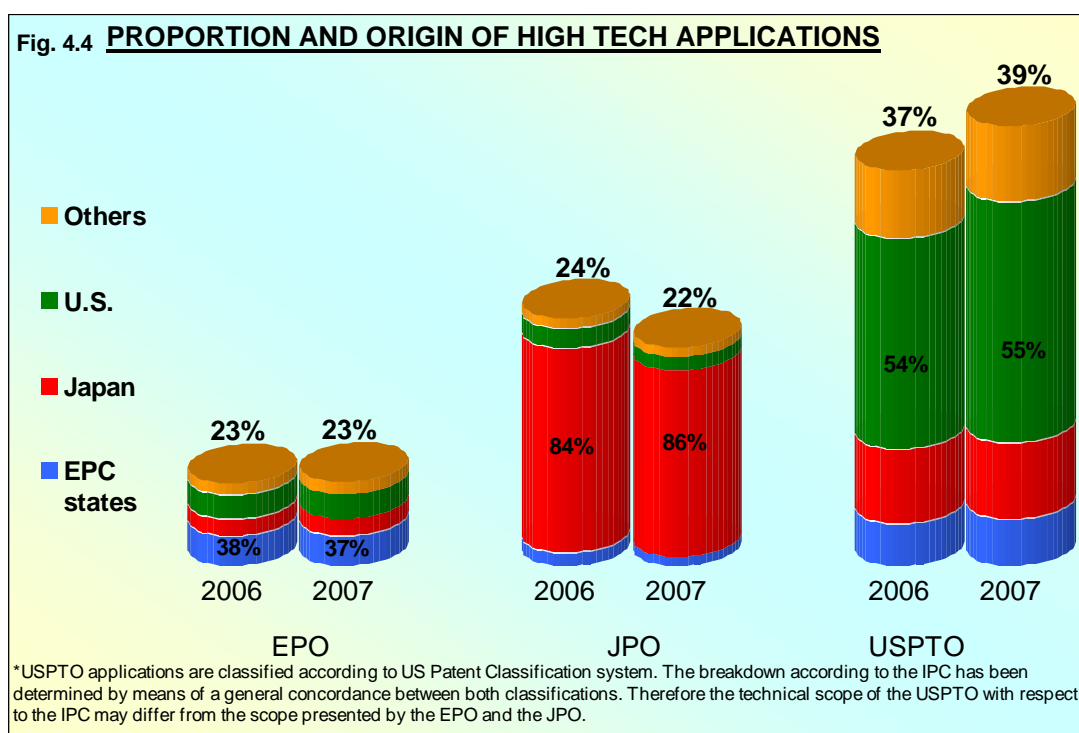


There is little change from 2006 to 2007 in the share that these fields occupied at the Trilateral Offices.

The IPC does not itself define high technology fields. Therefore the Trilateral Offices previously agreed to consider the following as high technology fields:

- Computer and automated business equipment,
- Micro-organism and genetic engineering,
- Aviation,
- Communications technology,
- Semi-conductors, and
- Lasers.

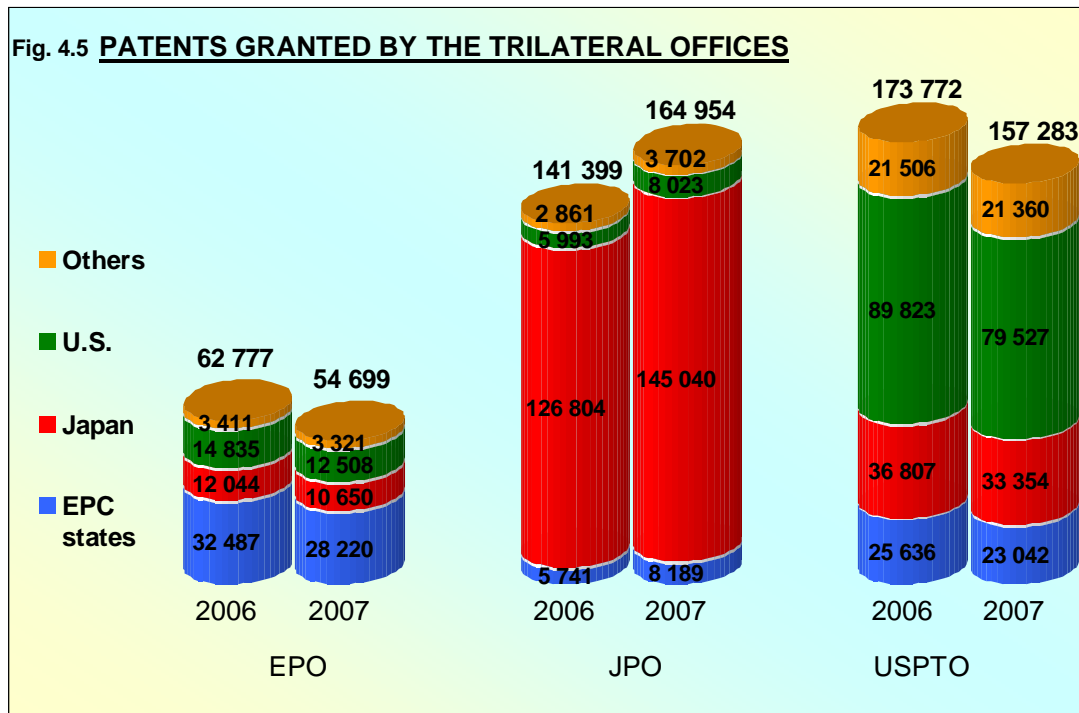
Usually an increasing proportion of applications filed with the Trilateral Offices are from high technology areas. In Fig. 4.4, this proportion is given for each Office in 2006 and 2007, together with their origins.



The USPTO has the highest share of patent applications in the high technology fields, with 39 percent of all applications occurring in this area. Of this number, 55 percent are from domestic applicants. At the JPO, the share of high technology applications decreased to 22 percent in 2007, and 86 percent of such applications are from domestic applicants. At the EPO, the share of high technology applications remained stable at 23 percent, with 37 percent coming from applicants resident in the EPC contracting states.

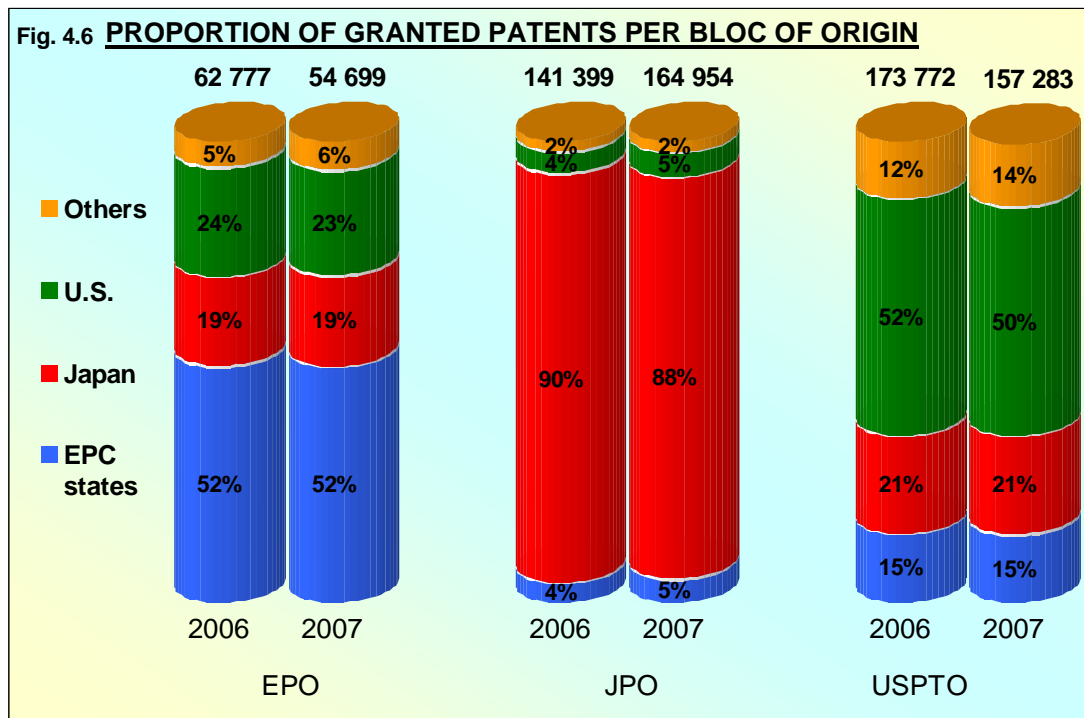
## PATENTS GRANTED

Fig. 4.5 shows the numbers of patents granted by the Trilateral Offices. Together the Trilateral Offices granted 376 936 patents in 2007, 1 012 less than in 2006. This is an overall decline of about a quarter of a percentage point.



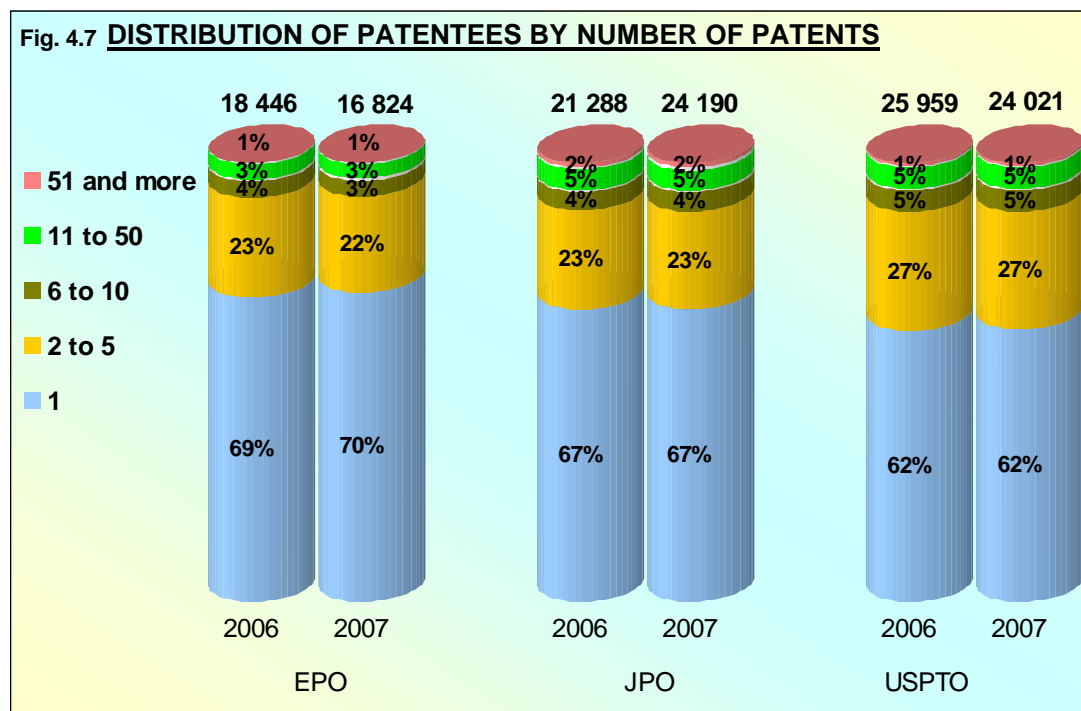
The number of patents granted by the JPO increased further by 17 percent in 2007. The EPO granted 8 078 less patents in 2007 than in 2006, a decrease of almost 13 percent. The USPTO granted almost 16 500 less patents than in 2006 a 9.5 percent decrease. The differences between the Trilateral Offices regarding the absolute numbers of patents granted can only be partly explained by differences in the number of corresponding applications. These numbers are also affected by differing grant rates and durations to process applications by the Trilateral Offices, which themselves reflect differences in the trilateral patent granting procedures (see section below on "Trilateral Patent Procedures").

Fig. 4.6 presents the percentage shares of total patents granted by origin.



The shares from the different filing blocs are not far away from those observed for the filings in each Office as presented in Fig. 4.2. However, comparison of the figures shows that the shares by domestic origin within the numbers of patent grants at EPO and JPO are slightly higher than the comparable shares within the numbers of applications filed. At the three offices, the shares of Japanese origin patents are higher than the corresponding share in applications.

The breakdown of patentees by numbers of patents granted and origin is shown in Fig. 4.7.



With more patents granted, more applicants received patents at the JPO or at the USPTO (around 24 000) compared to less than 17 000 at the EPO. On average a patentee received 3.3 patents at the EPO compared to 6.8 at the JPO and 6.5 at the USPTO.

Nevertheless, at the three Offices, most of the patentees received not more than five patents. The proportion of patentees receiving one patent grant in 2007 is higher at the EPO (70 percent) than at the JPO (67 percent) or the USPTO (62 percent). The proportion of patentees receiving two to five patents is larger at the USPTO (27 percent) than in the other two Trilateral Offices (23 percent). The proportion of patentees receiving six or more patents is lower at the EPO than at the JPO and the USPTO. In 2007, the maximum number of patents granted to a single applicant was 835 at the EPO, 4 736 at the JPO and 3 125 at the USPTO.

A patent granted by an Office has a maximum term fixed by law. In all three Offices this is a twenty year term from the date of filing the application. In order to maintain the protection right during this period, the applicant has to pay renewal fees, annual fees or maintenance fees in the countries to which the protection pertains. Maintenance systems differ from country to country. In the three procedures, if a renewal fee, an annual fee or maintenance fee is not paid in due time, the protection right expires.

For a European patent, renewal fees are payable to the EPO from the third year after filing in order to maintain the application. After the patent has been granted, annual renewal fees are paid to the national office of each designated EPC contracting state

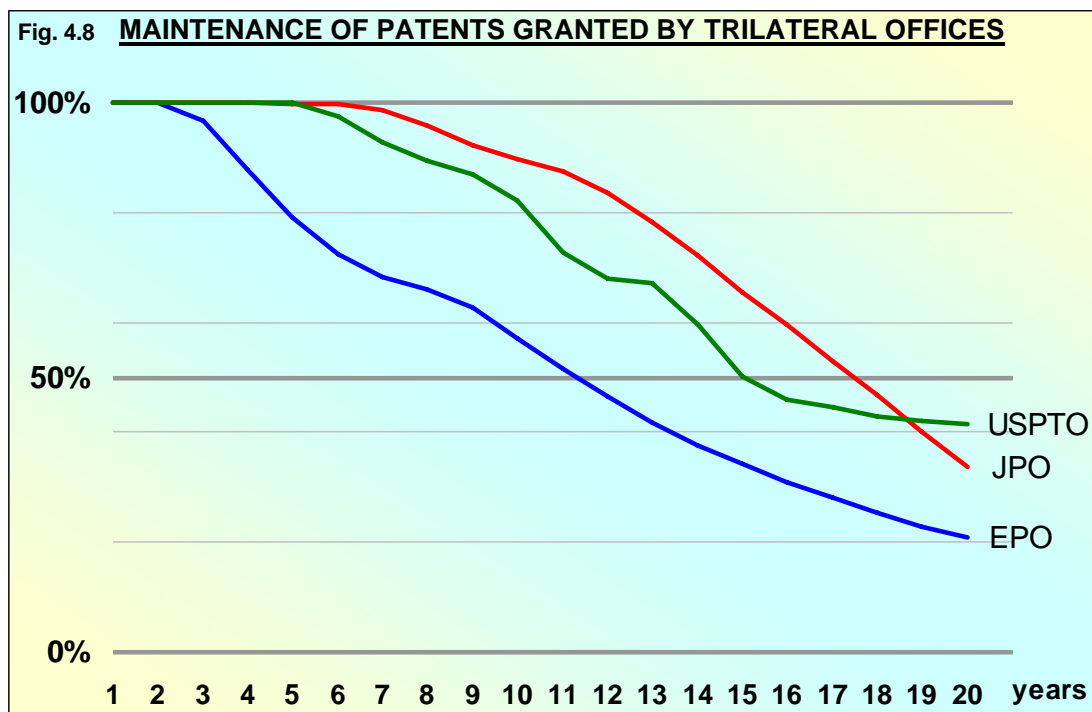


in which the patent has been registered. The resulting national patents are not necessarily maintained for the same period in each contracting states.

For a Japanese patent, the first three years' annual fees after patent registration are paid as a lump-sum and; for subsequent annual year's fees the applicant can pay either yearly or in advance.

In the U.S., patent maintenance requires payment of fees in three stages: 3.5 years, 7.5 years, and 11.5 years after grant.

Fig. 4.8 shows the proportions of patents granted by each Trilateral Office that are maintained for differing lengths of time. It compares the rate of granted patent registrations existing and maintained each patent year. These figures are calculated for the three offices from the year of application<sup>18</sup>. The EPO proportions represent an average ratio of maintenance in the EPC contracting states.

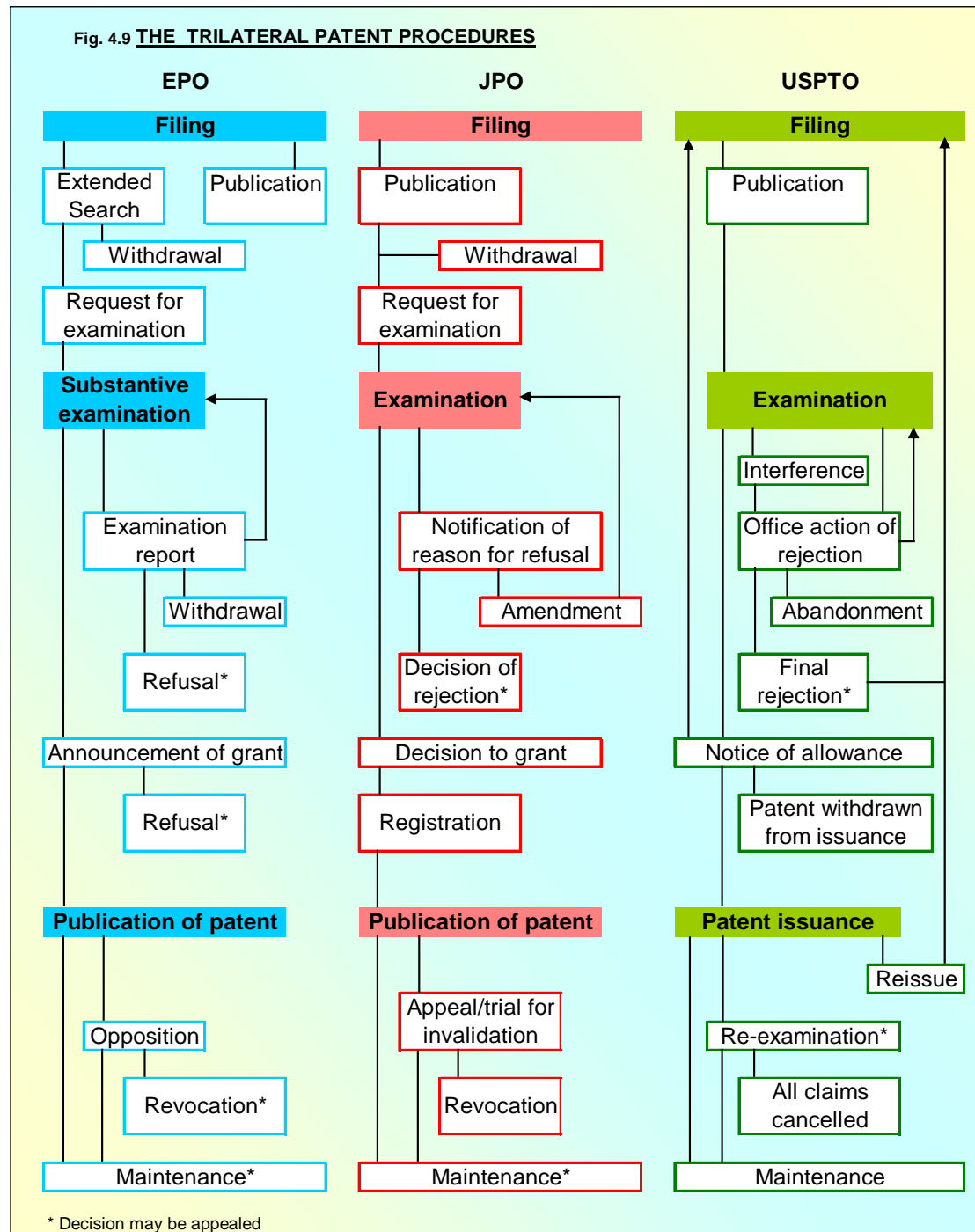


In Japan, over 50 percent of the patents granted are maintained for at least 17 years compared to at least 11 years for the European patents and at least 15 years for the U.S. patents.

<sup>18</sup> In previous editions, the USPTO statistics were presented from the year of registration.

## PATENT PROCEDURES

The grant procedures differ to some extent between the Trilateral Offices. The major phases are outlined in Fig. 4.9.



### Examination: search and substantive examination

Each of the Trilateral Offices will examine a filed patent application based upon novelty, inventive step, and industrial applicability. At the EPO, this examination is done in two phases. Firstly, a search is done in order to establish the state of the art with respect to the invention. The applicant receives a search report accompanied by

an initial opinion on patentability. In a second phase, the inventive step and industrial applicability are examined in the substantive examination. In the national procedures before the JPO or the USPTO, the search and substantive examination are undertaken in one phase. The international searches and international preliminary examinations carried out by the three Offices are not included in the flow chart, since for PCT applications, the granting procedure starts at the moment they enter the national or regional phase.

Filing of a European application with the EPO is taken to imply a request for search, but not yet a request for substantive examination. For the latter, a separate request has to be filed no later than six months after publication of the search report. Filing of a national application with the JPO does not imply a request for examination; this may be filed up to three years after the date of filing. Filing of a national application with the USPTO is taken to imply a request for examination.

### **Publication**

In the Trilateral Offices, the application is to be published, at the latest, 18 months after the date of filing or priority date. The application can be published earlier at the applicant's request. In the USPTO, an application that has not and will not be the subject of an application filed in foreign countries does not need to be published if an applicant so requests.

### **Grant, refusal / rejection, withdrawal**

When an examiner intends to grant a patent, this information is communicated to the applicant (EPO: Announcement of grant; JPO: Decision to grant; USPTO: Notice of allowance). If a patent cannot be granted in the form as filed before the Office, the intention to reject the application is communicated to the applicant (EPO: Examination Report; JPO: Notification of reason for refusal; USPTO: Office action of rejection). The applicant may then make amendments to the application, generally in the claims, after which examination is resumed. This procedural step is iterated as long as the applicant continues to make appropriate amendments. Then, either the patent is granted or the application is finally rejected (EPO: Intention to refuse; JPO: Decision of rejection; USPTO: Final rejection) or withdrawn by the applicant (EPO: Withdrawal; JPO: Withdrawal or Abandonment; USPTO: Abandonment). In addition, if no request for examination for an application is filed to the EPO or the JPO within the prescribed period (EPO: six months after publication of the search; JPO: three years from the date of filing), the application will be deemed to have been withdrawn. In all three procedures, an applicant may withdraw or abandon the application at any time before the application is granted or finally refused. At the JPO, the applicant or the owner of the rights may abandon his own rights at anytime as far as these rights are valid.

After the decision to grant the patent, the patent specifications are published if certain administrative conditions are fulfilled (EPO: Publication of patent; JPO: Publication of patent; USPTO: Patent issuance).

## **Opposition**

There is no opposition system at JPO.

At the EPO, the period for filing opposition(s) begins after granting of the patent rights and lasts nine months. If successful, the opposition can lead to a revocation of the patent or to its maintenance in amended form.

In the procedure before the USPTO, there are two features that may lead to the cancellation of a granted patent: interference proceedings and re-examination. These features are not comparable to the opposition procedure at the EPO. In the USPTO, the first feature is a priority contest between applicants/patentees seeking to protect the same invention and the second feature may be requested by third parties or by the patentee during the lifetime of a granted patent.

## **Appeal**

An appeal can be filed by any of the parties concerned against a decision taken by the Trilateral Offices. In practice, applicants can appeal decisions to reject an application or revoke a patent, while opponents can appeal decisions to maintain a patent. The procedure is in principle similar for the three Offices. The examining department first studies the argument brought forward by the appellant and decides whether the decision should be revised. If not, the case is forwarded to a Board of Appeal, which may take the final decision or refer the case back to the examining department.

In the JPO, generally appeal examiners examine the supplementary reasons brought forward by the appellant and decide whether the decision can be overturned. However, in the case that amendments of the description of the claims or the drawings have been made within 30 days from the filing date of an appeal against a decision to refuse the application, the examiner first re-examines the amendment brought forward by the appellant in order to decide whether the decision can be overturned. If not, the case will be forwarded to the appeal examiners for the final decision.

## **STATISTICS ON PROCEDURES**

The 2006 and 2007 values of the basic characteristics of trilateral procedures are shown in Table 4 (below). Definitions and further explanations of the statistics are given in Annex 2.

Definitions are not always identical in the three Offices. This should always be born in mind when seeking to make comparisons between the Trilateral Offices based on the information provided.

### **Rates**

The examination rate in the USPTO is 100 percent, since filing implies a request for examination in the USPTO procedure, whereas in the EPO and the JPO a specific request for examination has to be made. At the EPO the growing proportion of PCT applications in the granting procedure led to an increase of the examination rate. In the Japanese procedure, the examination rate is the lowest because applicants have substantially more time (three years from the filing date) in which to evaluate whether to maintain the application or not.

The grant rate in the EPO procedure, as defined in terms of decisions, decreased to 51.4 percent in 2007. In the JPO, the grant rate increased slightly to 48.9 percent in 2007. In the USPTO, the allowance rate decreased to 48.7 percent in 2007.

The opposition rate at the EPO decreased marginally in 2007 to 5.2 percent, and 70.4 percent of the opposed patents were maintained, although in some cases in amended form.

In the EPO, about 32.9 percent of decisions in examination to reject the application were subject to an appeal in 2007. In the JPO, about 20 percent of the decisions in examination to reject were appealed. In the USPTO, about 2.8 percent of final rejections were appealed.

In the EPO, 42.3 percent of the decisions taken during the opposition procedures were appealed in 2007.

### **Pendencies**

In the successive stages of the procedure, there are pending applications awaiting action in the next step of the procedure. The number of pending applications gives an indication of the workload (per stage of procedure) from the patent grant procedure in each Trilateral Office. This is not a particularly good indicator for the backlog in handling applications within the Offices since a substantial part of pending applications are awaiting action from the applicant, for instance a request for examination (which can take three years from the date of filing in the JPO), or responding to actions communicated to the applicant.

Pending applications in search at the EPO increased by 11 percent to 124 000 in 2007, and pendency time in search increased to 19.5 months.

The number of pending applications awaiting a request for examination by the applicant increased at the EPO to around 19 500 cases.

In the JPO, the number of applications awaiting a request for examination, more than 1.6 million, is substantively higher than those in the EPO due to the period during which requests for examination can be filed. Due to the reduction of the duration of this period in 2001, this decreased by 9 percent since 2006.

The number of pending applications in examination increased at the EPO by 5 percent to about 318 300 in 2007, and the total pendency time in examination increased by 1.4 month to about 45.3 months in 2007. The pendency time to first office action decreased by 1 month to 22.8 months at the EPO.

In the JPO, the number of pending applications increased to 888 200, an increase of 6 percent over 2006. JPO's total pendency slightly increased to 32.4 months. The JPO's pendency time to first office action increased by 1 month to 26.7 months.

The USPTO number of pending applications also continues to increase. In 2007 there were 763 500 applications waiting to be examined, 9 percent more than in 2006. Total pendency at the USPTO rose slightly to 32 months, while pendency to first office action increased by 1.5 month to 24.9 months.

Pendency time in opposition increased at the EPO to 18.6 months in 2007.

**Table 4: STATISTICS ON PROCEDURES**

<b>Progress in the procedure</b>		<b>Year</b>	<b>EPO</b>	<b>JPO</b>	<b>USPTO</b>
<b>Rates in percentage</b>					
Examination		2006	94.2	67.4	100.0
		2007	94.5	66.2	100.0
Grant <sup>19</sup>		2006	55.9	48.5	53.1
		2007	51.4	48.9	48.7
Opposition		2006	5.4	-	-
		2007	5.2	-	-
Maintenance after opposition		2006	72.5	n.a.	-
		2007	70.4	n.a.	-
Appeal <sup>20</sup>	On examination	2006	32.7	26 373	2.2
		2007	32.9	33 077	2.8
	on opposition	2006	47.8	-	-
		2007	42.3	-	-
<b>Pendency in the procedure</b>					
Search	Number of pending applications	2006	111 557	-	-
		2007	124 000	-	-
	Pendency times in search (months)	2006	17.7	-	-
		2007	19.5	-	-
Examination	Number of applications awaiting request for examination	2006	19 290	1 805 194	-
		2007	19 517	1 639 081	-
	Number of pending applications	2006	304 116	837 887	701 301
		2007	318 298	888 198	763 493
	Pendency time to first office action (months)	2006	23.8	25.6	23.4
		2007	22.8	26.7	24.9
	Pendency time in examination (months)	2006	43.9	31.8	31.3
		2007	45.3	32.4	32.0
Opposition	Number of pending applications <sup>21</sup>	2006	5 294	n.a.	-
		2007	5 822	n.a.	-
	Pendency time in opposition (months)	2006	16.7	n.a.	-
		2007	18.6	n.a.	-

n.a." not available

- = not applicable

<sup>19</sup> The USPTO reports on allowance rate.<sup>20</sup> For JPO, only numbers are available.<sup>21</sup> At the EPO, a new definition takes account of all cases pending an opposition division decision.