

Chapter 4

PATENT ACTIVITY AT 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 as well as the years up to 2005. Regarding Europe, statistics are for EPO only and trends in the patent offices of the EPC contracting states are not covered in this chapter. Whereas the EPO is indicated from the viewpoint of a Trilateral Office, the EPC contracting states are still also indicated as a bloc from which patent applications are originating.

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 3.2 and 3.11 in Chapter 3.

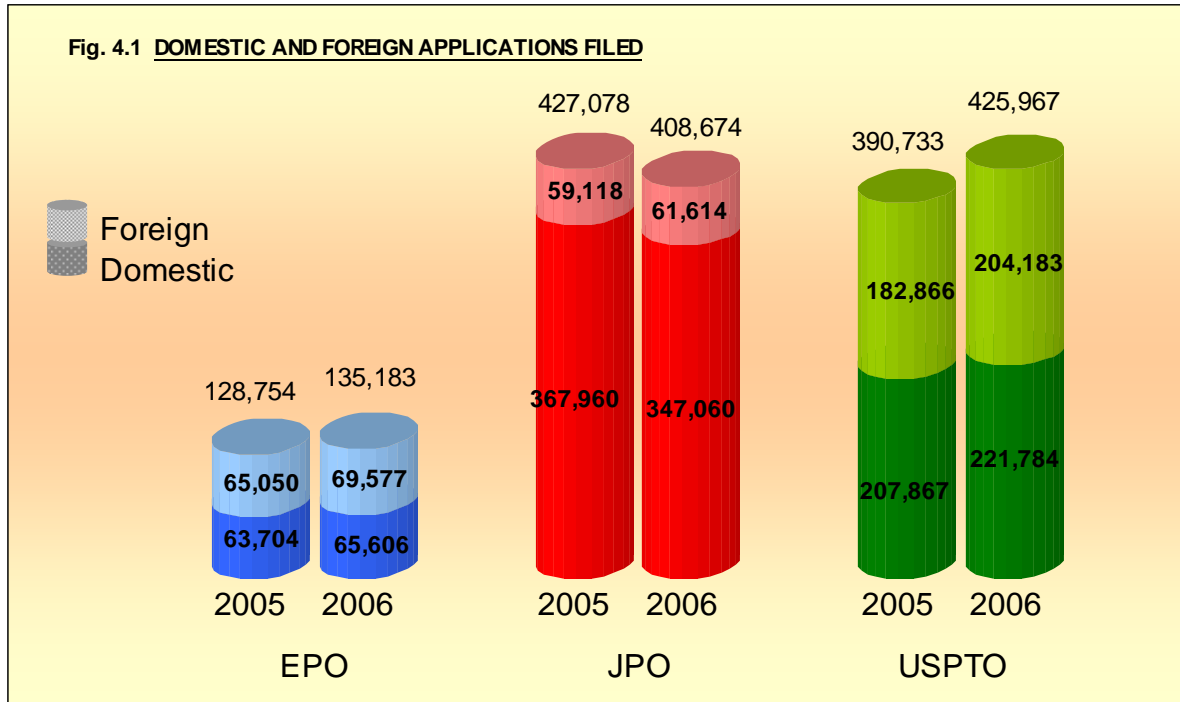
Demand at Trilateral Offices is demonstrated by counts of numbers of patent applications that were filed. These counts represent the total of direct national/regional applications filed and PCT applications entering the national/regional phase.

For granted patents, the statistics involve direct, regional and PCT applications by year of grant. The representations here are similar to Fig. 3.9 in Chapter 3, 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).

APPLICATIONS WITH THE TRILATERAL OFFICES

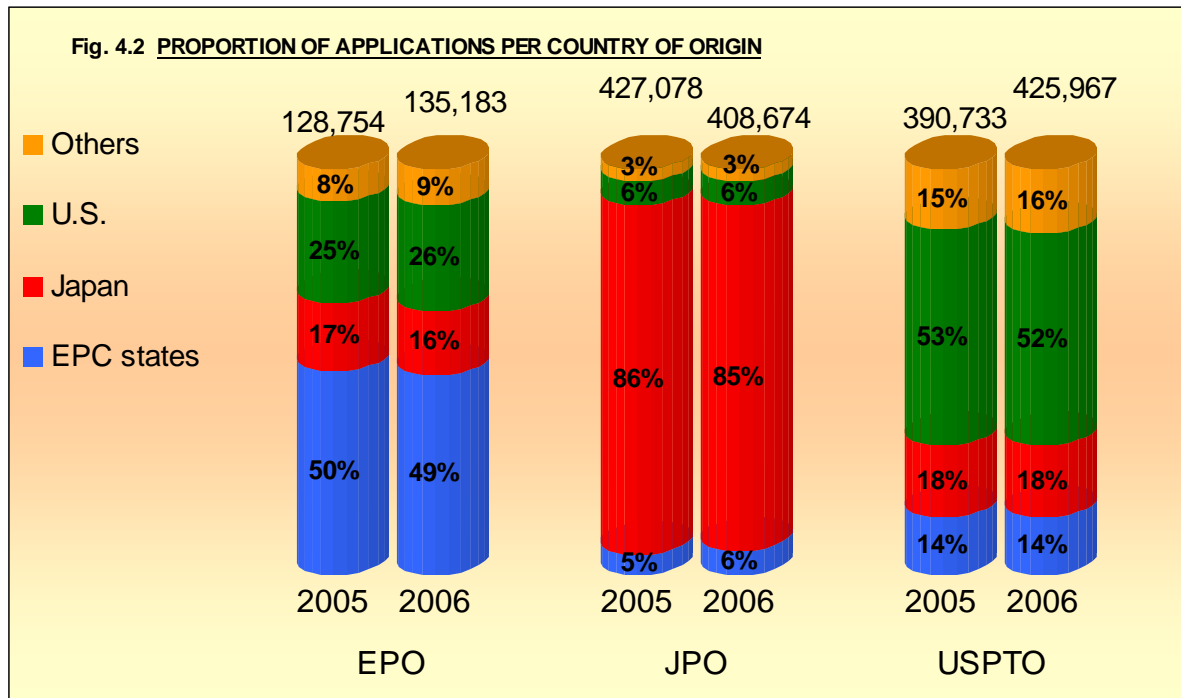
PATENT APPLICATIONS FILED

The numbers of domestic (residents of the country) and foreign (non-residents) patent applications filed with each of the Trilateral Offices for the years 2005 and 2006 are shown in Fig. 4.1.



There were a total of 135,183 patent applications filed with the EPO in 2006, which is a growth of 3.4 percent. The number of patent application filings at the JPO decreased by 4.3 percent to 408,674. USPTO saw 425,967 patent application filings in 2006, a 9.0 percent increase over 2005 levels.

Fig. 4.2 shows the respective shares of patent application filings by origin relative to total filings at each Office for 2005 and 2006.



Due to the differences in behavior 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 2006, an application filed at the EPO contained 18.2 claims (18.05 in 2005), one filed at the JPO contained 9.5 claims (9.5 in 2005), while one application at the USPTO had 20.5 claims (20.6 in 2005).

The shares of patent application filings by each bloc of origin are quite consistent for 2005 and 2006. 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 2006, the shares of domestic filings at the EPO, JPO and USPTO were 48.5, 84.9 and 52.1 percent, respectively. The numbers of domestic filings at the JPO and the USPTO are approximately 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 generally 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 15,299 in 2005 and 16,859 in 2006, respectively 24.0 percent and 25.7 percent of all direct filings at the EPO by residents of the EPC contracting states.

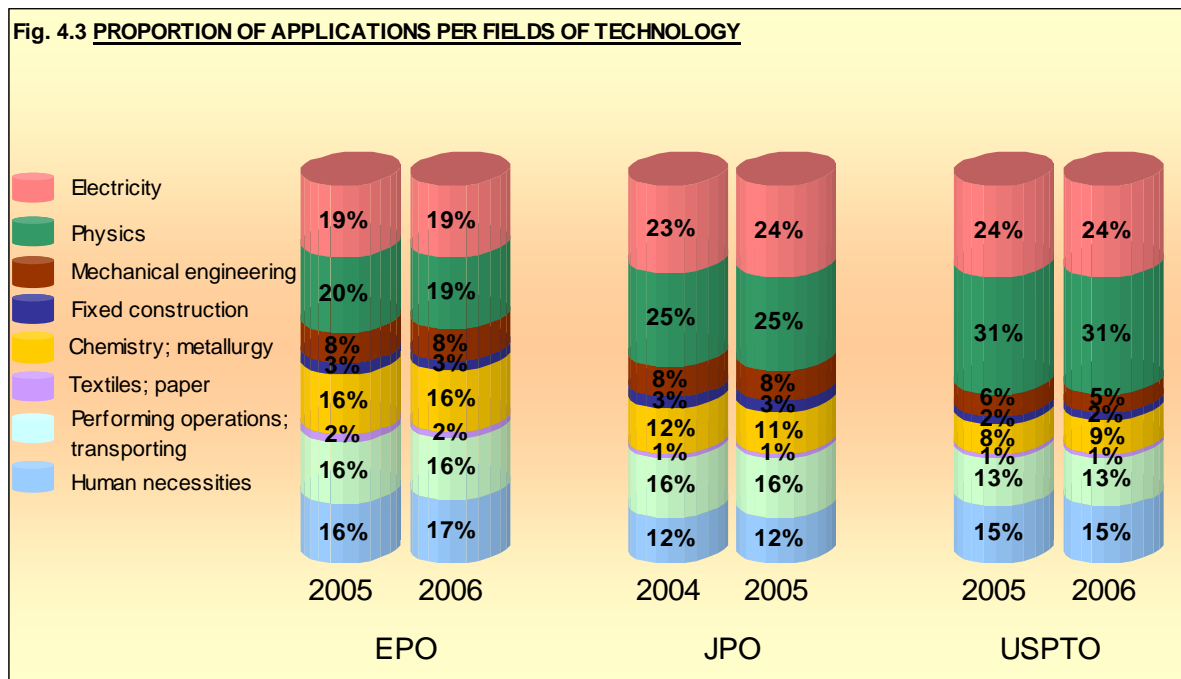
APPLICATIONS BY FIELD OF TECHNOLOGY

Patents are classified by the Trilateral Offices according to the IPC. 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. Fig. 4.3 shows data for the EPO and the USPTO for the filing years 2005 and 2006, while for the JPO the breakdown is given for the filing years 2004 and 2005. The JPO data for 2005 are the most recent available figures because the IPC assignment is completed just before the publication of the Unexamined Patent Application Gazette (after the expiration of 18 months from 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 technological field 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

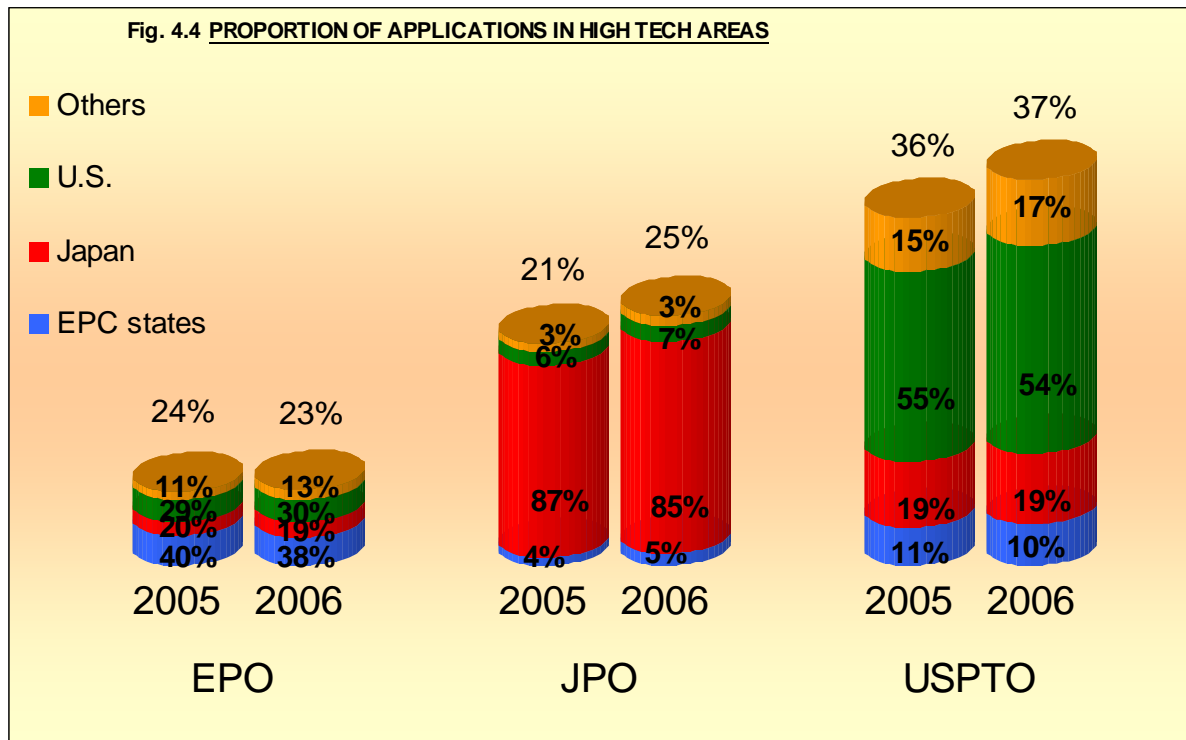


On a year-to-year basis, there is little change in the share that these fields occupied at the Trilateral Offices.

The patent classification does not itself define high technology fields. The Trilateral Offices, however, previously agreed to consider as high technology the following fields:

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

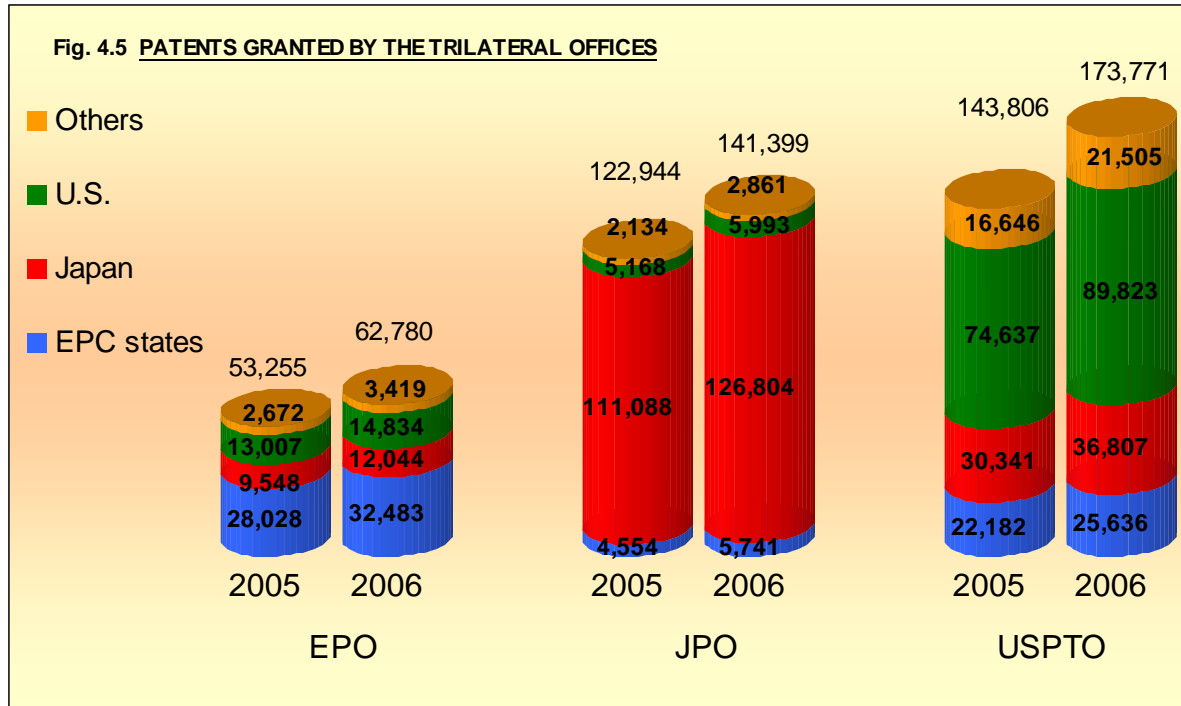
Usually an increasing proportion of applications filed with the Trilateral Offices are from high technology areas. In Fig. 4.4, this proportion is given for each Office in 2005 and 2006, together with their origin.



The USPTO has the highest share of patent applications in the high technology fields, with 37 percent of all applications occurring in this area. Of this number, 54 percent are from domestic applicants. At the JPO, the share of high technology applications increased to 25 percent in 2006, and 85 percent of such applications are from domestic applicants. At the EPO, the share of high technology applications remained nearly stable at 23 percent, with 38 percent coming from applicants resident in the EPC contracting states.

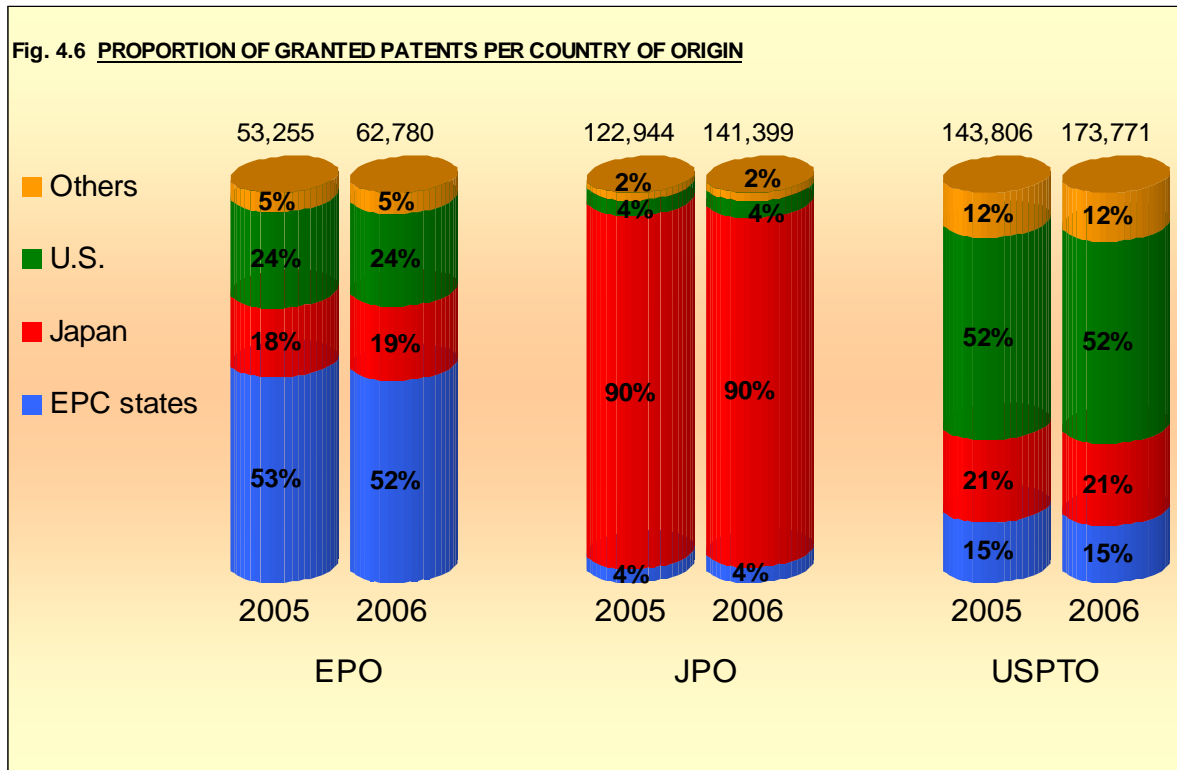
PATENTS GRANTED BY TRILATERAL OFFICES

Fig. 4.5 shows the numbers of patents granted by the Trilateral Offices. There is an overall growth of more than 18 percent. Together the Trilateral Offices granted 377,950 patents in 2006, 57,945 more than in 2005.



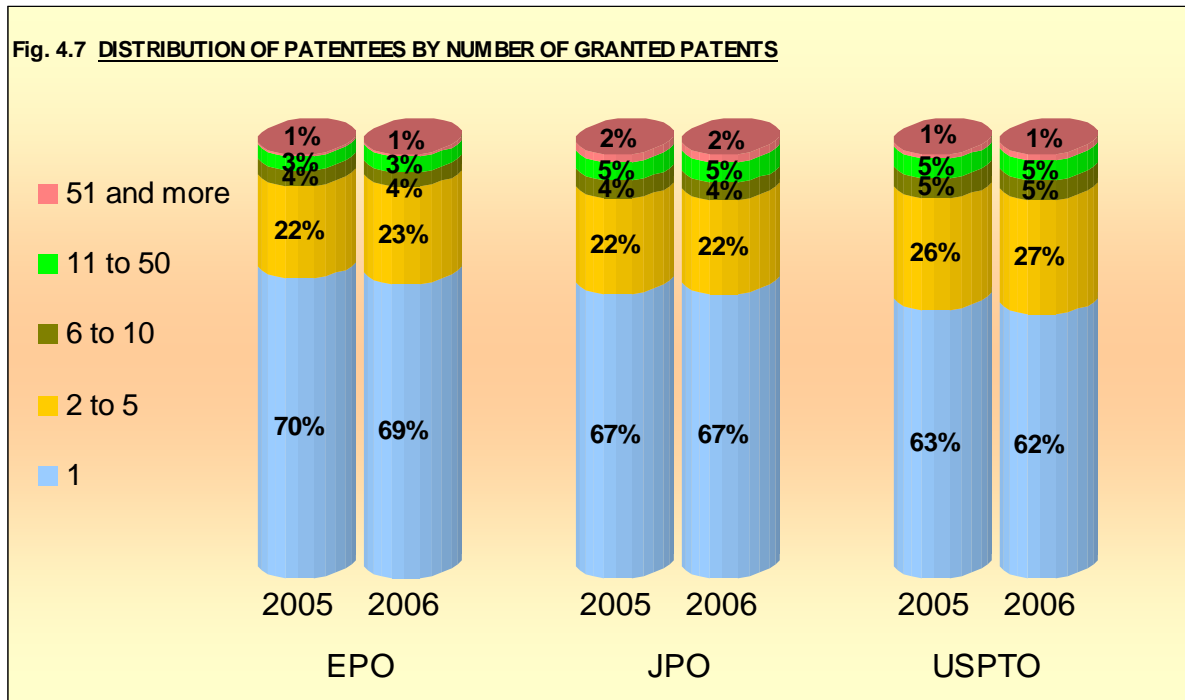
The number of patents granted by the JPO increased in 2006 by 15 percent. The EPO granted 9,525 more patents in 2006 than in 2005, an increase of almost 18 percent. The USPTO granted 173,771 the highest number of patents among the Trilateral Offices, an increase of 21 percent since 2005. The differences between the Trilateral Offices regarding the absolute numbers of patents granted can only be partially explained by the differences in the number of corresponding applications. These numbers are also affected by different grant rates and different 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, while for 2006 the USPTO's share is slightly lower.

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



In the three Offices, most of the patentees received not more than five patents. The proportion of patentees receiving one patent grant in 2006 is higher at the EPO (69 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 than in the other two Trilateral Offices. The proportion of patentees receiving six or more patents is lower at the EPO than at the JPO and the USPTO. In 2006, the maximum number of patents granted to a single applicant was 879 at the EPO, 4,155 at the JPO and 3,621 at the USPTO.

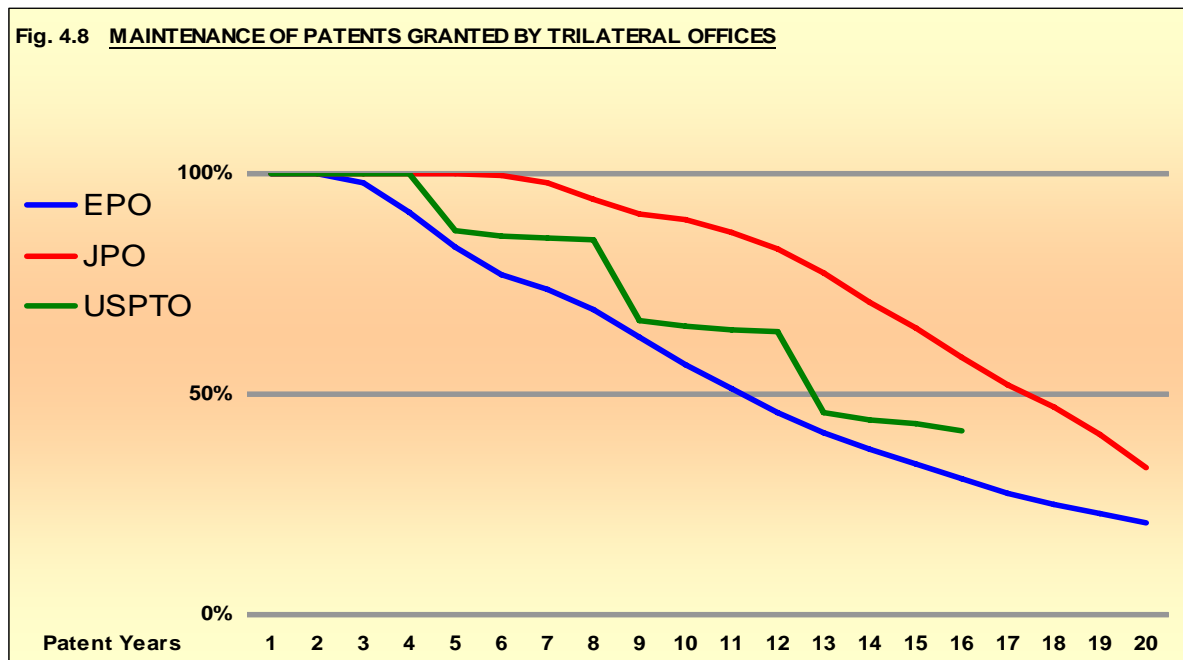
A patent granted by an Office has a maximum term fixed by law. In all three Offices this is a twenty year term from the date of filing the application. In order to maintain the protection right during this period, the applicant has to pay renewal fees, annual fees or maintenance fees in the countries 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 patent year onwards to maintain the application. After the patent has been granted, annual renewal fees have to be paid to the national office of each designated EPC contracting state in which the patent has been registered. The equivalent national patents are not necessarily maintained for the same period in each contracting states. Therefore the proportions shown in Fig.4.8 for the EPO represent an average ratio of maintenance in the EPC 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.

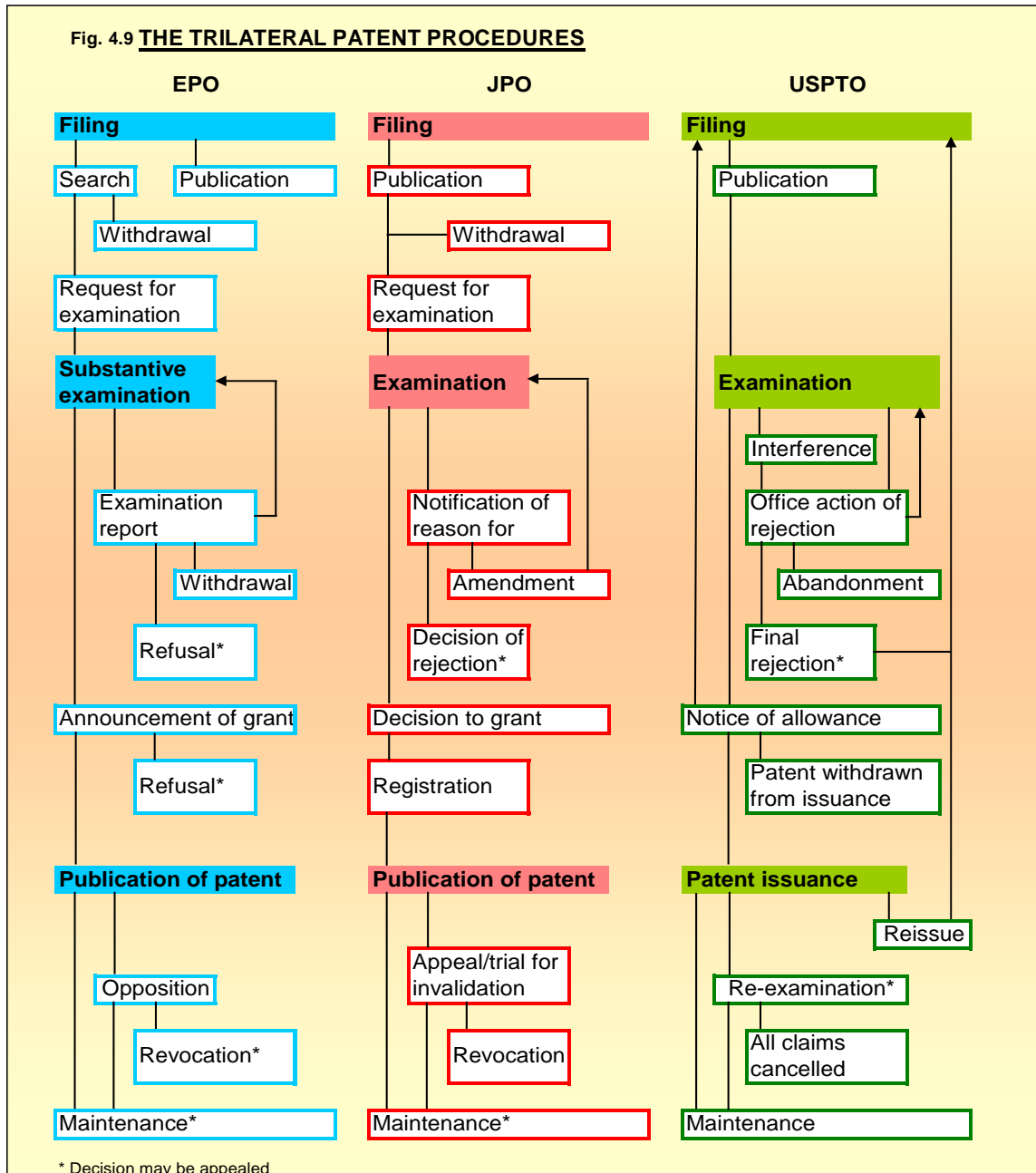
Fig. 4.8 shows the proportions of patents granted by each Trilateral Office that are maintained for differing lengths of time. It compares the rate of granted patent registrations existing and maintained each patent year. These figures are calculated from the year of application for the EPO and the JPO and from the year of registration (grant) for the USPTO.



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 12 years for the U.S. patents.

TRILATERAL PATENT PROCEDURES

The grant procedures are not totally identical in 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 before 18 months at an 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 (see above) 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.

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 longer an 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 2005 and 2006 values of the basic characteristics of trilateral procedures are shown in Table 4 (below). The definitions and further explanations on the statistics including changes in the compilation of these 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) in which to evaluate whether to maintain the application or not.

The grant rate in the EPO procedure, as defined in terms of decisions, increased to 55.9 percent in 2006. In the JPO, the grant rate decreased to 48.5 percent in 2006. In the USPTO, the allowance rate decreased to 53.1 percent in 2006.

The opposition rate at the EPO decreased marginally in 2006 to 5.4 percent, and 72.5 percent of the opposed patents were maintained, although in some cases in amended form.

In the EPO, about 32.7 percent of decisions in examination to reject the application were subject to an appeal in 2006. In the USPTO, about 2.2 percent of final rejections were appealed.

In the EPO, 47.8 percent of the decisions taken during the opposition procedures were appealed in 2006.

The total number of appeals in the JPO against decisions in examination, including decisions on applications against which oppositions had been filed, increased to 26,373 in 2006 from 23,054 in 2005.

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 decreased by 1 percent to about 111,600 in 2006, and pendency time in search decreased to about 18 months.

The number of pending applications awaiting a request for examination by the applicant increased at the EPO to around 19,290 cases.

In the JPO, the number of applications awaiting a request for examination, 1,805,194, is substantively higher than those in the EPO due to the period during which requests for examination can be filed. This is a 7.6 percent decrease for JPO since 2005.

The number of pending applications in examination increased at the EPO by 7 percent to about 304,100 in 2006, and the total pendency time in examination increased by 8 percent to about 44 months in 2006. The pendency time to first office action decreased by 9 percent to 23.8 months at the EPO.

In the JPO, the number of pending applications increased to 837,887, an increase of almost 11 percent over 2005. JPO's total pendency continues to be stable at 31.8 months. The JPO's pendency time to first office action was 25.6 months.

The USPTO number of pending applications continues to increase. In 2006 there were 701,301 applications waiting to be examined, more than 16 percent more than in 2005. Total pendency at the USPTO rose slightly from 30.6 months in 2005 to 31.3 months. USPTO's pendency to first office action was 23.4 months.

Pendency time in opposition reduced at the EPO to 16.7 months in 2006.

Table 4: STATISTICS ON PROCEDURES

Progress in the procedure		Year	EPO	JPO	USPTO
Rates in percentage					
Examination		2005	94.6	66.6	100.0
		2006	94.2	67.1	100.0
Grant ¹⁶		2005	53.3	49.1	58.9
		2006	55.9	48.5	53.1
Opposition		2005	5.5	-	-
		2006	5.4	-	-
Maintenance after opposition		2005	78.5	n.a.	-
		2006	72,5	n.a.	-
Appeal	on examination	2005	36.5	-	2.3
		2006	32.7	-	2.2
	on opposition	2005	48.3	-	-
		2006	47.8	-	-
	on examination and opposition ¹⁷	2005	-	23,054	-
		2006	-	26,373	-
Pendency in the procedure					
Search	Number of pending applications	2005	112,415	-	-
		2006	111,557	-	-
	Pendency time in search (months)	2005	19.6	-	-
		2006	17.7	-	-
Examination	Number of applications awaiting request for examination	2005	18,561	1,954,334	-
		2006	19,290	1,805,194	-
	Number of pending applications	2005	284,414	755,138	603,773
		2006	304,116	837,887	701,301
	Pendency time to first office action (months)	2005	26.1	25.8	21.8
		2006	23.8	25.6	23.4
	Pendency time in examination (months)	2005	40.6	31.8	30.6
		2006	43.9	31.8	31.3
Opposition	Number of pending applications	2005	2,403	n.a.	-
		2006	3,300	n.a.	-
	Pendency time in opposition (months)	2005	17.6	n a.	-
		2006	16.7	n.a.	-

In the table above, “n.a.” means “not available” and “-” indicates a “not applicable” item.

¹⁶ The USPTO reports an allowance rate.

¹⁷ For JPO, only numbers rather than percentages are available.