

## Chapter 4

# **PATENT ACTIVITY AT TRILATERAL OFFICES**

This chapter presents trends in patent application filings and grants at Trilateral Offices. These statistics are generally more up-to-date than those presented in Chapter 3, since information appears here for 2005. Regarding Europe, statistics are for EPO only and trends in the patent offices of the EPC contracting states are not covered. Whereas the EPO is indicated from the viewpoint of an office, EPC contracting states are indicated as a region from which patent applications are originating.

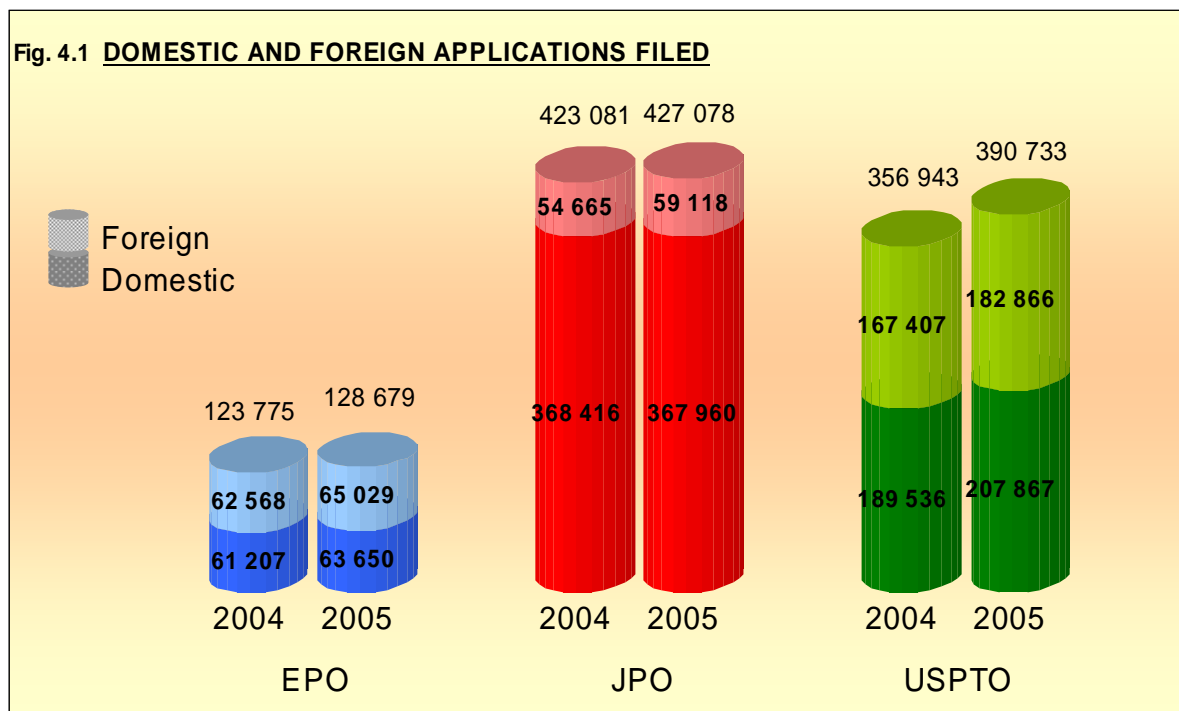
Demand at Trilateral Offices is demonstrated by statistics on patent applications filed. In this chapter, statistics will be presented for the total of direct national/regional applications filed and PCT applications entering the national/regional phase.

In the statistics on granted patents, direct, regional and international applications granted are taken into account. Since in this context the statistics are meant to give insight to the work involved rather than the number of resulting individual patent rights, hereinafter "patents granted" will correspond to the number of grant actions (issuances or publications).

# APPLICATIONS WITH THE TRILATERAL OFFICES

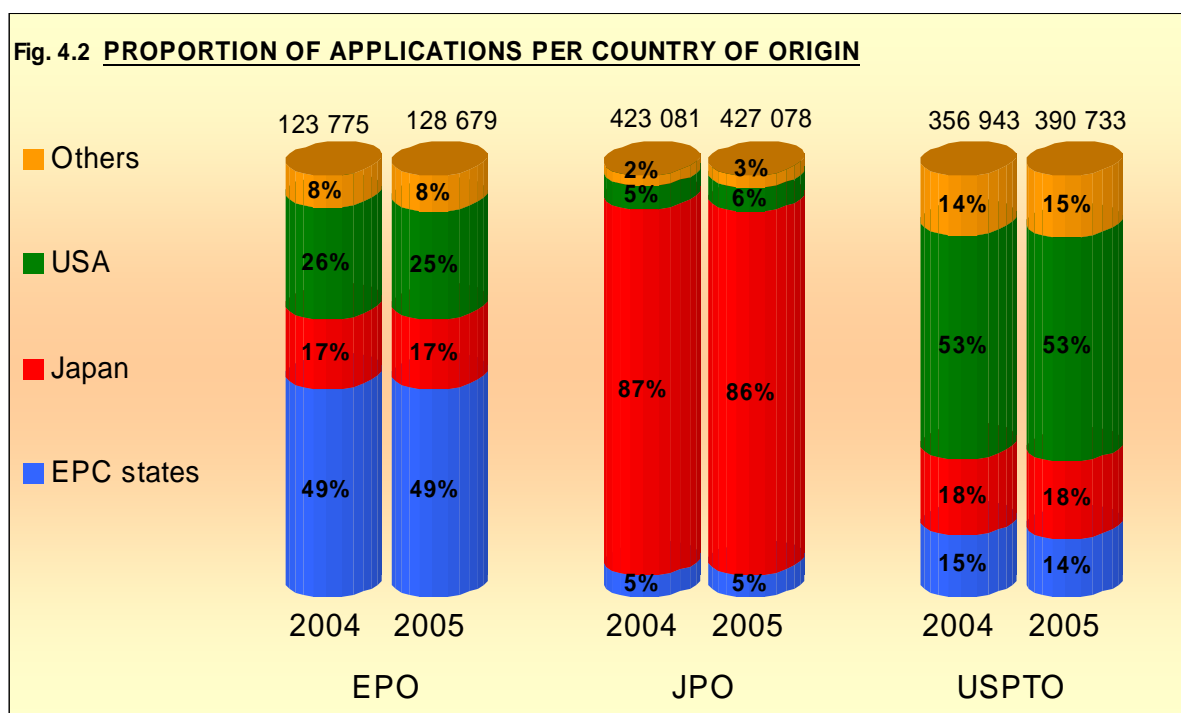
## PATENT APPLICATIONS FILED

The numbers of domestic (residents of the country) and foreign (non-residents) patent applications filed with each one of the Trilateral Offices for the years 2004 and 2005 are shown in Fig 4.1.



There were a total of 427 078 patent applications filed with the JPO in 2005, which is an increase of 3 997 filings or 0.9% above 2004. The number of patent application filings at the EPO increased by 4 904 (4.0%). USPTO patent application filings also increased over 2004 levels by 33 790 (9.5%).

Fig. 4.2 shows the respective shares of patent application filings by origin relative to total filings at each office for 2004 and 2005.



Compared to 2004, the shares of patent application filings by bloc of origin at each office were little changed in 2005. As in the past, patent application filings of domestic origin continued to represent the most significant share of filings at each office. In 2005, the shares of domestic filings at the EPO, JPO and USPTO were 49%, 86% and 53%, 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 EPC contracting states. Only a low proportion of these are first filings made to the EPO, which is explained by the fact that in 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 throughout Europe. 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 EPC contracting states were 15 299 in 2004 and 16 859 in 2005, respectively 25.0% and 26.5% of all direct filings at the EPO by residents of the EPC contracting states.

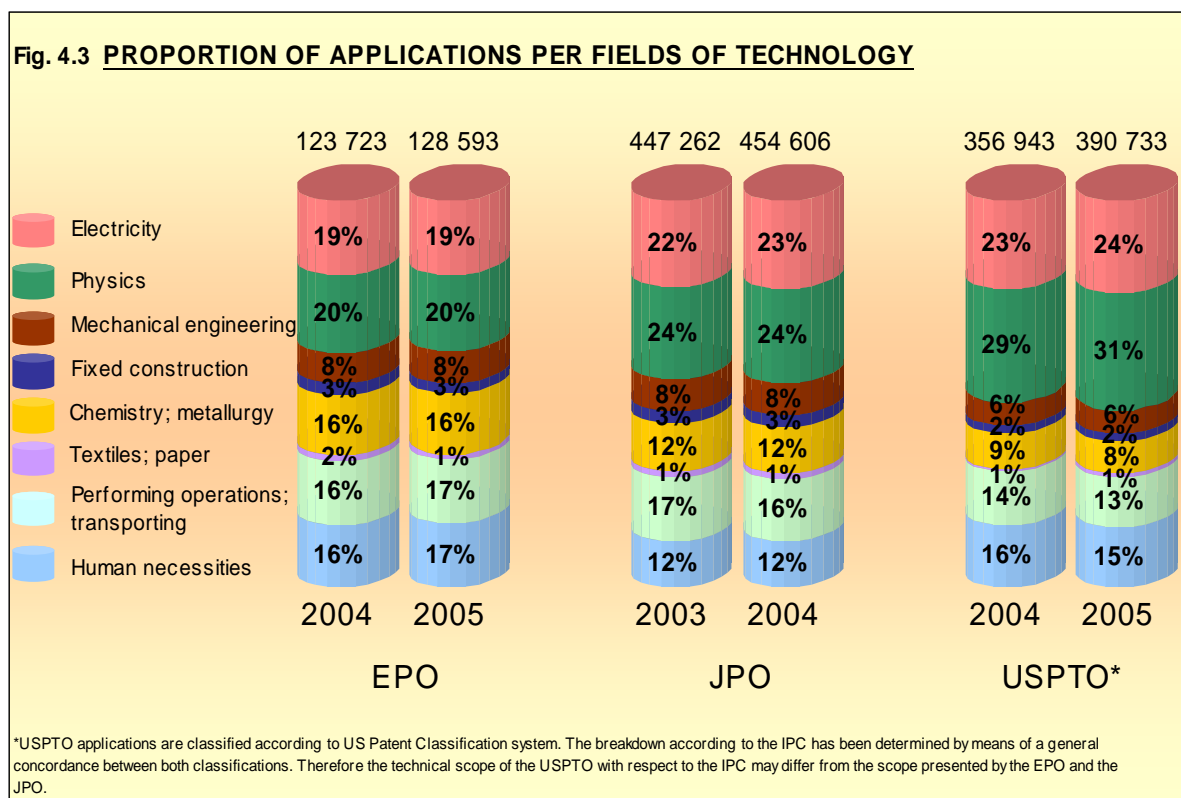
Due to the differences in behavior of the applicants from different countries, comparison of the numbers of applications at the Trilateral Offices should only be made with caution. For example, the numbers of claims given in applications are significantly different among the three offices. On average, in 2005, an application filed at the EPO contained 18.0 claims (17.6 in 2004), one filed at the JPO contained 8.0 claims (7.9 in 2004), while one application at the USPTO had 20.6 claims (23.5 in 2004).

## APPLICATIONS BY FIELD OF TECHNOLOGY

Patents are classified by the Trilateral Offices according to the International Patent Classification (IPC). This 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 2004 and 2005, while for the JPO the breakdown is given for the filing years 2003 and 2004. The JPO data for 2004 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).

Fig. 4.3 indicates the share of applications by technological field at each Office. The following eight fields of technology are represented:

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



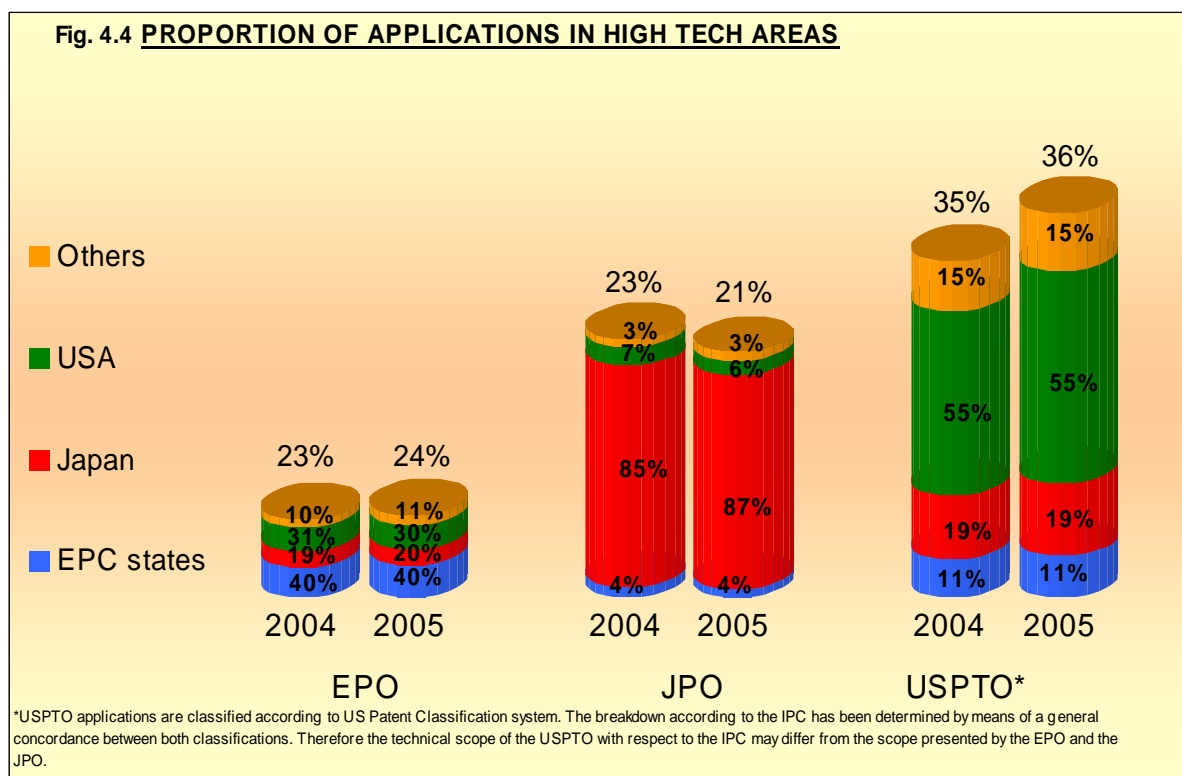
On a year-to-year basis, there is little change in the share these fields occupy at the Trilateral Offices. More than 50% of the USPTO applications are concerned with the fields of *Physics* and *Electricity*. These two fields accounted for 47% of applications at the JPO but for only 39% at the EPO. The field of *Physics* contributes to a smaller share of filings at the EPO than at the other Trilateral Offices, the field of *Chemistry, metallurgy* contributes a larger portion than at the JPO and the USPTO. *Human necessities* occupies a smaller share at the JPO than the other two offices.

Comparing 2005 to 2004, at the USPTO the share from *Electricity* and *Physics* taken together increased by 3% while the share for *Chemistry, metallurgy, Performing operations, transporting* and *Human necessities* taken together fell by 3%. At the JPO, from 2003 to 2004 there was an increase of about 1% in *Physics*. The proportion of applications per fields of technology at the EPO was little changed between 2003 and 2004.

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 2004 and 2005, together with their origin.



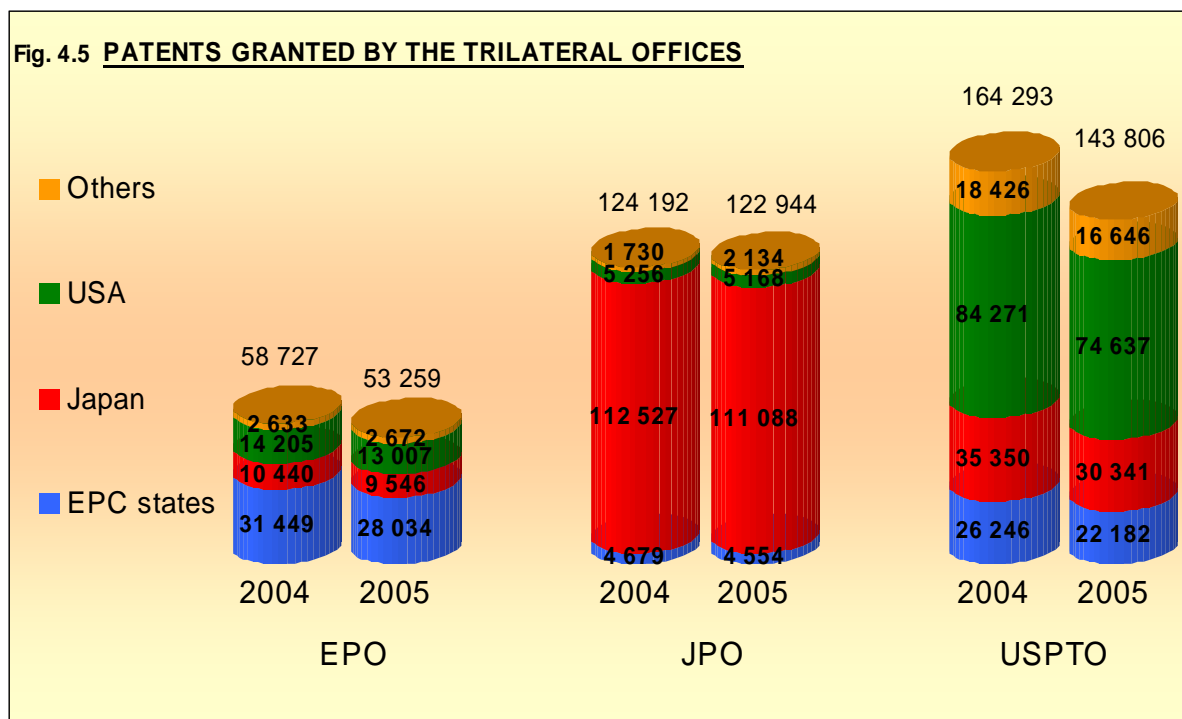
The USPTO has the highest share of patent applications in the high technology fields, with 36% of all applications occurring in this area. Of this number, 55% are from domestic applicants. At the JPO, the share of high technology applications reduced to 21% in 2005, and 87% of such applications are from domestic applicants. At the EPO, the share of high technology applications remained nearly stable at 24%, with 40% coming from applicants resident in EPC contracting states.

It is noticeable that the share of applications from EPC contracting states in high technology is below their share on average in all filings at each Trilateral Offices and especially at the EPO (as shown in

Fig. 4.2). The share of the USA applicants and the Japanese applicants in high technology are higher at the EPO than those for all applications filed.

## PATENTS GRANTED BY TRILATERAL OFFICES

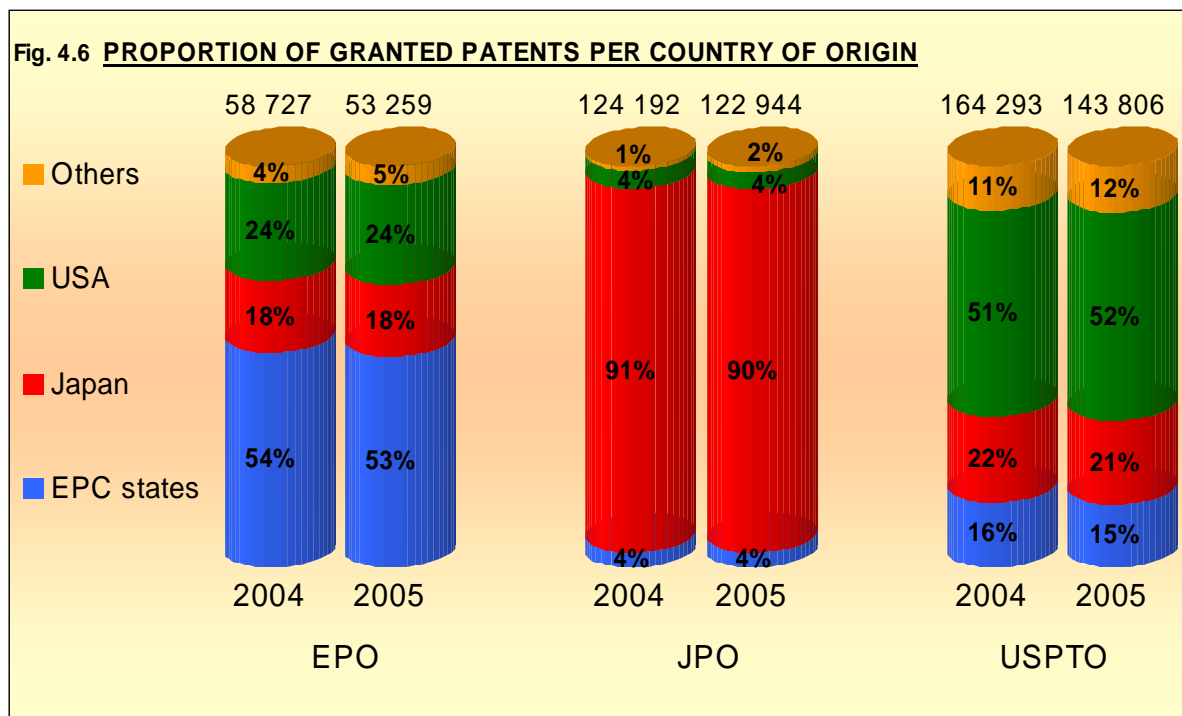
Fig. 4.5 shows the numbers of patents granted by the Trilateral Offices. The overall figure decreased by 1% from 2003 to 2004 and by a further 8% from 2004 to 2005. Together the Trilateral Offices granted 320 009 patents in 2005, 27 203 fewer than in 2004.



The number of patents granted by the JPO decreased in 2005 by 1.0% after a 1.4% increase in 2004. The EPO experienced a decrease again in 2005 to 53 259 published granted patents, 9.3% down, after a 2.1% decrease in 2004. With 143 806 registrations in 2005, the USPTO granted the highest number of patents among the Trilateral Offices. Nevertheless this was 12.5% less than in 2004.

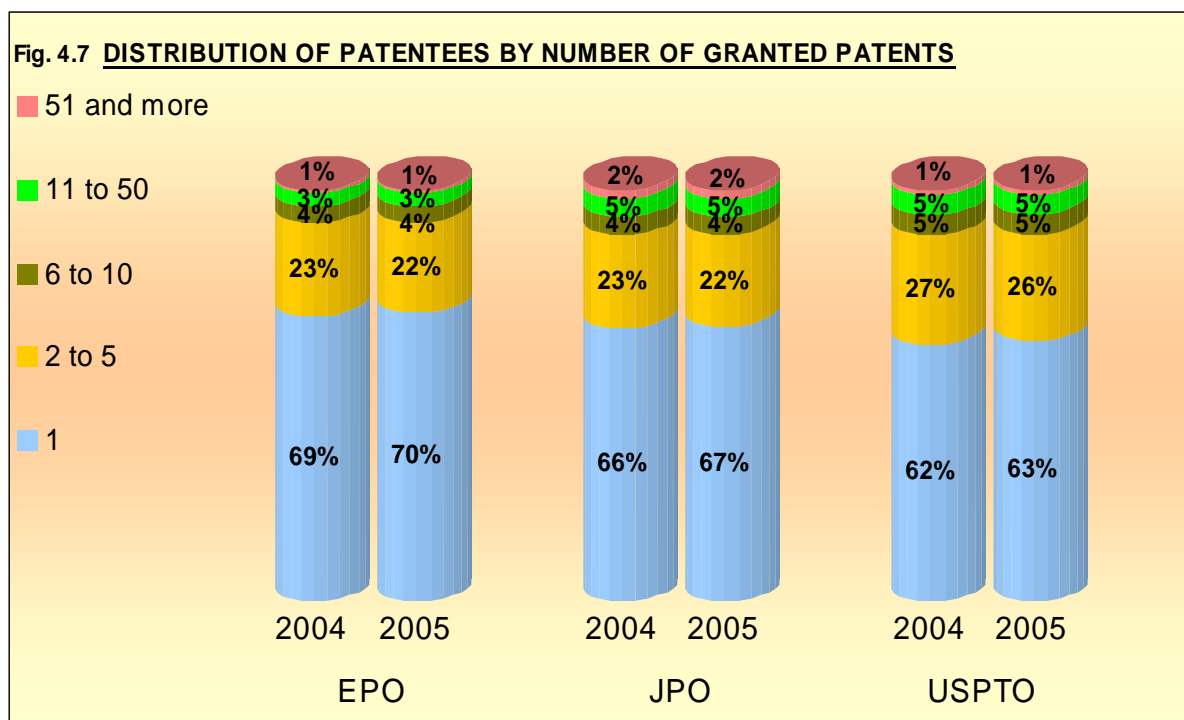
The differences between the Trilateral Offices regarding the absolute numbers of patents granted can only be partially explained by the differences in the number of corresponding applications. These numbers are also affected by different grant rates and different durations to process applications by the Trilateral Offices reflecting 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 USPTO this share is slightly lower.



In 2005, the maximum number of patents granted to a single applicant was 736 at the EPO, 3 765 at the JPO, and 2 941 at the USPTO. All these numbers are lower than those in 2004, reflecting perhaps the lower numbers of patents granted overall by the Trilateral Offices in 2005.

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

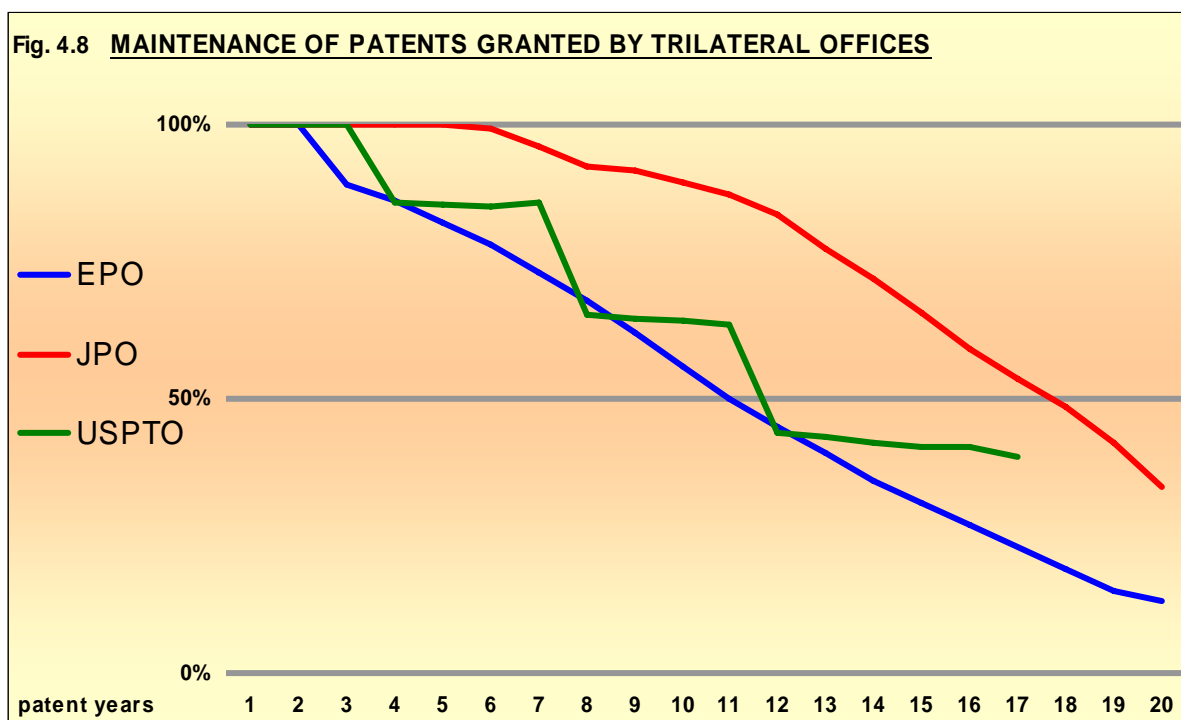


In the three Offices, most of the patentees received not more than 5 patents. The proportion of patentees receiving one patent grant in 2005 is higher at the EPO (70%) than at the JPO (67%) or the USPTO (63%). The proportion of patentees receiving 2 to 5 patents is larger at the USPTO than in the other 2 Offices. The proportion of patentees receiving six or more patents is lower at the EPO than at the JPO and the USPTO.

The distribution of patentees with six or more patents remained essentially the same between 2004 and 2005 at the JPO and at the USPTO.



A patent granted by an office has a maximum term fixed by law. In order to maintain the protection right, 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. Fig. 4.8 shows the proportions of patents granted by each Trilateral Office that are maintained for differing lengths of time.



In all three offices, a patent has a twenty year term from the date of filing the application.

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 contracting state in which the patent is to be maintained. The patent is then not necessarily maintained for the same period in all the designated 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 United States, patent maintenance requires payment of fees in three stages: 3.5 years, 7.5 years, and 11.5 years after grant.

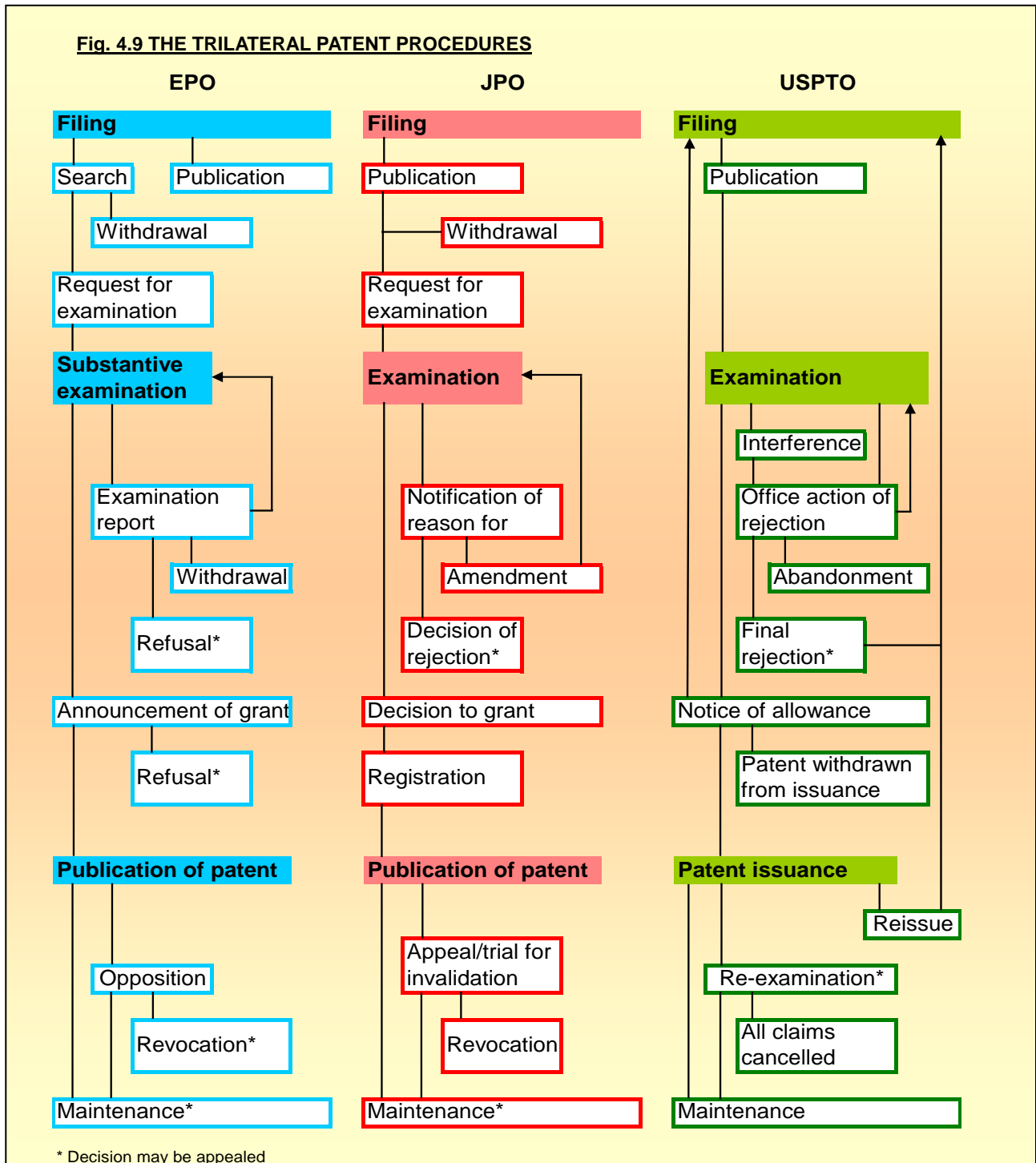
In the three procedures, if a renewal fee, an annual fee or maintenance fee is not paid in due time, the protection right expires. Fig. 4.8 compares the rate of granted patent registrations existing and maintained each patent year. These figures are calculated from the year of application for the EPO and the JPO and from the year of registration (grant) for the USPTO.

In Japan, over 50% of the patents granted are maintained for at least 17 years compared to at least 11 years for the European patents and at least 11 years for the USA patents.

# TRILATERAL PATENT PROCEDURES

## THE 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 procedure 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**

JPO eliminated the patent opposition system on 1<sup>st</sup> January 2005.

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 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 the application or revoke the patent, while opponents can appeal decisions to maintain the 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 2004 and 2005 values of the basic characteristics of trilateral procedures are shown in Table 4. The definitions and further explanations on the statistics including changes in the compilation of these statistics are given in the 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 offices based on the information provided.

### **Rates**

The examination rate in the USPTO is 100%, 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. 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, decreased to 53.3% in 2005. The number of decisions to grant taken in 2005 was lower than in 2004. In the JPO, the grant rate decreased to 49.1% in 2005. In the USPTO, the allowance rate decreased to 58.9% in 2005.

The opposition rate at the EPO increased slightly in 2005 to 5.5%, and 78.5% of the opposed patents were maintained, although in some cases in amended form.

In the EPO, about 36.5% of decisions in examination to reject the application were subject to an appeal in 2005. In the USPTO, about 2.3% of final rejections were appealed.

In the EPO, 48.3% of the decisions taken during the opposition procedures were appealed in 2005.

The total number of appeals in the JPO against decisions in examination, including decisions on applications against which oppositions had been filed, decreased to 23 054 in 2005 (24 008 in 2004).

**Table 4 STATISTICS ON PROCEDURES**

<b>Progress in the procedure</b> (rates in percentage)		Year	EPO	JPO	USPTO
Examination		2004	88.3	55.4	100.0
		2005	91.0	61.4	100.0
Grant <sup>19</sup>		2004	55.2	49.5	64.5
		2005	53.3	49.1	58.9
Opposition		2004	5.3	-	-
		2005	5.5	-	-
Maintenance after opposition		2004	64.5	n.a.	-
		2005	78.5	n.a.	-
Appeal	On examination	2004	40.4	-	2.5
		2005	36.5	-	2.3
	On opposition	2004	49.7	-	-
		2005	48.3	-	-
	On examination and opposition <sup>20</sup>	2004	-	24 008	-
		2005	-	23 054	-
<b>Pendency in the procedures</b>					
Search	Number of pending applications	2004	104 413	-	-
		2005	112 415	-	-
	Pendency time in search (months)	2004	17.4	-	-
		2005	19.6	-	-
Examination	Number of applications awaiting request for examination	2004	20 171	2 105 255	-
		2005	18 561	1 954 334	-
	Number of pending applications	2004	263 475	605 949	526 606
		2005	284 414	755 138	603 773
	Pendency time to first office action (months)	2004	-	26.0	20.7
		2005	-	26.0	21.8
	Pendency time in examination (months)	2004	41.4	31.6	26.8
		2005	40.6	31.8	30.6
Opposition	Number of pending applications	2004	2 403	n.a.	-
		2005	3 300	n.a.	-
	Pendency time in opposition (months)	2004	11.8	n.a.	-
		2005	17.6	n.a.	-

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

<sup>19</sup> The USPTO reports an allowance rate.

<sup>20</sup> For JPO, only numbers rather than percentages are available

## **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 7.7% to about 112 400 in 2005, and pendency time in search increased to about 19.6 months.

The number of pending applications awaiting a request for examination by the applicant decreased at the EPO with around 18 560 cases.

In the JPO, the number of pending applications (about 1 954 000) is substantively higher than those in the EPO due to the period during which requests for examination can be filed. It decreased by 7.2% in 2005.

The number of pending applications in examination increased at the EPO by 7.9% to about 284 400 in 2005, although the pendency time in examination decreased by 1.9% to about 40.6 months in 2005. In the JPO, the number of pending applications increased by 24.6% to almost 755 000, and pendency was stable at about 31.8 months. In the USPTO, the number of pending applications increased by 15% to almost 604 000, while the average time for either abandoning or issuing an application increased by 14.2% to 30.6 months.

The pendency time to first office action increased slightly at the USPTO to 21.8 months.

Pendency time in opposition increased at the EPO by 49.2% to nearly 17.6 months in 2005.