

Chapter 4

PATENT ACTIVITY AT THE IP5 OFFICES

This chapter presents trends in patent application filings and grants at the IP5 Offices only. While in Chapter 3 the latest data were for 2012, most of the information that appears here includes data available on a more up-to-date basis and covers also 2013. Regarding Europe, statistics in this chapter are for the EPO only and not for the EPC states' National Offices. Whereas the EPO is indicated from the viewpoint of an office, the EPC states are still indicated as a bloc of origin.

The activities at the IP5 Offices are demonstrated by counts of the patent applications that were filed. The statistics give insight into the work that is requested and carried out at the IP5 Offices. For patent applications, the representations are analogous to those appearing in Chapter 3 (Figs. 3.5, 3.6, and 3.12) which show the numbers of requests for patents as they entered a grant procedure³¹. Direct applications to the offices are counted at the date of filing. PCT applications are counted at the moment they enter the national or regional phase. Direct national and direct regional filings are counted only once. PCT national/regional phase filings are replicated over the numbers of procedures that are started.

The demand at the EPO is given in terms of applications rather than in terms of designations.

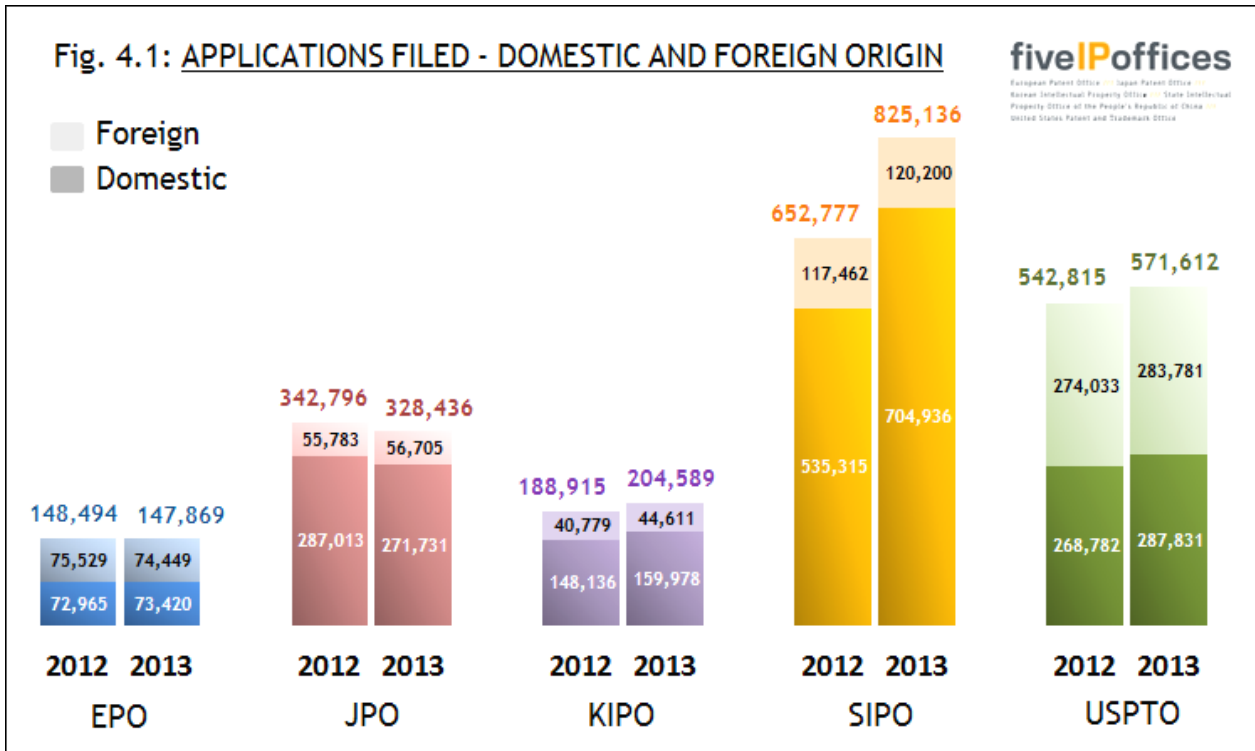
For granted patents, the statistics combine information by office and bloc of origin, displaying comparisons by year of grant. The representations here are similar to those for Fig. 3.10, where granted patents are counted only once, except that, for EPC states, only the EPO is considered as the granting authority. Hereinafter "*patents granted*" will correspond to the number of grant actions (issuances or publications) by the IP5 Offices.

For information about specific terminology and associated definitions used in Chapter 4, please refer to Annex 2.

³¹ See the section "*Guide to figures in Chapter 3*" on page 28.

PATENT APPLICATIONS FILED

Fig. 4.1 shows the number of patent applications that were filed at each of the IP5 Offices during the two most recent years, broken down by domestic and foreign origin (based on the residence of first-named applicants or inventors). For the EPO, domestic applications correspond to those filed by residents of the EPC states.



In 2013, a total of 2,077,642 patent applications were filed at the IP5 Offices, an increase of 11 percent from 2012 (1,875,797).

There were increases in patent applications at the SIPO, the KIPO, and the USPTO. At the SIPO, patent applications increased by 26 percent. Also applications at the KIPO and the USPTO increased 8 percent and 5 percent respectively. While applications at the JPO decreased by 4 percent, applications at the EPO decreased by less than 1 percent.

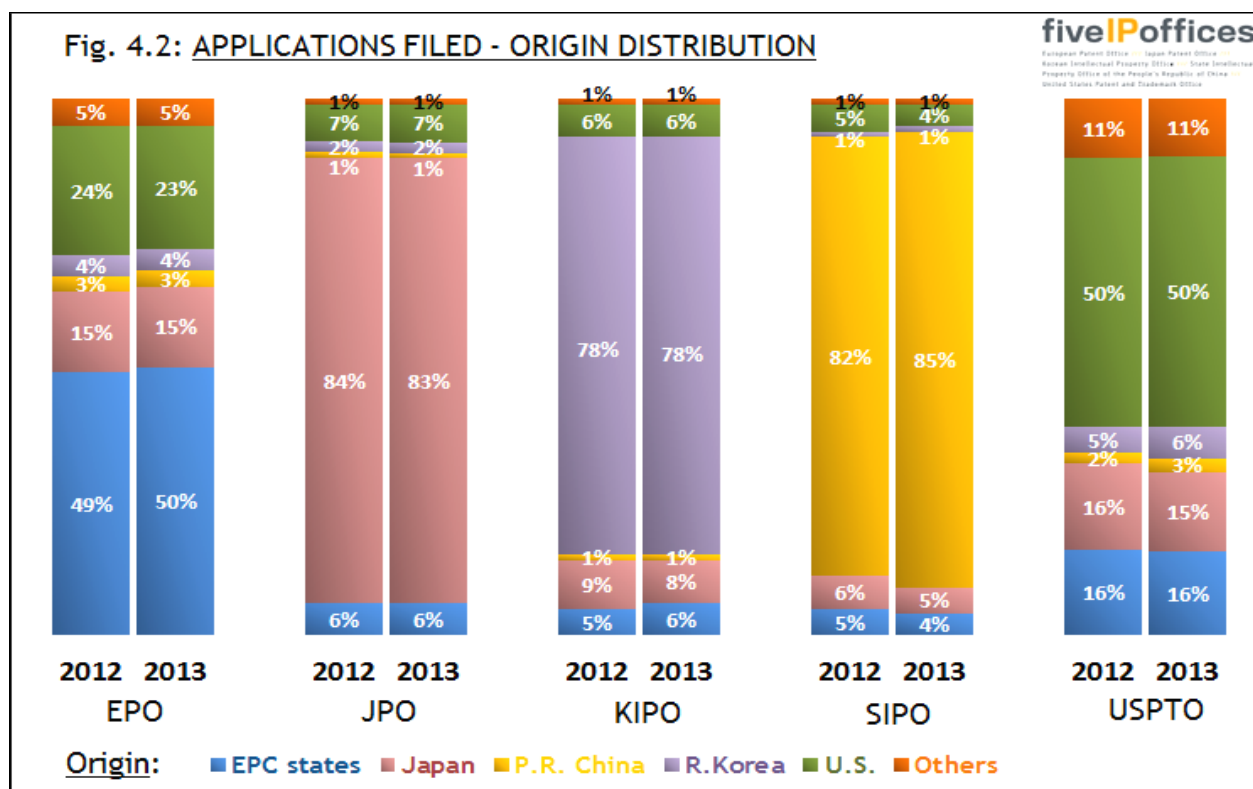
At the SIPO, the KIPO, and the USPTO, both domestic and foreign applications increased. At the JPO, foreign applications increased and domestic applications decreased marginally. At the EPO, domestic applications increased and foreign applications decreased marginally. The SIPO had a particularly large increase in domestic filings of 32 percent. The KIPO had an increase in foreign filings of 9 percent.

Table 4.1 and Fig. 4.2 show the number and the respective shares of patent application filings by origin (residence of first-named applicants or inventors) relative to total filings at each office for 2012 and 2013³².

Table 4.1: 2013 APPLICATIONS FILED - ORIGIN

Office	EPO	JPO	KIPO	SIPO	USPTO
EPC states	73,420	20,604	11,736	33,287	88,904
Japan	22,555	271,731	16,299	41,193	84,967
P.R. China	4,056	2,064	1,147	704,936	15,093
R. Korea	6,336	6,134	159,978	10,866	33,499
U.S.	33,834	23,481	12,991	29,992	287,831
Others	7,668	4,422	2,438	4,862	61,318
Total	147,869	328,436	204,589	825,136	571,612

Comparison of the numbers of applications across the IP5 Offices should only be made with care. Reasons for this include that numbers of claims given in applications are significantly different among the IP5 Offices. On average, in 2013, an application filed at the EPO contained 14.3 claims (13.9 in 2012), one filed at the JPO contained 9.8 claims (9.6 in 2012), one filed at the KIPO contained 10.7 claims (10.5 in 2012), one filed at the SIPO contained 7.5 claims (8.0 in 2012), while one filed at the USPTO had 18.1 claims (18.2 in 2012). These numbers of claims remain stable in all the IP5 Offices.



The shares of patent application filings by bloc of origin are generally consistent for 2012 and 2013 for each office.

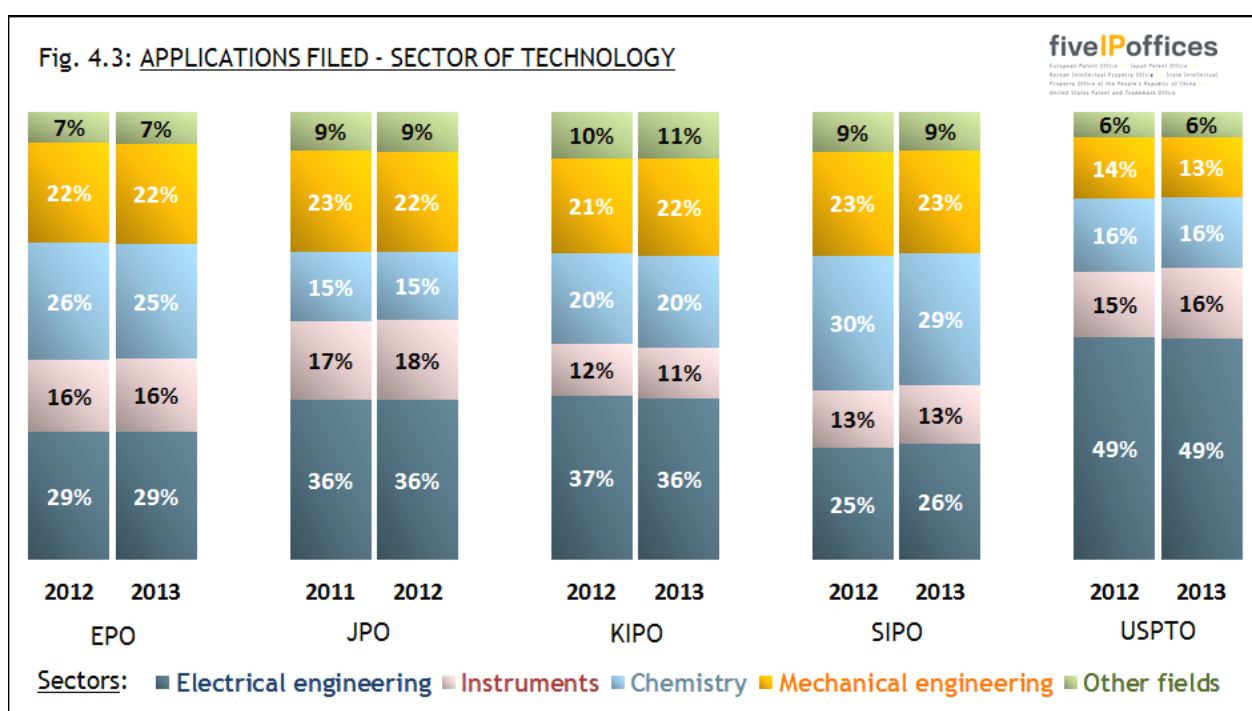
³² The numbers for earlier years can be found in the statistical annex of this report.

FIELDS OF TECHNOLOGY

Patents are classified by the IP5 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. The WIPO established a concordance table to link the IPC symbols with thirty-five fields of technology grouped into five sectors³³. Fig. 4.3 shows the distribution of applications according to the five technology sectors.

The classification takes place at a different stage of the procedure in the offices. As a result, data are shown for the EPO, the KIPO, the SIPO, and the USPTO for the filing years 2012 and 2013, while for the JPO the breakdown is given for the filing years 2011 and 2012³⁴.

Fig. 4.3 indicates the share of applications by main sectors of technology at each office.

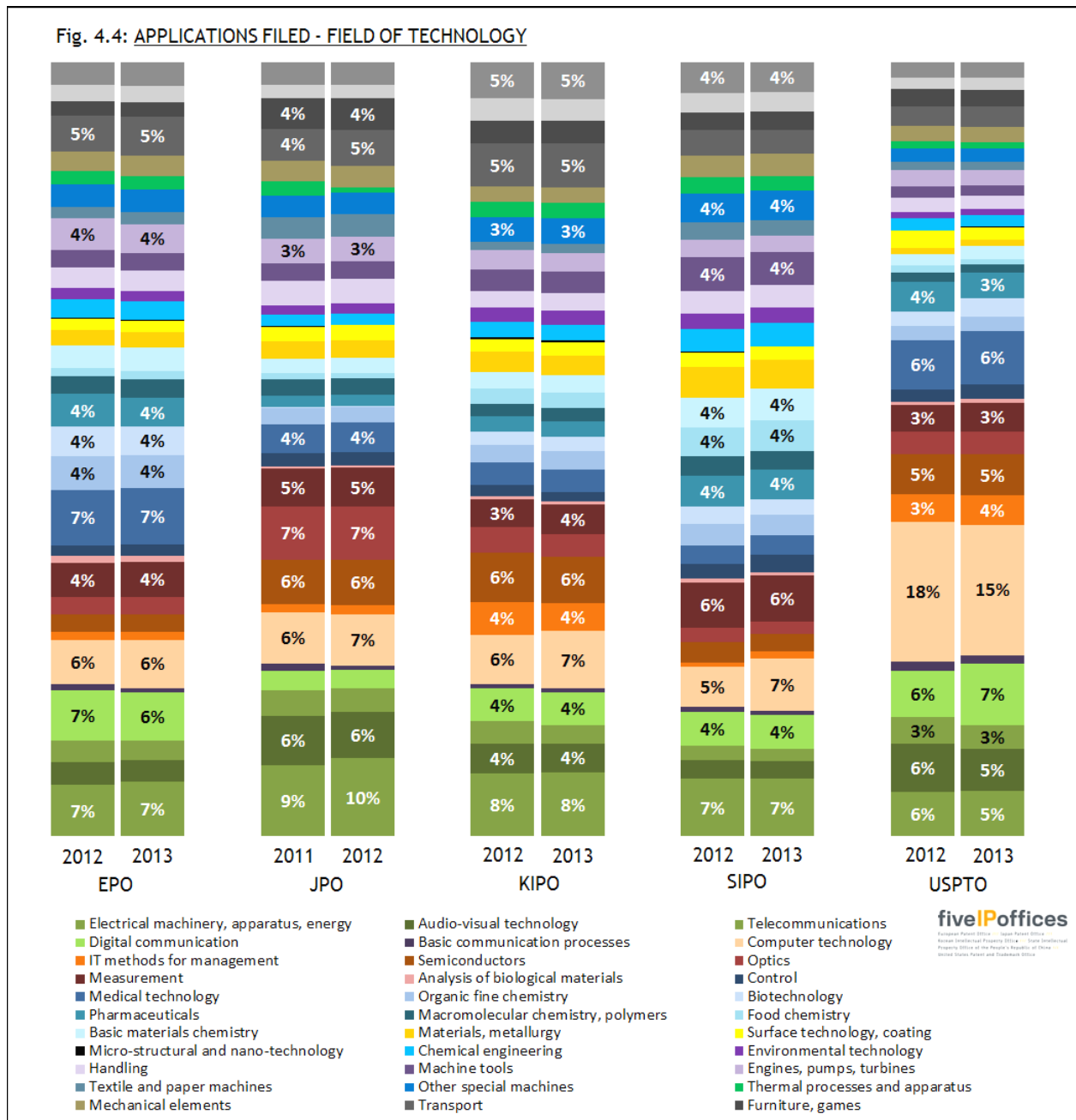


The Electrical engineering sector is more prominent at the USPTO than in the other IP5 Offices. A higher proportion of applications are filed in the Chemistry sector at the SIPO and at the EPO than in the other IP5 Offices. At each office, the distribution between sectors of the technology was stable between the two years reported.

³³ www.wipo.int/ipstats/en/statistics/technology_concordance.html.

³⁴ JPO data for 2012 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).

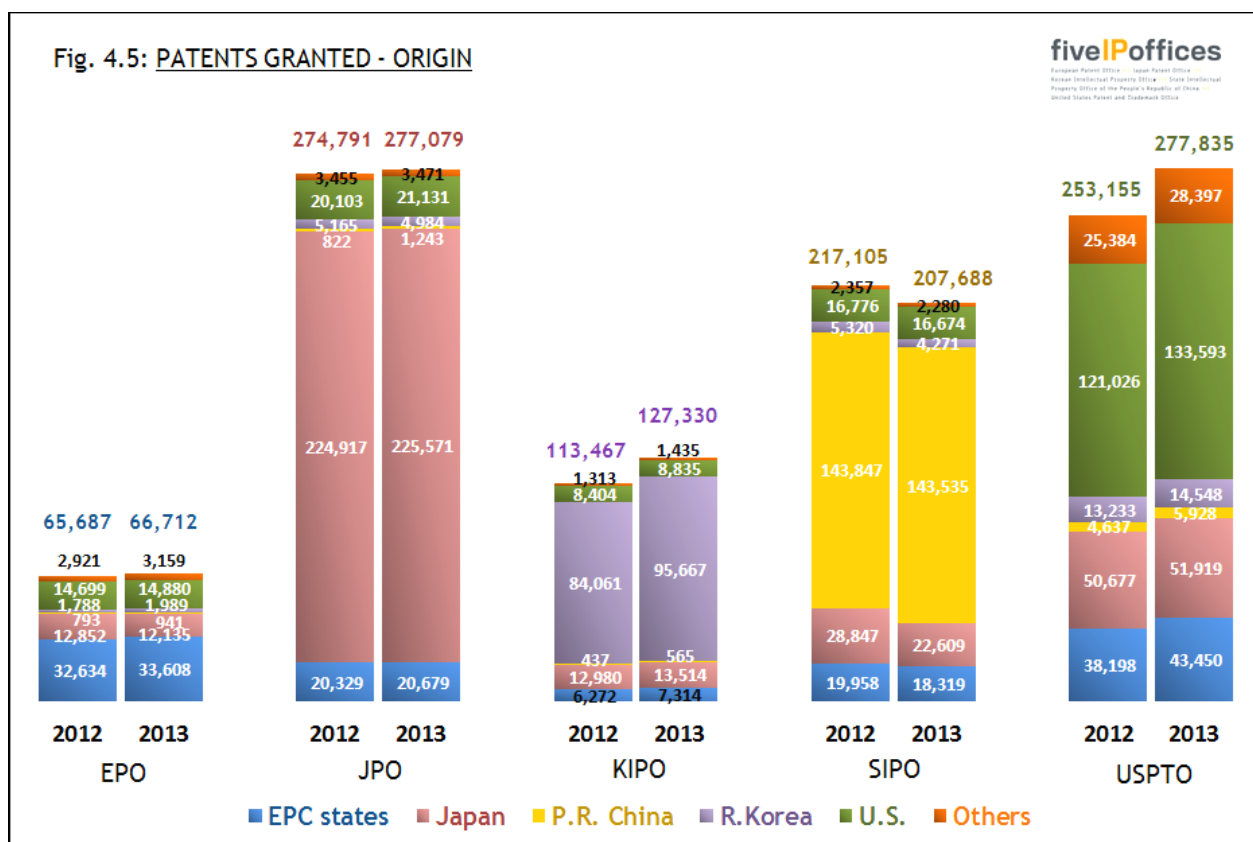
Fig. 4.4 indicates the share of applications by detailed fields of technology at each office, where the 10 leading fields in each case are highlighted by writing the percentages in text format.



Most of the leading fields are identical between the IP5 Offices, though with different shares. "Computer technology", "Electrical machinery, apparatus, energy", and "Measurement" are the leading fields at all offices, and "Digital communication" is a leading field at all offices except the JPO. "Electrical machinery, apparatus, energy" has a larger share of applications at the JPO (10 percent) than at the KIPO (8 percent), the SIPO (7 percent), and the EPO (7 percent) respectively. "Computer technology" has a larger share of applications at the USPTO (15 percent). For the other leading fields: "Medical technology" is a leading field at the EPO, the JPO, and the USPTO; "Pharmaceuticals" is a leading field at the EPO, the USPTO, and the SIPO; "Semiconductors" is a leading field at the JPO, the KIPO, and the USPTO; "Transport" is a leading field at the EPO, the KIPO, and the JPO; "Optics" is a leading field at the JPO only.

PATENTS GRANTED

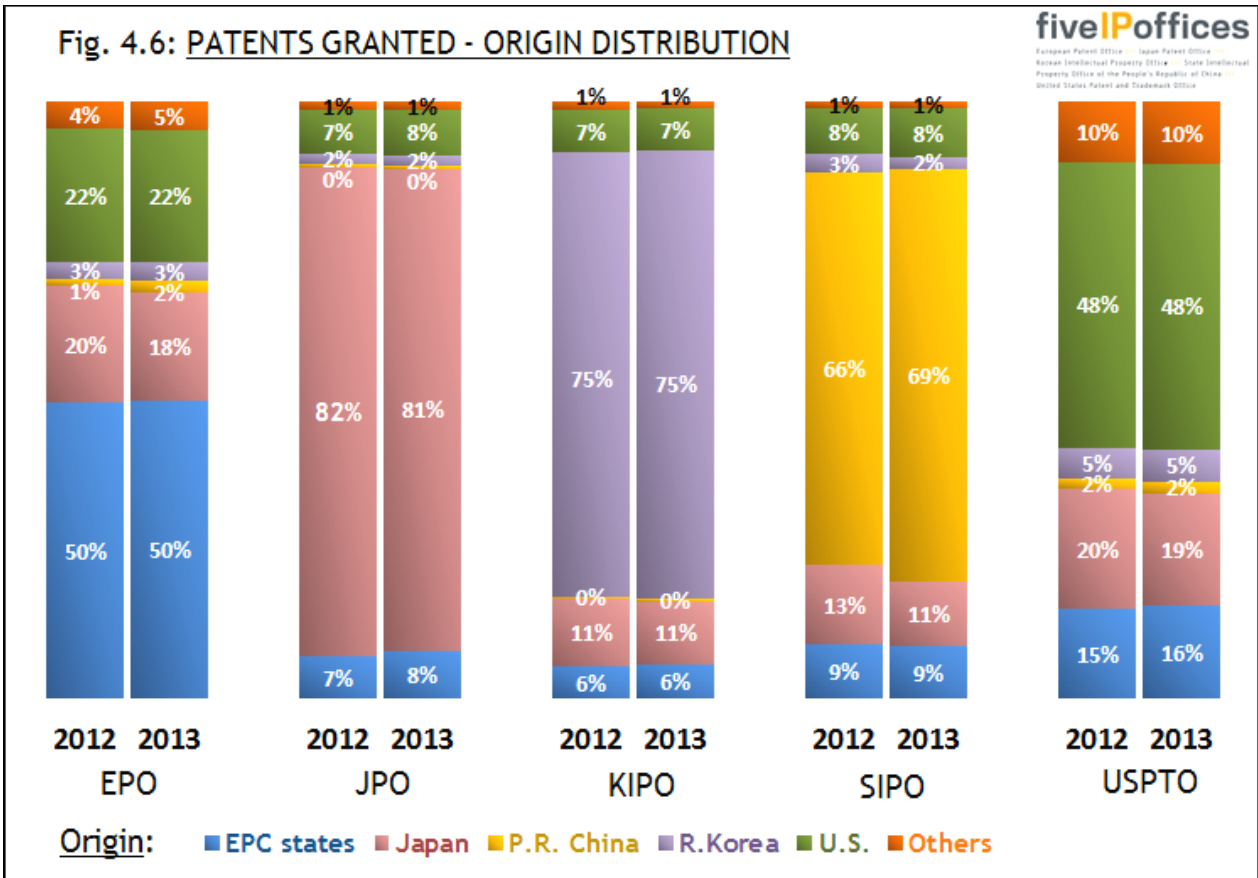
Fig. 4.5 shows the numbers of patents granted by the IP5 Offices, according to the bloc of origin (residence of first-named owner).



Together the IP5 Offices granted a total of 956,644 patents in 2013. This was 32,439 more than in 2012 and represents a growth of 4 percent.

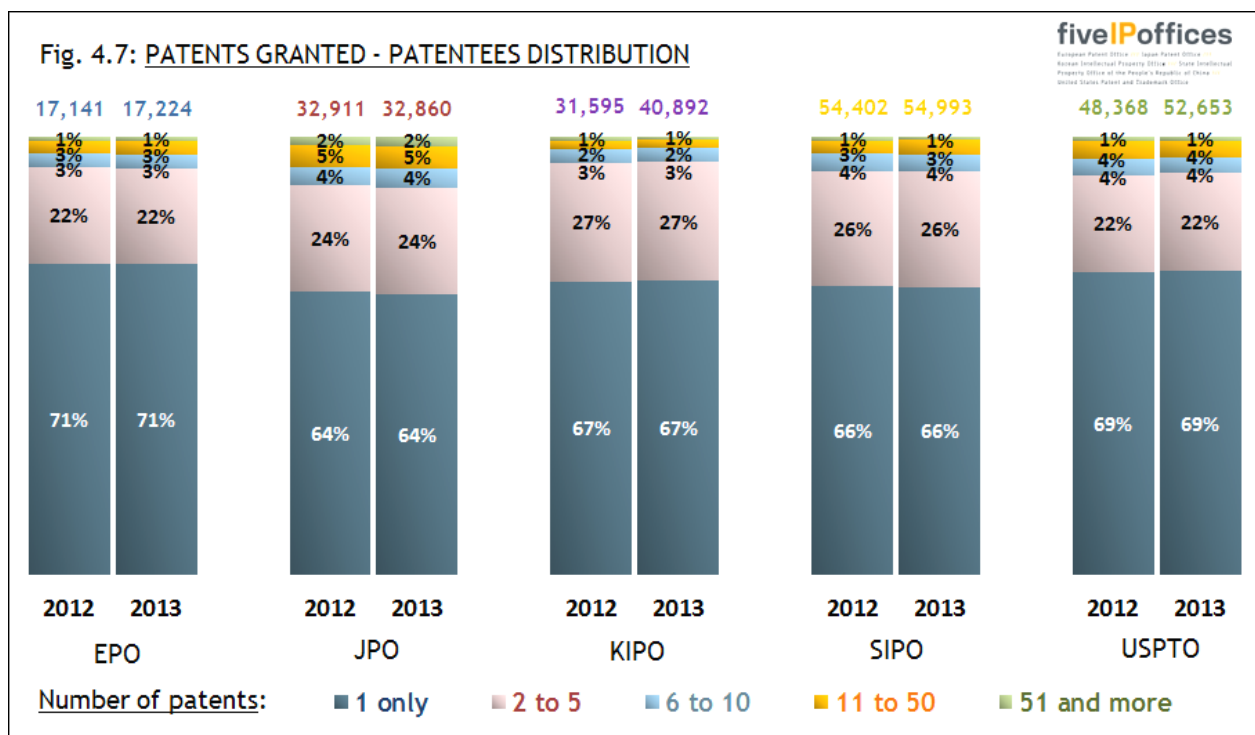
In 2013, the number of patents granted at the KIPO and the USPTO increased by 12 percent and 10 percent respectively. Also the number of patents granted at the EPO and the JPO increased 2 percent and 1 percent respectively, while the number of patents granted at the SIPO decreased by 4 percent. The differences between the IP5 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 IP5 Offices (see the section below "*Statistics on Procedures*").

Fig. 4.6 presents the percentage shares of total patents granted by the IP5 Offices according to the bloc of origin (residence of first-named owner).



Generally, the shares from the different blocs of origin are not much different from those observed for the filings in each office as presented in Fig. 4.2, although at the SIPO the share of granted patents originating from P.R. China is somewhat lower than the share of domestic filings in applications filed.

Fig. 4.7 shows the breakdown of patentees by numbers of patents granted in 2012 and in 2013.



This diagram shows that the distribution of grants to patentees is similar at each office and is highly skewed at all of them. The proportions are generally consistent between 2012 and 2013 for each office.

Most of the patentees received only one grant in a year. In 2013, the proportion was between 64 percent for the JPO and 71 percent for the EPO. The proportion of patentees that received less than 6 patents was between 88 percent for the JPO and 94 percent for the KIPO. The proportion of patentees receiving 11 or more patents is higher at the JPO (7 percent) than at the USPTO (5 percent), the EPO (4 percent), the SIPO (4 percent), and the KIPO (3 percent).

In 2013, the average patentee received 3.9 patents at the EPO, 8.4 at the JPO, 3.1 at the KIPO, 3.8 at the SIPO and 5.3 at the USPTO. The greatest number of patents granted to a single applicant was 820 at the EPO, 6,866 at the JPO, 2,882 at the KIPO, 2,251 at the SIPO and 6,788 at the USPTO.

MAINTENANCE

A patent is enforceable for a fixed term, and depends on actions taken by owner. In the IP5 Offices, the fixed term is usually twenty years term from the date of filing the application. In order to maintain protection during this period, the applicant has to pay what are variously known as renewal, annual or maintenance fees in the countries for which the protection pertains. Maintenance systems differ from country to country. In most jurisdictions, and in particular in those of the IP5 Offices, protection expires if a renewal fee is not paid in due time.

At the EPO, renewal fees are payable from the third year after filing in order to maintain the application. After the patent has been granted, annual renewal fees are then paid to the national office of each designated EPC contracting state in which the patent has been registered. These national patents can be maintained for different periods in the contracting states. Therefore, rather than maintaining one patent after grant, patentees have to deal with the maintenance of several patents and are confronted with the problem of choice as to how long to maintain each one.

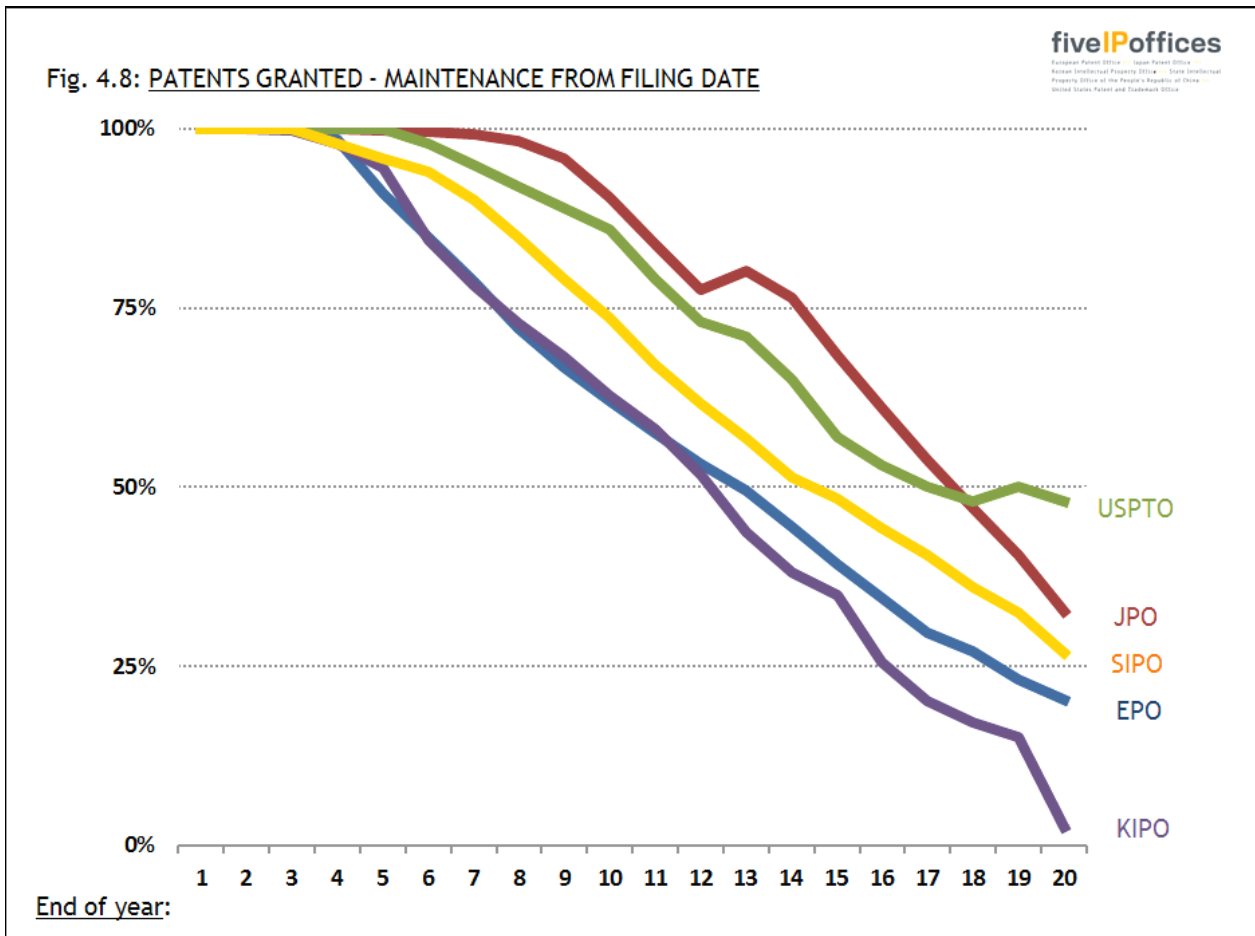
For a Japanese or Korean patent, the annual fees for the first three years after patent registration are paid as a lump-sum and for subsequent years there are annual fees. The applicant can pay either yearly or in advance.

At the SIPO, the annual fee of the year in which the patent right is granted is paid at the time of going through the formalities of registration, and the subsequent annual fees are paid before the expiration of the preceding year. The date on which the time limit for payment expires is the date of the current year corresponding to the filing date.

The USPTO collects maintenance fees at 3.5, 7.5, and 11.5 years after the date of grant and does not collect an annually payable maintenance fee.

Other factors influence the time during which patents are maintained once granted by the IP5 Offices. For example, systems allowing deferred examination or systems with payment of renewal fees only for the years following the grant tend to increase the rate of maintenance. On the other hand, grants resulting in several patents, with renewal fees to be paid for each jurisdiction, may lead to dropping some of them more quickly and so decreasing the average maintenance rate.

Fig. 4.8 shows the proportions of patents granted by each office that are maintained for differing lengths of time. It compares the rate of granted patent registrations existing and in force each patent year starting with the year of application. Figures are based on the most recent relevant data that are available at each IP5 Office.



Over 50 percent of the patents granted by the JPO and the USPTO are maintained for at least 17 years from filing, and 14 years at the SIPO³⁵, compared to 12 years for the EPO and the KIPO. In addition to patentees' behavior, these differences can be partially explained by differences in the procedures, such as a multinational maintenance system (EPO), deferred examination (KIPO, SIPO) and a stepped maintenance payment schedule (USPTO).

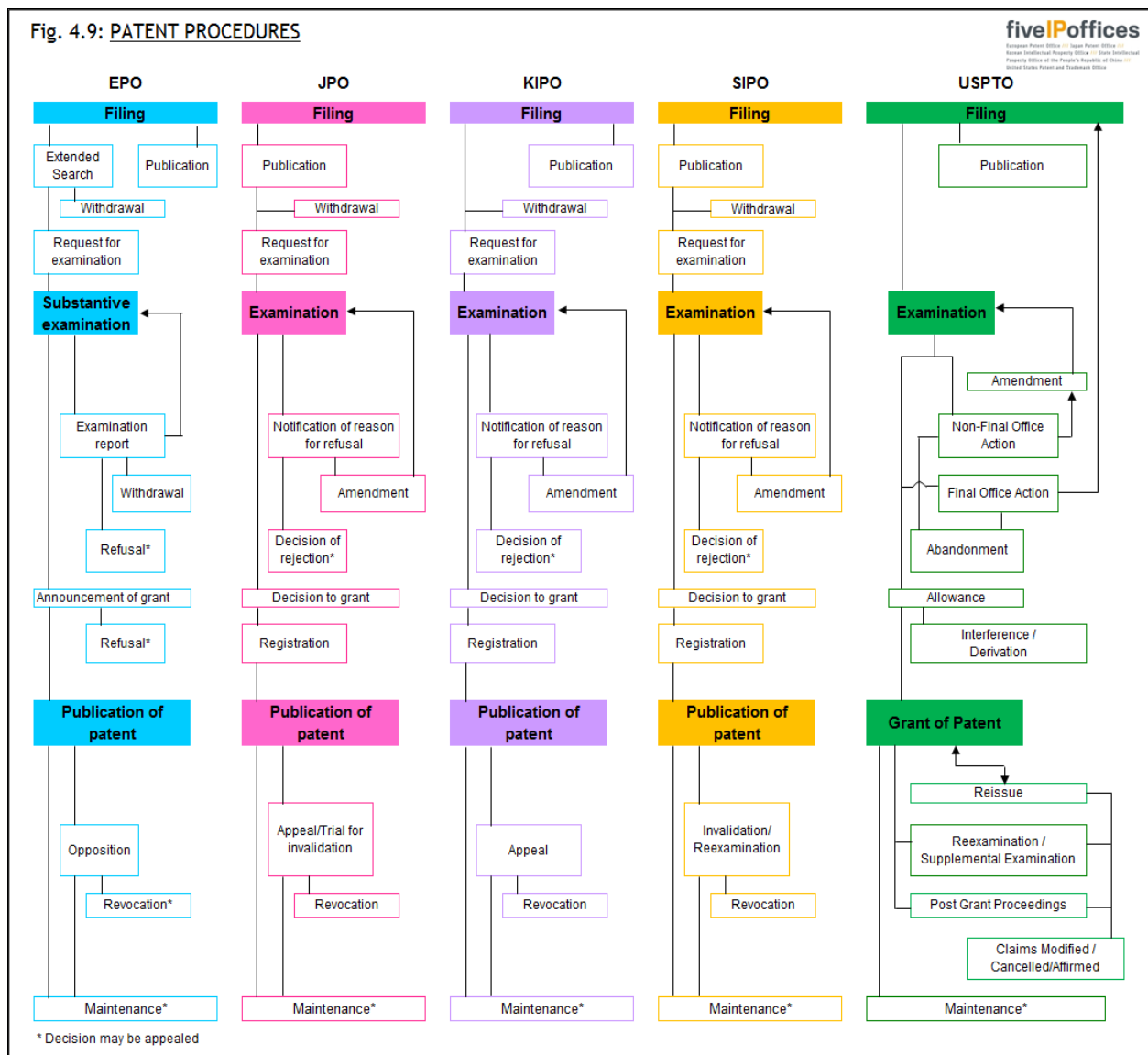
The EPO proportion represents a weighted average ratio of the maintenance of the validated European patents in the 38 EPC states. This represents a change in definition to the previous editions of the report, where the maintenance of rate was based on European patents published by the EPO.

The USPTO payment schedule is somewhat hidden because the data are shown on a time basis (by year after application) that is different from the time basis used for collection of the fees (by year after patent grant). The increase in the share of maintained patents between years 18 and 19 is the result of enacted legislation in 1995 that lengthened the patent term for a select group of patents.

³⁵ Please note that SIPO has adopted the calculation method of maintenance rate used by EPO, JPO, KIPO, and USPTO from the current version of report, hence, the maintenance rate of SIPO may vary in the previous reports.

PATENT PROCEDURES

Fig. 4.9 shows the major phases of the grant procedures at the IP5 Offices and concentrates on the similarities between offices to motivate the comparative statistics to be presented in Table 4.2. However the reader should bear in mind when interpreting such statistics that details of the procedures differ between offices, sometimes to quite a large degree (e.g. in time lags between stages of the procedures).



See Annex 2 for some further details about the procedures.

Fees are due at different stages of the procedure. Information on main comparable fees at the IP5 Offices is made available online on the IP5 home page³⁶.

³⁶ See at www.fiveipoffices.org/statistics/statisticaldata.html under fees. These data are given without prejudice and are not guaranteed to be up to date. Official fee schedule information and associated regulations from each IP5 Office take precedence.

STATISTICS ON PROCEDURES

Table 4.2 shows various statistics as average rates and numbers where applicable for 2012 and 2013. Definitions of the various terms are given in Annex 2.

RATES

The examination rate at the USPTO is 100 percent, since filing implies a request for examination, whereas at the EPO, the JPO, the KIPO, and the SIPO a specific request for examination has to be made. At the EPO, a large proportion of PCT applications in the granting procedure gives a high examination rate, as almost all of them proceed to examination. The examination rate is somewhat lower at the JPO and the KIPO since the deferred examination system allows more time for the applicants to evaluate whether or not to proceed further with the application. The SIPO does not report this information at this time.

The grant rates at the JPO, the KIPO, and the USPTO increased from 2012 to 2013. At the EPO, the grant rates decreased by less than 1 percent in 2013 compared to the previous year. The grant rate from the SIPO is not currently 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 of the IP5 Offices. Although this may seem to be an indicator for the backlog in handling applications within the offices, it is not in fact a particularly good one because substantial parts of pending applications are awaiting action from the applicant. This could be for instance a request for examination, or a response to actions communicated by the office. More details can be found in Annex 2.

As shown in Table 4.2, about 2.5 million applications were pending in the EPO, the JPO, the KIPO, and the USPTO at the end of 2013, a decrease of 5.5 percent compared to the number of applications pending at the end of 2012 (2.6 million). This is mainly accounted for by drops of 14 percent at the JPO and 5 percent at the USPTO. The SIPO does not report this information.

Table 4.2: STATISTICS ON PROCEDURES

Definitions of the various terms are given in Annex 2.

Progress in the procedure	Year	EPO	JPO	KIPO	SIPO	USPTO
Rates in percentage						
Examination ³⁷	2012	92.8	67.1	84.2	445,608	100
	2013	92.8	67.8	80.6	569,081	100
Grant ³⁸	2012	49.8	66.8	65.6	217,105	68.9
	2013	49.0	69.8	68.8	207,688	70.7
Opposition	2012	4.7	-	-	-	n.a.
	2013	4.5	-	-	-	n.a.
Appeal on examination ³⁹	2012	26.7	25,388	17.1	-	4.6
	2013	24.3	25,158	13.0	-	3.8
Pendency in the procedure						
Awaiting request for examination	2012	143,267	754,091	236,316	n.a.	-
	2013	143,968	731,521	251,315	n.a.	-
Pending examinations ⁴⁰	2012	363,521	319,247	205,181	n.a.	603,898
	2013	377,994	196,732	184,295	n.a.	595,361
Pendency first action ⁴¹ (months)	2012	9.1	20.1	14.8	11.5	19.6
	2013	9.2	14.1	13.2	10.9	17.4
Pendency final action ⁴² (months)	2012	36.2	29.6	21.6	22.6	31.7
	2013	36.1	23.4	19.1	22.2	28.6
Pendency invalidation (months)	2012	-	-	-	6.6	-
	2013	-	-	-	7.0	-

- = not applicable n.a. = not available

These figures should be compared with care, taking account of the differences in the procedures. At the EPO, the examination is done in two phases: a search and a substantive examination, while they are done in one combined phase at the other IP5 Offices.

Contrary to the system at the USPTO, where there is no delay, at the EPO substantive examination may be requested within 6 months after the issue of a search report. For the other IP5 Offices, a request for examination may be made up to three years after filing for the JPO and the SIPO, and up to five years after filing for the KIPO. This leads to differences between offices in the time periods that are shown.

At all IP5 Offices, various options to initiate a faster examination are available.

³⁷ For the SIPO, only the numbers are available of patent applications entering into the substantial examination phase in the respective year.

³⁸ For the SIPO, only the numbers are available of grants in the respective year.

³⁹ For the JPO, only the numbers are available of appeal procedures in the respective year.

⁴⁰ For the KIPO, only the unexamined patent applications with a request for examination filed have been counted. In the previous reports, the figure of this category included the entire unexamined patent applications.

⁴¹ For the EPO, the first office action is the extended European search report that includes a written opinion on patentability.

⁴² The pendency in examination is calculated from the date at which the file was allocated for examination (EPO, usually 6 months after the first action), the date of the request for examination (JPO, KIPO, and SIPO), and the filing date (USPTO). See Annex 2.