Chapter 3

WORLDWIDE PATENTING ACTIVITY

Patenting activity is recognized as an indicator of innovation. This chapter examines worldwide patent activities in terms of patent applications and grants. The statistics mostly cover the five-year period from 2010 to 2014.

Hereafter the counts of applications and filings are by the calendar year of filing and grants by the calendar year of grant. Statistics are derived primarily from the WIPO Statistics Database[22], as collected from offices all over the world. Patent statistics are sometimes retroactively updated, and where necessary, possible missing counts have been supplemented using other sources, but otherwise no estimated counts have been included to compensate for missing data. Considering that not all the offices report their filing statistics regularly enough, some of these data should be interpreted with care, especially when referring to countries outside the IP5 Blocs.

It should be noted that the number of inventions that lead to patent applications is less than the total number of applications filed. This is because the first filing with respect to an invention is usually made in one office, and is then often followed by applications made to several other offices within one year, each such application claiming the priority of the earlier first filing. First filings can be seen as an indicator of innovation and inventive activity, while foreign filings are an indicator of an intention for international trade and of globalization.

While demand for patent protection is considered principally by counting each national, regional or PCT international application only once, alternative representations are also given in this chapter in terms of the demand for rights, after cumulating the number of designated countries over applications within regional procedures.

[22] This edition refers to general patent data as of March 2016, and to PCT international phase application data as of June 2016, www.wipo.int/ipstats/en/statistics/patents/.

In this chapter, applications are counted in terms of patent filings; first filings; patent applications; and demand for national patent rights. These counting methods are associated with separate sections within the chapter.

- "Patent filings" include direct national, direct regional, and international phase PCT applications;
- "First filings" include initial patent applications filed prior to any later subsequent filings to extend the protection to other countries;
- "Patent applications" include direct national, direct regional, national stage PCT, and regional stage PCT applications;
- "Demand for national patent rights" includes direct national, national stage PCT, and designations in regional and in regional stage PCT applications.

See “Guide to Figures in Chapter 3” on the next page, and also the explanatory text associated with the individual figures for further discussion about the applications associated with each of these counting methods.

The counts of patent grants in this chapter are based on extractions from the WIPO Statistics Database. They are counted in the year that the grants are issued or published. As with the applications, alternative presentations are also given in this chapter for grants in terms of rights, after cumulating the number of designated countries in grants obtained from regional procedures.

The last part of this chapter discusses inter-bloc patent activity in terms of application flows between blocs and in terms of patent families. A patent family is a group of patent filings that claim the priority of a single filing, including the original priority forming filing itself and any subsequent filings made throughout the world. The set of distinct priority forming filings (that indexes the set of patent families) in principle constitutes a better measure for first filings than aggregated domestic national filings. IP5 Patent families are a filtered subset of patent families for which there is evidence of patenting activity in all IP5 Blocs.

GUIDE TO FIGURES IN CHAPTER 3

Due to the complexity of the patent system, different representations of the patent filing process are made to illustrate complementary parts of the process. The following scheme guides the reader to graphs that correspond to the different representations. This also describes the terminology used throughout the Chapter 3. Additional explanatory text can be found with each of the referenced figures.

- **Figs. 3.1, 3.2, 3.3, and 3.4** show the numbers of *patent filings* in terms of application forms filled out. All of the following are counted only once: Direct national, direct regional filings (filed with the EPO, EAPO, ARIPO, GCCPO, OAPI[23]), and PCT international filings.

- **Figs. 3.5, 3.6, 3.7 and 3.13** show the numbers of requests for patents as *patent applications*. 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 filings are replicated over the numbers of national/regional procedures that are started.

- **Figs. 3.8, 3.9, and 3.10** show the equivalent numbers of *demands for national patent rights*. Direct national filings are counted only once. The counts for PCT applications entering national procedures are replicated over the number of countries where they enter this phase. The counts for direct regional filings and PCT regional phase filings are replicated over the number of countries designated in the applications at the time that they enter the regional procedure. This gives a representation in terms of national patenting.

- **Figs. 3.14, 3.15, 3.16 and Table 3** show the numbers of *patent families* that are generated as the set of first filings, counted only once each, and also show the flows between blocs in terms of the first filings for which claims to priority rights were made by subsequent filings in other countries.

- Regarding grants, **Fig. 3.11** shows the numbers of *granted patents*. All grants are counted only once (in an analogous way to Figs. 3.5, 3.6, 3.7, and 3.13 for applications).

- **Fig. 3.12** shows the numbers of *validated national patent grants*. Direct national grants are counted only once, but the counts for regional office grants are replicated over the numbers of countries for which the grant is validated. This gives a representation in terms of national patent rights obtained in each bloc (comparable to Figs. 3.8, 3.9, and 3.10 for applications).

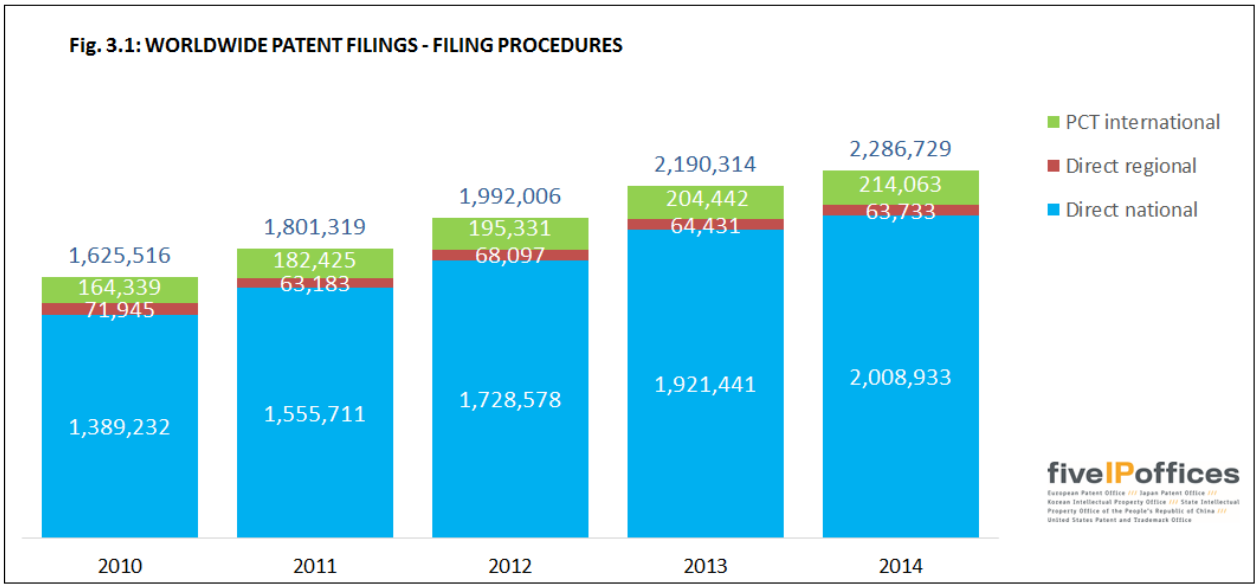
[23] The EAPO is the Eurasian Patent Office. The ARIPO is the African Regional Intellectual Property Office. The GCCPO is the Gulf Cooperation Council Patent Office. The OAPI is the African Intellectual Property Organization.

PATENT FILINGS

The patent filings that are counted in this section include direct national, direct regional, and PCT applications in the international phase. They show the numbers of patent filings in terms of application forms filled out.

This section (with Figs. 3.1, 3.2, and 3.3) shows the numbers of patent applications that were filed throughout the world. These can be filed according to the direct national, direct regional or PCT international phase procedures. Here, the applications are counted only once, which means that the number of countries designated by regional filings and the number of countries associated with the PCT filings are not used in determining these counts. The number of applications filed represents a measure of the overall numbers of actions taken to assert IP rights around the world, although some inventions lead to filings in more than one office.

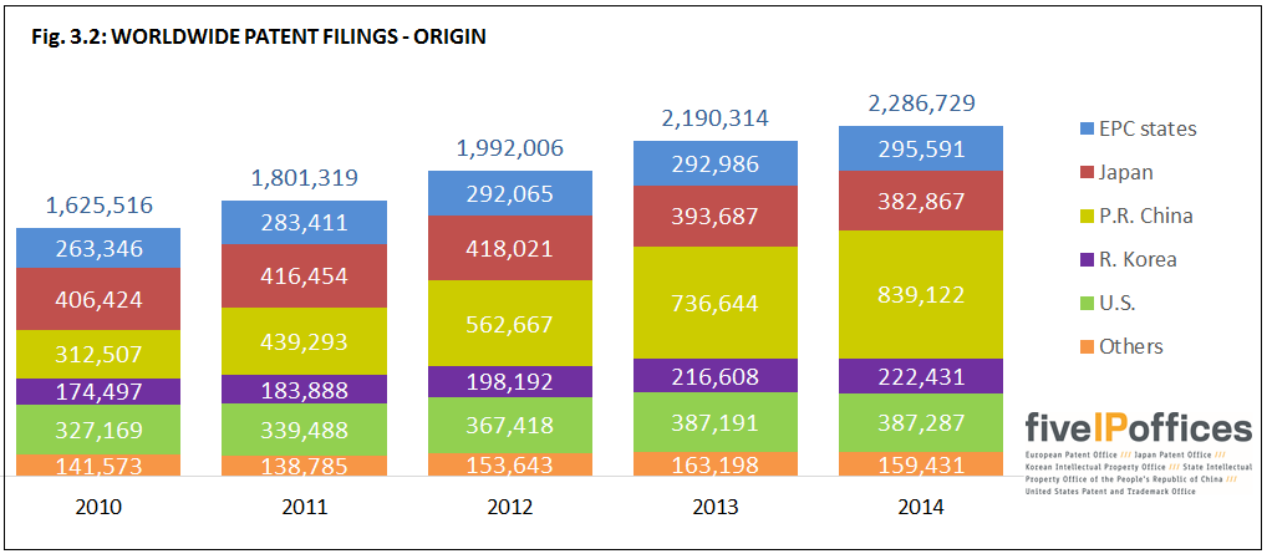
Fig. 3.1 shows the breakdown of filings by the three types of filing procedures.



In 2014, the number of patent filings increased by 4 percent, to nearly 2.3 million. The numbers of direct national and PCT international phase applications increased by 5 percent respectively, while the number of direct regional applications decreased marginally. 88 percent of the applications were filed according to direct national procedures.

The contribution of the PCT system to filings will be discussed later in this chapter and in Chapter 5.

Fig. 3.2 shows the breakdown of the worldwide patent filings of Fig. 3.1 by bloc of origin (residence of first-named applicants or inventors).

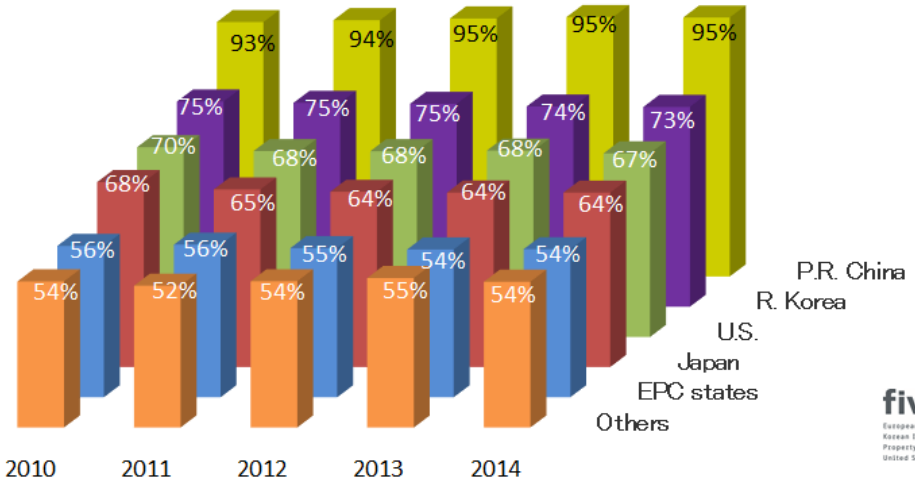


The IP5 Blocs annual share increased from 91 percent in 2010 to 93 percent in 2014. In 2014, the numbers of patent applications originating from P.R. China, R. Korea and the EPC states increased by 14 percent, 3 percent and 1 percent respectively over the shares reported for 2013.

Most national applications are made by residents of the countries concerned. To a large extent, applications abroad are made using regional or PCT procedures.

Fig. 3.3 shows the proportion of patent filings throughout the world that are filed within the home bloc of origin (residence of first-named applicants or inventors).

Fig. 3.3: WORLDWIDE PATENT FILINGS - PERCENTAGE FILED AT HOME



For the IP5 Blocs, P.R. China had the largest proportion of filings made at home in 2014 with 95 percent. The EPC states[24] had the lowest proportion with 54 percent in 2014.

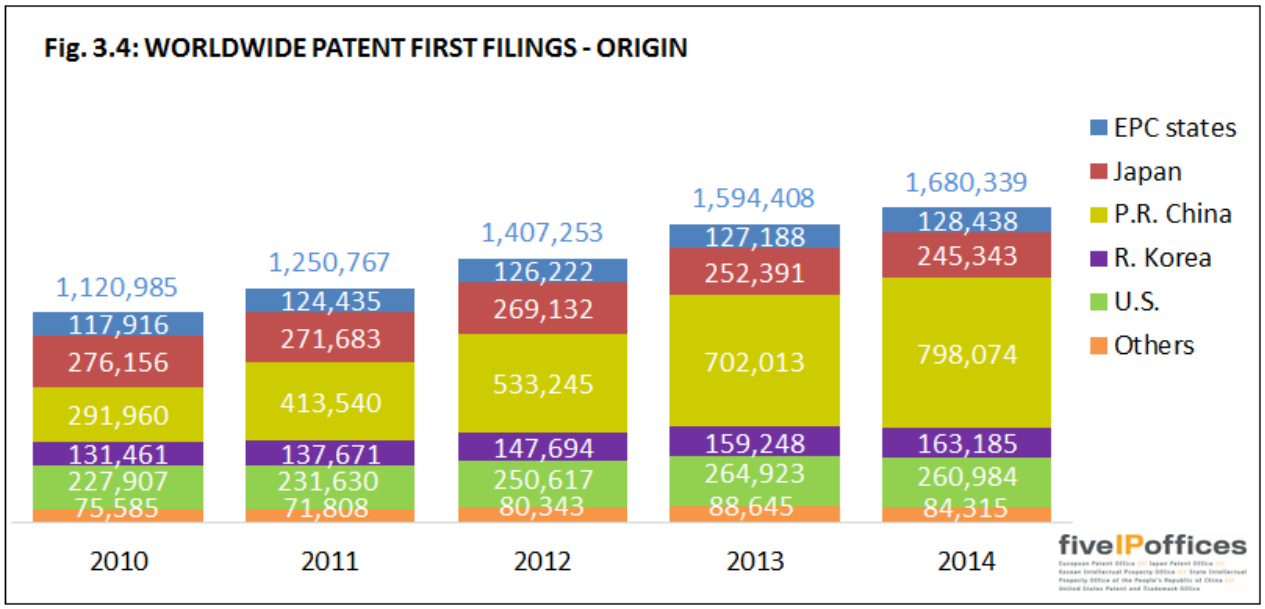
[24] For the purpose of reporting statistics for the EPC states considered as a bloc, an application by a resident in an EPC state to another EPC state or to the EPO is considered to be filed within the bloc of origin. See the EPO section of Chapter 2 for a listing of the EPC states.

FIRST FILINGS

All of the following are counted once only: Direct national, direct regional filings and PCT international phase filings.

The process of obtaining patent protection starts with the first filing, an initial patent application made to protect an invention or an innovation prior to any later subsequent filings to extend the protection to other countries.

Fig. 3.4 shows the development of first filings in the major filing blocs of origin (residence of first-named applicants or inventors).



P.R. China recorded 798,074 first filings in 2014, the highest number of first filings by any bloc within the IP5 area. This was an increase of 14 percent compared to 2013 number. There were also increases in first filings from R. Korea and the EPC states of 2 percent and 1 percent respectively in 2014, while there were decreases in first filings from Japan and the U.S. of 3 percent and 1 percent respectively. Overall, first filings increased by 5 percent between 2013 and 2014.

Comparison of Figs. 3.2 and 3.4 demonstrates that there are considerable numbers of subsequent filings, where the first filing for an invention at one office leads on to further filings, either elsewhere or at the same office. From the differences in the total for 2014 between Fig. 3.2 and Fig. 3.4, it can be estimated that there are 606,390 subsequent filings, meaning that on average there were 0.38 subsequent filings per first filing in 2013, assuming a one year delay.

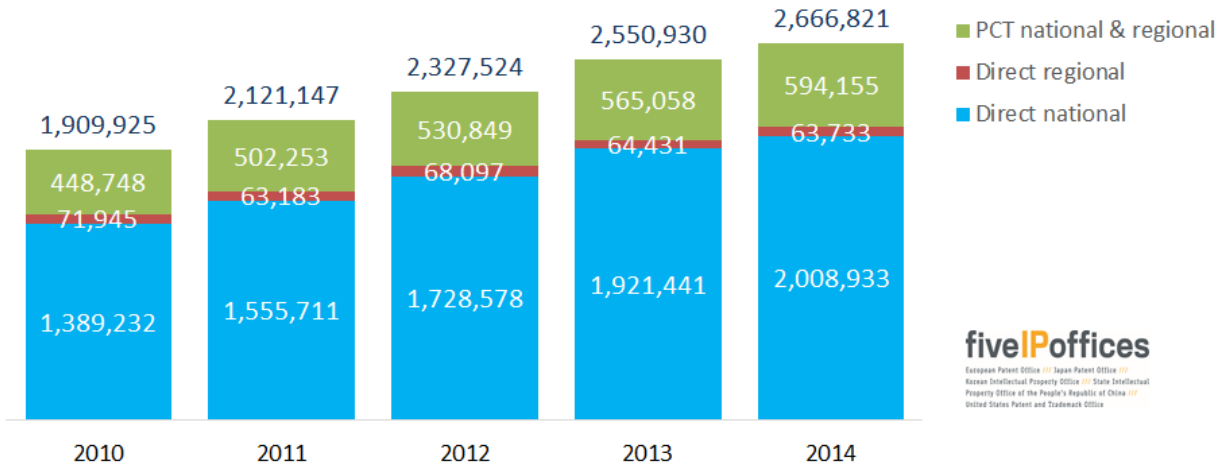
PATENT APPLICATIONS

Patent applications counted in this section include direct national, direct regional, national stage PCT and regional stage PCT applications.

This section (with Figs. 3.5, 3.6 and 3.7) describes the development of the number of requests for patents that entered a grant procedure. Note that direct national and direct regional applications enter a grant procedure when filed, while in the case of PCT applications, the grant procedure is delayed to the end of the international phase[25]. In the following figures, the number of PCT applications consists of a count of the applications that entered a national/regional stage in the corresponding year. This leads to higher numbers than in the previous section, because one PCT international filing usually enters into several national or regional procedures. For example, one PCT application (as reported in Fig. 3.1) may result in an EPO PCT regional phase entry, a U.S. PCT national phase entry, and an Australian PCT national phase entry, thus producing three PCT national/regional entry phase applications.

Fig. 3.5 shows the development of worldwide patent applications by filing procedures.

Fig. 3.5: WORLDWIDE PATENT APPLICATIONS - FILING PROCEDURES

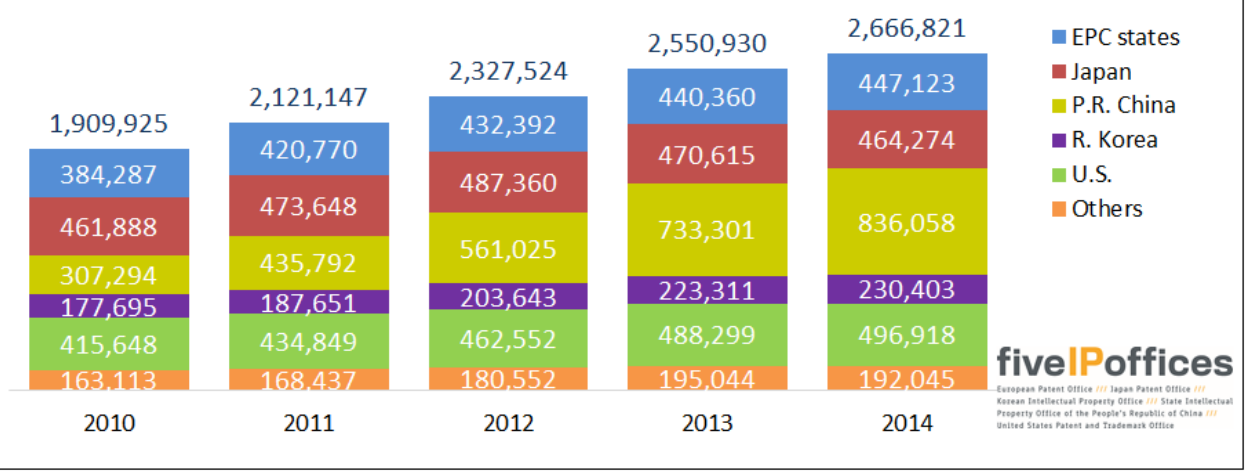


In 2014, almost 2.7 million patent applications were filed worldwide. This represented a 5 percent increase compared to 2013. The number of direct national applications and the number of PCT national/regional applications each increased by 5 percent.

[25] The international phase is up to 30 months or 31 months for almost PCT contracting parties after the priority date of the first filing.

Fig. 3.6 shows the origin (residence of first-named applicants or inventors) of the worldwide patent applications of Fig. 3.5 entering a national or regional grant procedure.

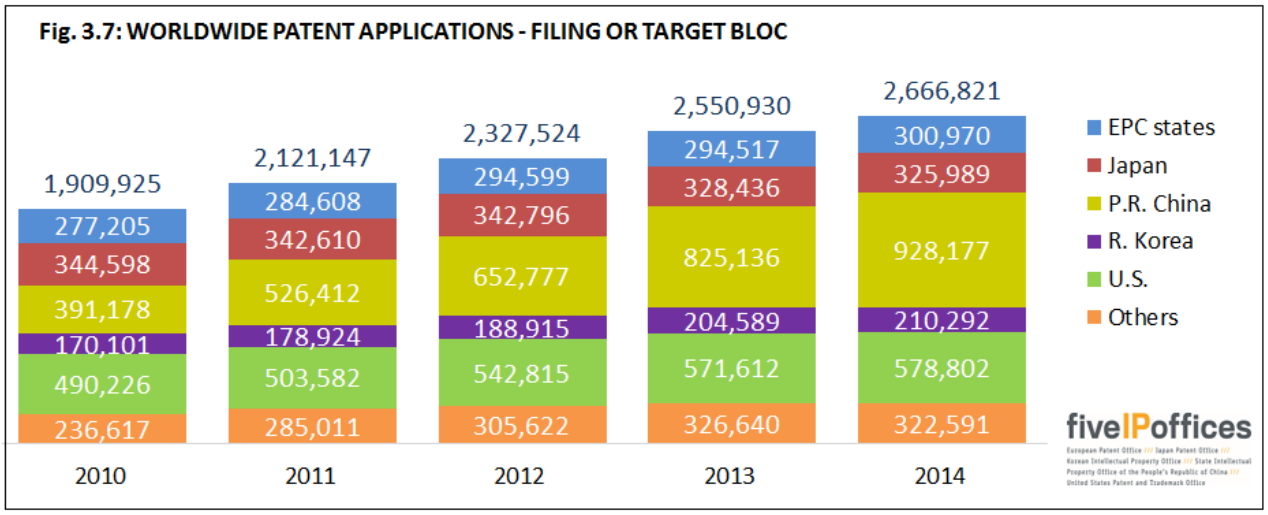
Fig. 3.6: WORLDWIDE PATENT APPLICATIONS - ORIGIN



The number of patent applications increased for most of the IP5 Blocs in 2014, with P.R. China remaining the region from which the largest share of applications originated. P.R. China also had the largest percentage increase in applications by origin in 2014 (14 percent). The number of applications from R. Korea, the U.S. and the EPC states increased by 3 percent, 2 percent and 2 percent respectively, and those from Japan marginally decreased.

The data for Others should only be compared between years with care. The changes from year to year may reflect different numbers of countries reporting their count of applications as well as changes in the numbers of applications.

Fig. 3.7 shows the distribution of the patent applications according to the filing or target blocs and is based on the same data as in Fig. 3.5 and Fig. 3.6.



The number of patent applications increased for P.R. China, R. Korea, EPC states and the U.S. in 2014. The largest percentage increase in 2014 was in P.R. China (12 percent). In R. Korea, the EPC states and the U.S., there were also increases of 3 percent, 2 percent and 1 percent respectively. The number of patent applications in Japan decreased by 1 percent in 2014.

DEMANDS FOR NATIONAL PATENT RIGHTS

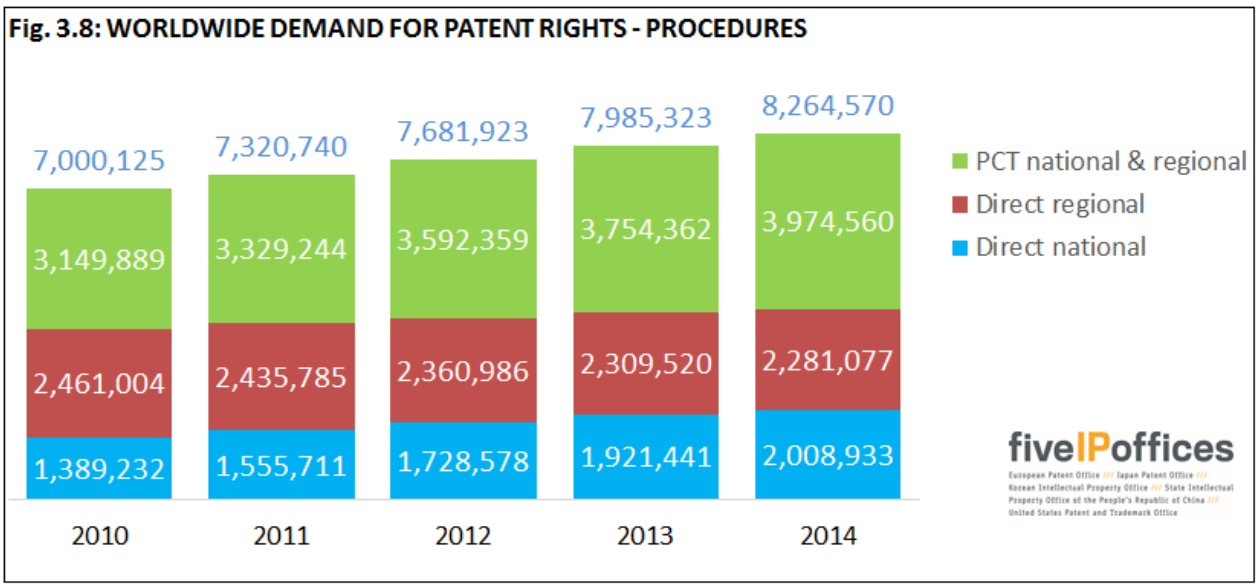
Patent applications counted in this section (with Figs. 3.8, 3.9, and 3.10) include direct national applications, national stage PCT applications and designated countries in direct regional and in regional stage PCT applications.

With an increasing use of PCT and regional systems, and also the increasing number of countries joining such systems, the number of applications filed corresponds to a far larger number of demands for national patent rights. This cumulates the number of designated countries over applications. It effectively measures the number of national patent applications that would have been necessary to seek patent protection in the same countries if there were no PCT or regional systems.

The direct national applications have effect in one country only, as does any PCT application entering one national phase procedure. But direct regional applications and PCT applications entering in a regional system are demands for almost each and every individual member country. So, demand counts for regional offices are expanded to the numbers of countries covered by regional systems[26].

Fig. 3.8 shows the development of demand for national patent rights broken down by filing procedures.

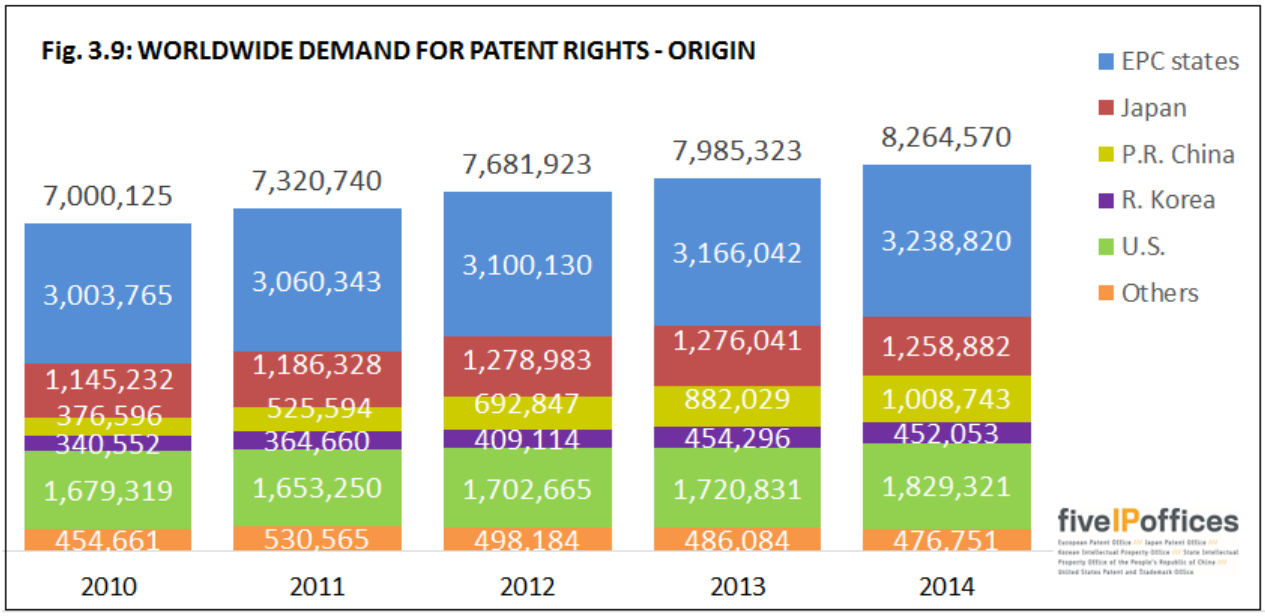
Fig. 3.8: WORLDWIDE DEMAND FOR PATENT RIGHTS - PROCEDURES



The demand for patent rights measured in terms of equivalent national patent rights increased by 3 percent from 2013 to 2014. In addition to the growing number of patent filings, the ongoing growth shown in Fig 3.8 illustrates the effect of the centralized procedures (regional and international) to help users of the system to expand their patent protection without needing to make separate applications to every country of interest.

[26] At the end of 2014, 89 states were party to a regional patent system, EPC 38, EAPC 9, ARIPO 19, OAPI 17, GCCPO 6. This compares to 82 states at the beginning of 2010. Also at the end of 2014, 148 states were party to the PCT, compared to 142 states at the end of 2010. In addition, national patents can also be created in other states that have extension or validation agreements with the EPO.

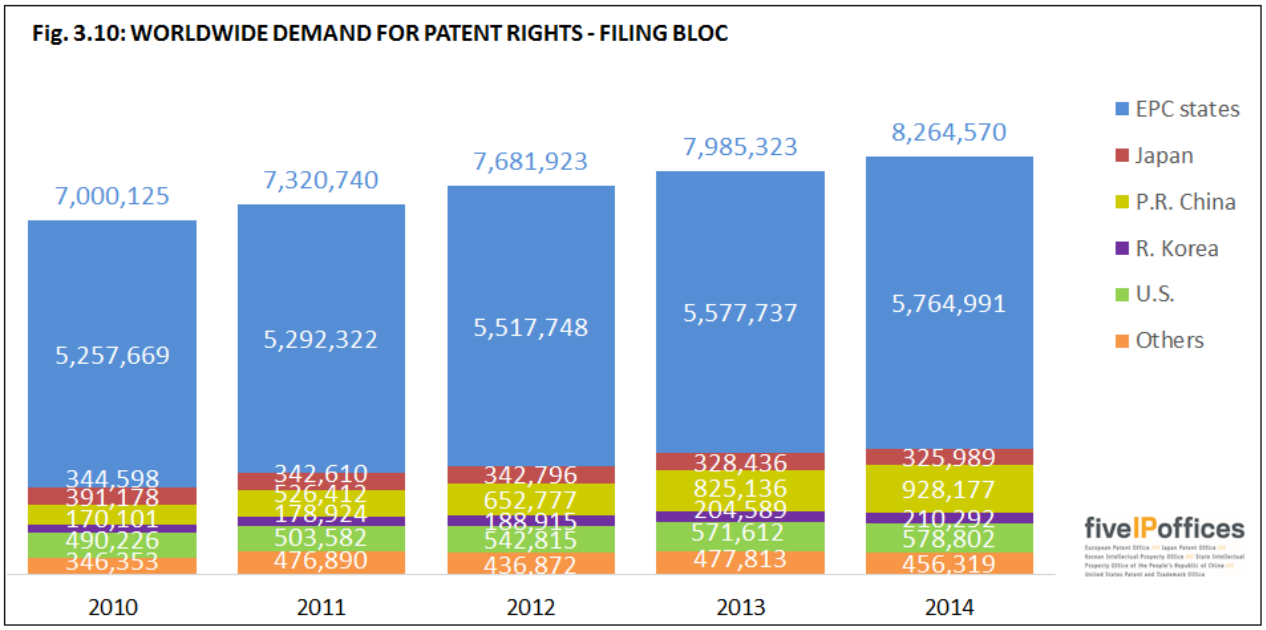
Fig. 3.9 shows the trend for the demand of national patent rights by blocs of origin (residence of first-named applicants or inventors) and is based on the same data as Fig. 3.8



From 2013 to 2014, the demand for patent rights increased from P.R. China, the U.S. and the EPC states by 14 percent, 6 percent and 2 percent respectively, while the demand for patent rights decreased marginally from Japan.

The large share of the EPC states reflects, among other factors, the intensive use of the international and regional systems there. This is shown even more clearly in the next chart.

Fig. 3.10 shows the distribution of the demand for national patent rights according to the filing or targeted blocs and is based on the same data as in Fig. 3.8 and Fig. 3.9.



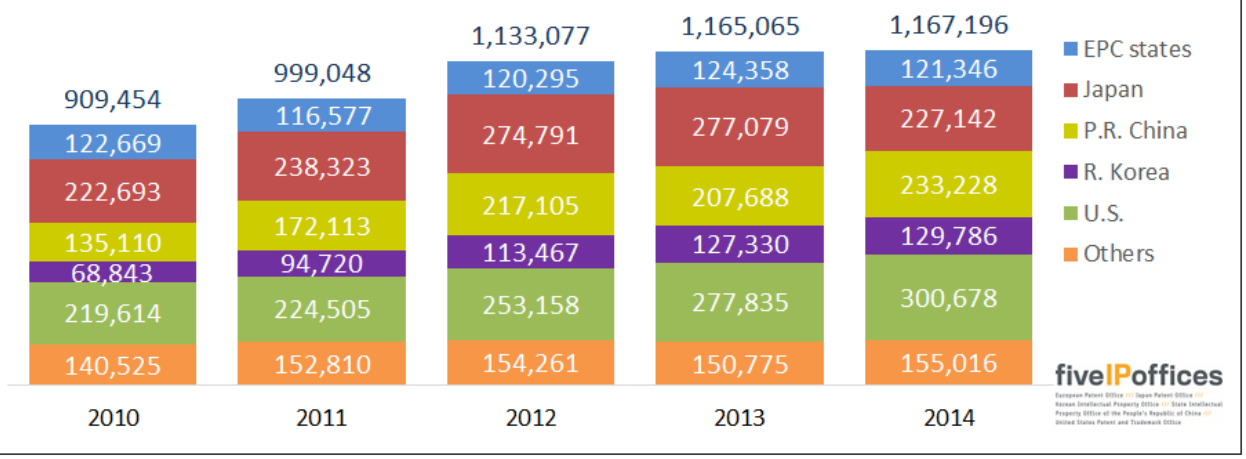
This chart demonstrates the influence of regional patent systems on global demand for patents. In 2014, the demand for national patent rights decreased in Japan and increased in P.R. China, the EPC states, R. Korea and the U.S. Demand in P.R. China had the largest increase at 12 percent. The fact that the demand in China increased by 12 percent while the demand originating from China increased by 14 percent (in Fig. 3.9) is consistent with the fact that the relative increase in filings from China in any other blocs was more than the relative increase in filings from these blocs into China, as is demonstrated below in Fig 3.13.

PATENT GRANTS

The development of the use of patents is shown in this section in terms of grants.

Fig. 3.11 displays the breakdowns of the numbers of patents granted in each of the blocs.

Fig. 3.11: WORLDWIDE PATENTS GRANTED - FILING BLOC



The number of patent grants increased in P.R. China, the U.S. and R. Korea in 2014. The largest percentage increase in 2014 was in P.R. China (12 percent), while the U.S. and R. Korea increased by 8 percent and 2 percent respectively. In Japan and the EPC states, there were decreases of 8 percent and 2 percent respectively.

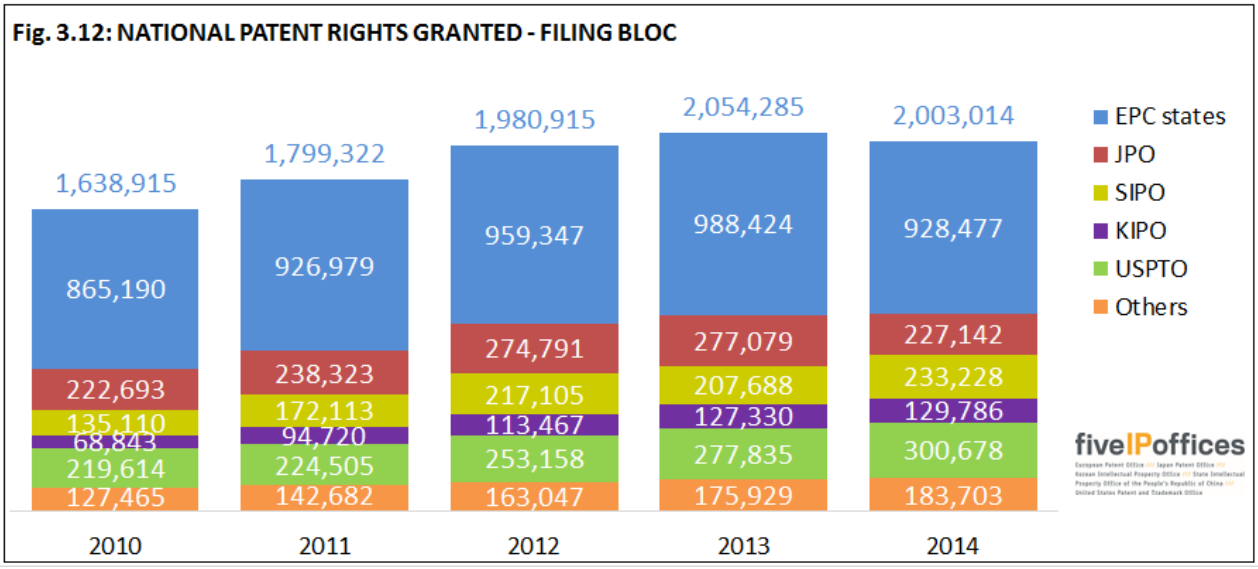
The data for Others, which show a small steady increase from year to year, should be compared between years with care. The changes may reflect different numbers of countries reporting their count of grants as well as changes in the numbers of grants.

Comparing Fig. 3.11 to Fig. 3.6, the distributions of the proportions of filings and grants between blocs are slightly different. Also the absolute numbers of grants are lower than numbers of filings for the same year. This is partly due to refusals and withdrawals during examination, and partly due to the time lag between filings and grants, meaning that grants in a year relate to filings in earlier years where volumes were smaller during a period of filings growth.

Patent grants are counted only once per office, although the same invention may lead to grants at several offices. However, each grant action by a regional office (e.g. the EPO) can lead to as many national patents as the number of member states that have been designated. This has an effect only in the EPC states and Others, as shown in the following Fig. 3.12.

Fig. 3.12 illustrates the development of the validated national grants resulting from the decisions reported in Fig. 3.11. Direct national grants are counted only once, but the counts for regional office grants are replicated over the numbers of countries for which the grant is validated. This gives a representation in terms of national patent rights obtained in each bloc.

Fig. 3.12: NATIONAL PATENT RIGHTS GRANTED - FILING BLOC



In 2014, the number of patent rights granted in the IP5 blocs decreased by 2 percent compared to 2013. The number of national patent rights granted by the SIPO, the USPTO and the KIPO increased by 12 percent, 8 percent and 2 percent respectively, while the number of national patent rights granted at the JPO and the EPC states decreased by 18 percent and 6 percent respectively.

The fact that the EPC states bloc is made up of many countries, with an option for a centralized grant procedure at the EPO, explains why the number of patent rights granted there in Fig. 3.12 is much larger than the number of grant actions shown in Fig. 3.11.

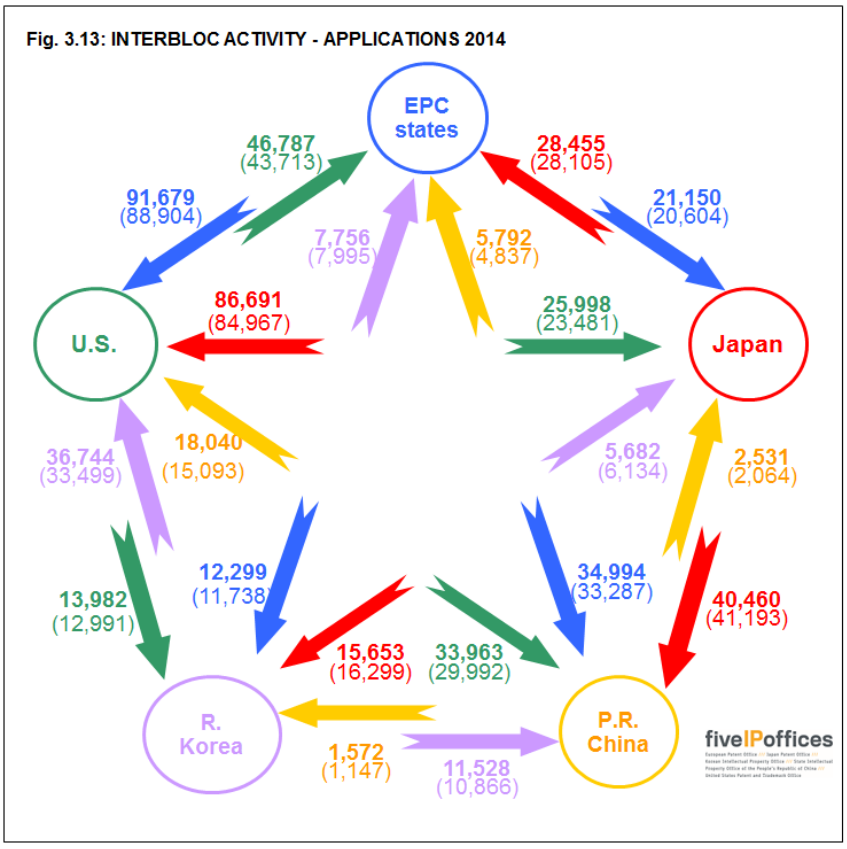
INTER-BLOC ACTIVITY

In this section, the flows between the different blocs and especially the IP5 Blocs are analysed first in terms of applications and then in terms of patent families.

FLOWS OF APPLICATIONS

Fig. 3.13 shows the flows, between IP5 Blocs (residence of first-named applicants or inventors), of distinct patent applications (as in Fig. 3.5) in 2014, with 2013 figures given in parentheses.

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 filings are replicated over the numbers of national/regional procedures that are started.



As a general pattern, applicants worldwide filed many more applications outside their own blocs to the U.S. than in any of the other IP5 Blocs. U.S. applicants applied more in the EPC states than in any of the other regions.

In 2014, the following 4 flows decreased: from Japan to R. Korea and to P.R. China, and from R. Korea to Japan and to the EPC states. The other 16 flows between blocs increased compared to 2013. The largest percentage increase of flow is from P.R. China to Japan (23 percent). However, flows to each bloc from P.R. China are smaller than the flows from any other IP5 blocs.

PATENT FAMILIES

A patent family is a group of patent filings that claim the priority of a single first filing.

The information in this section on the flows of patent families between blocs was obtained from the DOCumentDataBase (DOCDB)[27] of worldwide patent publications. The statistics are based on the references to priorities that were given in published applications and grants. Where no reference to a priority appears in an application, it is considered to be a first filing. Otherwise it is a subsequent filing. For the patent family measures of first filings in Chapter 3, the numbers of domestic national filings are taken which means that the numbers of first filings conform with those in Fig. 3.4. Due to the delay in publication (relative to the time of filing), patent families counts can only be reported with a degree of accuracy after several years have passed.

The following Table 3 shows the numbers of first filings per bloc and details of flows of patent families between blocs for the priority years 2010 and 2011. Each percentage under a number translates this number into a proportion of the number of first filings made in the initial filing bloc where the priority filings were made.

[27] DOCDB is the EPO master documentation database with worldwide coverage containing bibliographic data, abstracts and citations (but no full text).

Table 3: NUMBERS OF PATENT FAMILIES

Year of priority: 2010

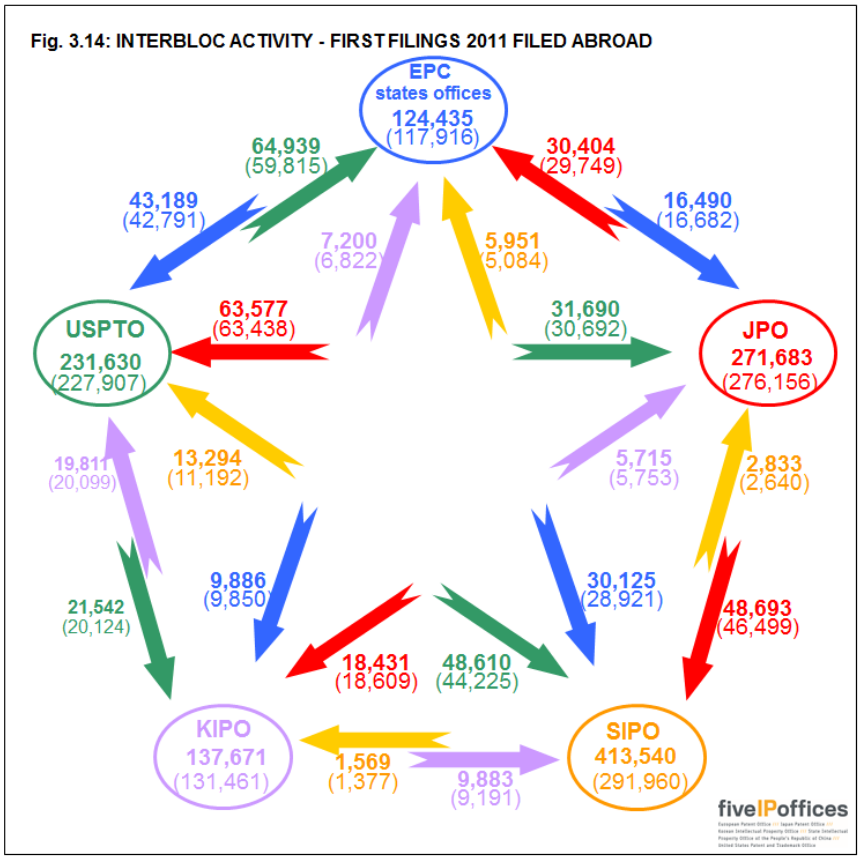
Bloc of origin from which priority is claimed	**First Filings** in Bloc of Origin	**Flows to Subsequent Filings** First filings in Bloc of Origin leading to priority claims in filings in:								**IP5 Patent Families** from bloc of origin
		Any other Blocs	Any other Five Bloc	EPC States	Japan	P.R.China	R.Korea	U.S.	Other countries	
EPC States	117,916	50,380 (42.7%)	48,282 (40.9%)	-	16,682 (14.1%)	28,921 (24.5%)	9,850 (8.4%)	42,791 (36.3%)	20,098 (17.0%)	6,567 (5.6%)
Japan	276,156	76,281 (27.6%)	74,499 (27.0%)	29,749 (10.8%)	-	46,499 (16.8%)	18,609 (6.7%)	63,438 (23.0%)	17,850 (6.5%)	9,096 (3.3%)
P.R.China	291,960	12,876 (4.4%)	12,528 (4.3%)	5,084 (1.7%)	2,640 (0.9%)	-	1,377 (0.5%)	11,192 (3.8%)	1,995 (0.7%)	804 (0.3%)
R.Korea	131,461	22,157 (16.9%)	21,943 (16.7%)	6,822 (5.2%)	5,753 (4.4%)	9,191 (7.0%)	-	20,099 (15.3%)	2,856 (2.2%)	2,813 (2.1%)
U.S.	227,907	81,564 (35.8%)	71,112 (31.2%)	59,815 (26.2%)	30,692 (13.5%)	44,225 (19.4%)	20,124 (8.8%)	-	47,265 (20.7%)	13,228 (5.8%)
Five blocs subtotal	**1,045,400**	**243,258 (23.3%)**	**228,364 (21.8%)**	**101,470 (9.7%)**	**55,767 (5.3%)**	**128,836 (12.3%)**	**49,960 (4.8%)**	**137,520 (13.2%)**	**90,064 (8.6%)**	**32,508 (3.1%)**
Others	75,585	17,416 (23.0%)	17,416 (23.0%)	4,707 (6.2%)	2,256 (3.0%)	3,350 (4.4%)	1,195 (1.6%)	15,672 (20.7%)	-	484 (0.6%)
Global total	**1,120,985**	**260,674 (21.3%)**	**245,780 (20.1%)**	**106,177 (8.7%)**	**58,023 (4.7%)**	**132,186 (10.8%)**	**51,155 (4.2%)**	**153,192 (12.5%)**	**90,064 (7.4%)**	**32,992 (2.7%)**

Year of priority: 2011 (Preliminary)

Bloc of origin from which priority is claimed	**First Filings** in Bloc of Origin	**Flows to Subsequent Filings** First filings in Bloc of Origin leading to priority claims in filings in:								**IP5 Patent Families** from bloc of origin
		Any other Blocs	Any other Five Bloc	EPC States	Japan	P.R.China	R.Korea	U.S.	Other countries	
EPC States	124,435	51,853 (41.7%)	49,076 (39.4%)	-	16,490 (13.3%)	30,125 (24.2%)	9,886 (7.9%)	43,189 (34.7%)	20,091 (16.1%)	6,594 (5.3%)
Japan	271,683	78,275 (28.8%)	76,232 (28.1%)	30,404 (11.2%)	-	48,693 (17.9%)	18,431 (6.8%)	63,577 (23.4%)	18,884 (7.0%)	8,719 (3.2%)
P.R.China	413,540	15,541 (3.8%)	14,614 (3.5%)	5,951 (1.4%)	2,833 (0.7%)	-	1,569 (0.4%)	13,294 (3.2%)	5,403 (1.3%)	956 (0.2%)
R.Korea	137,671	22,082 (16.0%)	21,828 (15.9%)	7,200 (5.2%)	5,715 (4.2%)	9,883 (7.2%)	-	19,811 (14.4%)	2,927 (2.1%)	3,184 (2.3%)
U.S.	231,630	88,424 (38.2%)	77,120 (33.3%)	64,939 (28.0%)	31,690 (13.7%)	48,610 (21.0%)	21,542 (9.3%)	-	49,070 (21.2%)	13,826 (6.0%)
Five blocs subtotal	**1,178,959**	**256,175 (21.7%)**	**238,870 (20.3%)**	**108,494 (9.2%)**	**56,728 (4.8%)**	**137,311 (11.6%)**	**51,428 (4.4%)**	**139,871 (11.9%)**	**96,375 (8.2%)**	**33,279 (2.8%)**
Others	71,808	19,025 (26.5%)	19,025 (26.5%)	4,886 (6.8%)	2,379 (3.3%)	6,447 (9.0%)	1,263 (1.8%)	16,290 (22.7%)	-	632 (0.9%)
Global total	**1,250,767**	**275,200 (22.0%)**	**257,895 (20.6%)**	**113,380 (9.1%)**	**59,107 (4.7%)**	**143,758 (11.5%)**	**52,691 (4.2%)**	**156,161 (12.5%)**	**96,375 (7.7%)**	**33,911 (2.7%)**

Source: EPO DOCDB Database

Fig. 3.14 shows the flows of patent families from first filings (at the patent offices of the specified IP5 Bloc) to subsequent filings among the IP5, with application counts based on the bloc of the patent office from which the claimed priority was filed. The number given for each bloc is the total number of first filings in 2011. The flow figures between blocs of origin and target blocs indicate the numbers of 2011 first filings from the bloc of origin that led to subsequent filings in the target bloc. The comparable figures for 2010 are given in parentheses.



Even though the numbers for IP5 patent families after 2010 may not yet be complete, because more time is needed to gather all evidence of subsequent filing activity from first filings in later years, the numbers for 2011 in Fig. 3.14 and the corresponding numbers in the lower part of Table 3 are nevertheless fairly accurate.

From information in Table 3, out of all first filings in the IP5 Blocs in 2010 (1,045,400), 21.8 percent formed patent families that included at least one of the remaining IP5 Blocs (228,364). Proceeding to a higher degree of selectivity, only 3.1 percent of all first filings in the IP5 Blocs in 2010 formed IP5 patent families, where activities of first and/or subsequent filings were made in all the IP5 Blocs.

The IP5 patent family proportion of first filings in 2010 differed considerably according to the bloc of origin of the first filings, as can be seen in Table 3 (U.S. 5.8 percent, EPC states 5.6 percent, Japan 3.3 percent, R. Korea 2.1 percent, P.R. China 0.3 percent and for Others 0.6 percent).

Fig. 3.15 presents a separate diagram for each IP5 Bloc to display the percentages of first filings in that Bloc that led to subsequent filings in each of the other IP5 Blocs. The diagrams show graphical displays of 2010 patent family data as presented in Table 3. Four coloured circles appear in each diagram with each circle representing the percentage of subsequent filings in an IP5 Bloc resulting from the number of first filings in the bloc of origin. Areas where the circles overlap correspond to subsequent filings in more than one other IP5 Bloc. Recall that, in the case of the EPC states, the activities at national offices are included as well as at the EPO.

Above each diagram appears the total number of first filings that were received in each of the IP5 Blocs in 2010. Then the proportions of those first filings that led on to subsequent filings in each other bloc are shown. Some of these percentages also appear in the upper part of Table 3.

Underneath the coloured diagrams, the percentages next to the bloc combinations show subsidiary percentages of subsequent filings that flowed to more than one other IP5 Bloc.

For instance, patent families from first filings in EPC member states that were subsequently filed in the P.R. China and the U.S. blocs are indicated in the graphical display by the area where the green and yellow circles overlap in the first diagram. The corresponding percentage is 20.3 percent, as shown next to the pair of yellow and green dots that appear lower down in the figure. The non-overlapping areas of the graphical displays are representative of the percentage or number of patent families that were not subsequently filed in any of the other IP5 Blocs. For instance, for first filings in EPC states, the small non-overlapping area of the P.R. China circle indicates that only a small percentage and number of the patent families from EPC states were filed in P.R. China without also being filed in at least one of the other IP5 Blocs, as well.

The last row of the table in Fig. 3.15 shows the proportions of IP5 patent families, as also appear in the last column of the upper part of Table 3.

Fig. 3.15: 2010 PATENT FAMILIES - PERCENTAGES OF FIRST FILINGS WITH SUBSEQUENT FILINGS IN OTHER IP5 BLOCS

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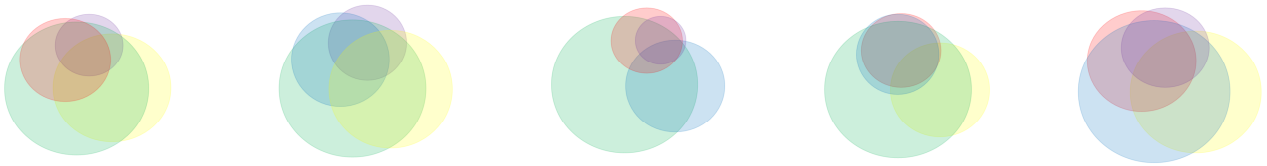
First filings in	EPC states offices*	Japan(JPO)	P.R.China(SIPO)	R.Korea(KIPO)	U.S.(USPTO)
	117,916	276,156	291,960	131,461	227,907
Bilateral families with subsequent filings in					
EPC states	-	10.8%	1.7%	5.2%	26.2%
Japan	14.1%	-	0.9%	4.4%	13.5%
P.R. China	24.5%	16.8%	-	7.0%	19.4%
R. Korea	8.4%	6.7%	0.5%	-	8.8%
U.S.	36.3%	23.0%	3.8%	15.3%	-



Three bloc families with subsequent filings in					
EPC states & Japan	-	-	0.6%	2.5%	11.9%
EPC states & R. Korea	-	3.7%	0.4%	-	7.5%
EPC states & P.R. China	-	8.6%	-	3.8%	15.8%
EPC states & U.S.	-	9.9%	1.4%	5.0%	-
Japan & R. Korea	6.4%	-	0.3%	-	6.7%
Japan & P.R. China	11.3%	-	-	3.1%	10.2%
Japan & U.S.	13.1%	-	0.8%	3.8%	-
P.R. China & R. Korea	7.5%	5.8%	-	-	7.5%
P.R. China & U.S.	20.3%	13.5%	-	6.0%	-
R. Korea & U.S.	7.5%	5.2%	0.4%	-	-
Four bloc families with subsequent filings in					
EPC states & Japan & R. Korea	-	-	0.3%	-	6.2%
EPC states & Japan & P.R. China	-	-	-	2.2%	9.5%
EPC states & Japan & U.S.	-	-	0.6%	2.5%	-
EPC states & R. Korea & P.R. China	-	3.5%	-	-	6.8%
EPC states & R. Korea & U.S.	-	3.5%	0.3%	-	-
EPC states & P.R. China & U.S.	-	8.1%	-	3.7%	-
Japan & R. Korea & P.R. China	6.0%	-	-	-	6.2%
Japan & R. Korea & U.S.	5.9%	-	0.3%	-	-
Japan & P.R. China & U.S.	10.5%	-	-	2.9%	-
P.R. China & R. Korea & U.S.	6.8%	4.5%	-	-	-
IP5 families	5.6%	3.3%	0.3%	2.1%	5.8%

** EPO or EPC states national offices*

From Fig. 3.15 and Table 3, the 2010 data indicate that the U.S. market may be considered as the most important foreign market for the other IP5 Blocs since, for each of those blocs, subsequent applications in the U.S. represent the highest percentages among target blocs. The percentages of subsequent applications filed in the U.S. following 2010 first filings in the EPC member states, Japan, P.R. China, and R. Korea are 36.3 percent, 23.0 percent, 3.8 percent, and 15.3 percent respectively. The second most important market for the other IP5 Blocs is P.R. China, except for first filings in U.S. for which a higher proportion goes to EPC states than to P.R. China.

First filings in the U.S. result in the highest percentage of subsequent filings to R. Korea and to Other countries. First filings in the EPC member states result in the highest percentages of subsequent filings to P.R. China. It is notable that the percentages of subsequent filings from both the EPC states and the U.S. to the Asian offices are higher than the percentages from the three Asian blocs to each other.

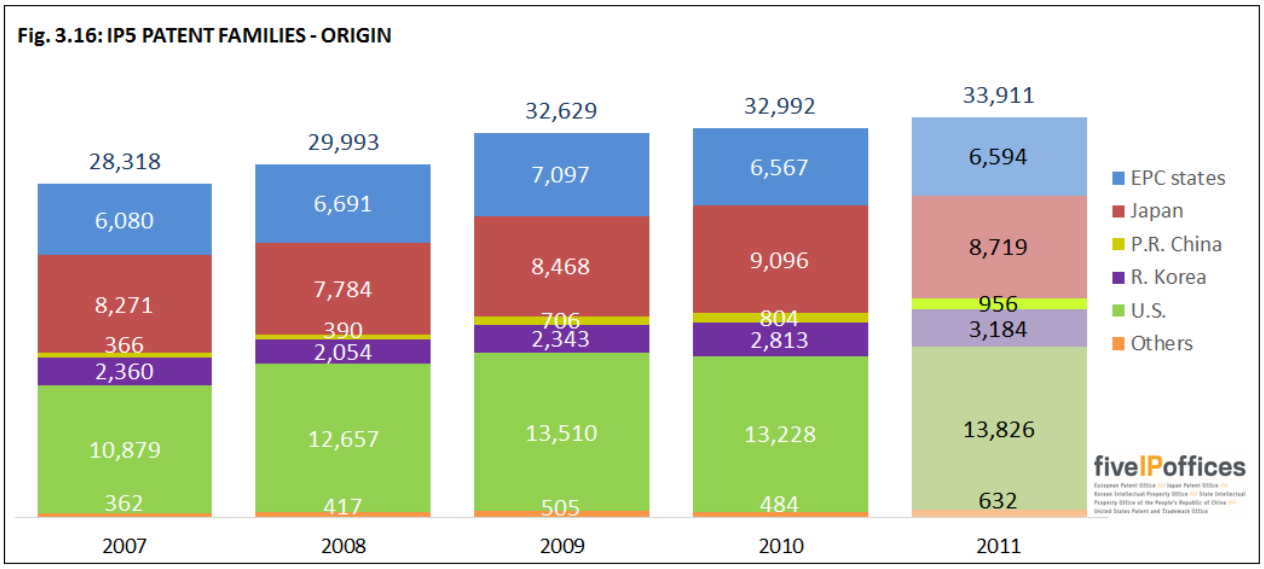
Japan has the highest number of first filings in 2010 of 276,156 and the percentages that led to subsequent filings in the EPC states, R. Korea and P.R. China are lower than the percentage for first filings in the U.S. This makes the flows (numbers of patent families) from Japan to the EPC states, R. Korea and P.R. China smaller than the flow to the U.S.

For the first filings in P.R. China, the percentage of subsequent applications filed in the U.S. (3.8 percent) is the largest. The percentage that was filed in both the EPC member states and Japan is about 0.6 percent. The percentage of subsequent applications that were filed in the EPC member states, Japan, and the U.S. is also about 0.6 percent, indicating that most of the subsequent applications filed in both the EPC states and Japan have also been filed in the U.S. Despite the low proportions of first filings in P.R. China that led to subsequent applications anywhere else, rapidly growing numbers of first filings have resulted in continued growth of the absolute numbers of patent families flowing out to other IP5 Blocs, as can be seen by comparing the 2010 and the preliminary 2011 data displayed in Table 3 (12,528 compared to 14,614 respectively).

For the first filings in R. Korea, as with the other blocs, the percentage of subsequent applications filed in the U.S. (15.3 percent) is the largest, followed by P.R. China (7.0 percent). In addition, the percentage of subsequent applications filed in the EPC member states is 5.2 percent. This last percentage is close to the percentage of subsequent applications filed in both the EPC member states and the U.S. together (5.0 percent), indicating that most of the subsequent applications filed in the EPC member states have been also filed in the U.S.

Among the first filings in the U.S., the percentage of subsequent applications filed in other blocs is the highest in the EPC member states (26.2 percent). The percentage of subsequent applications filed in P.R. China (19.4 percent) is the next highest, while Japan is not so far behind at 13.5 percent.

Fig. 3.16 shows the development over time of IP5 patent families by bloc of origin (residence of first-named applicants or inventors) of the priority forming filings. To indicate that the figures for 2011 are still provisional, the last column is more lightly shaded.



The total number of IP5 patent families in 2011 was 33,911, of which 41 percent were from the U.S., 26 percent were from Japan, 19 percent were from the EPC states, 9 percent were from R. Korea, 3 percent were from P.R. China, and 2 percent were from Others. The number will probably increase when the data set for 2011 becomes complete later on.