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 2011 to 2015[28].

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[29], 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.

[28] The statistical tables file found in the web version of this report includes extended time series for much of the data included in this chapter, www.fiveipoffices.org/statistics/statisticsreports.html

[29] This edition refers to general patent data as of March 2017, and to PCT international phase application data as of June 2017, www.wipo.int/ipstats/en/index.html

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 filings;
- "*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 ARIPO, EAPO, EPO, GCCPO, OAPI[30]), 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).

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

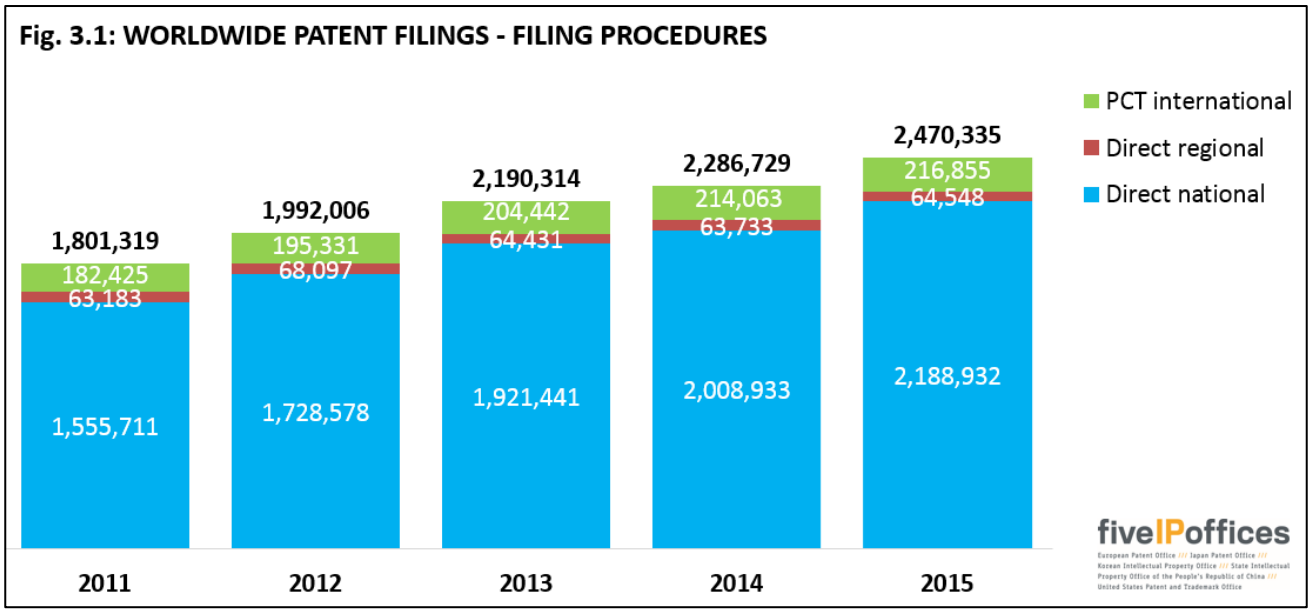
PATENT FILINGS

The patent filings that are counted in this section include direct national, direct regional and PCT filings 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 filings that were made throughout the world. Here, the filings 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 total number 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 patent filings according to the three types of filing procedures.

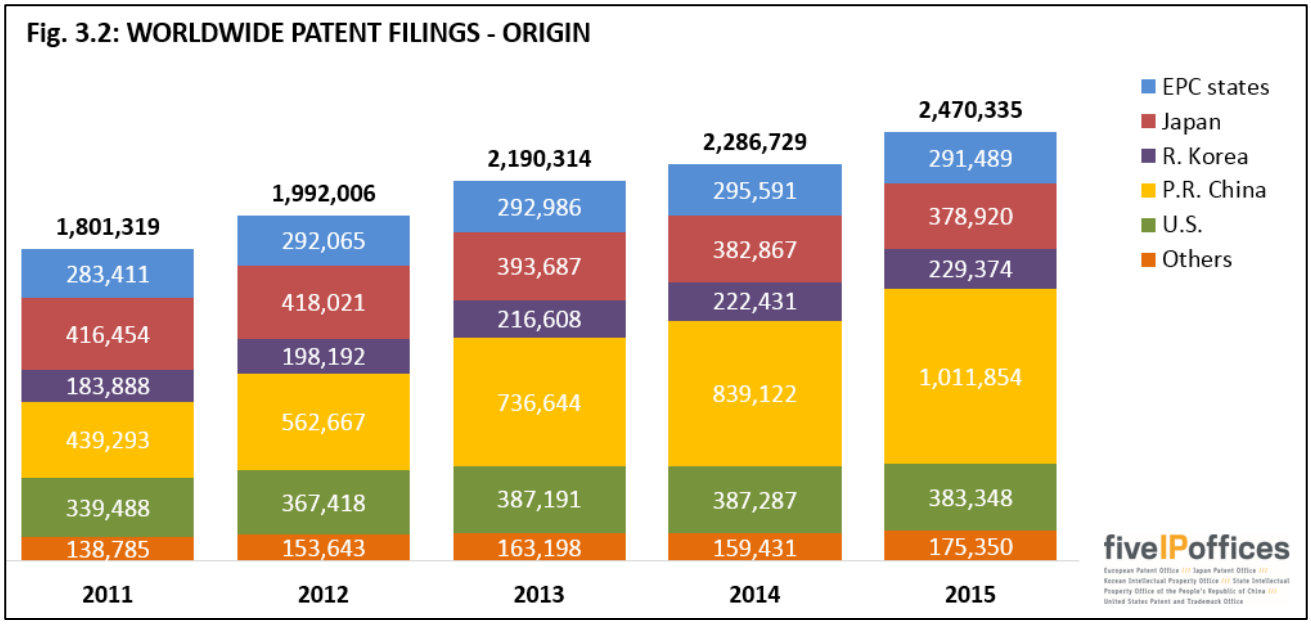
Fig. 3.1: WORLDWIDE PATENT FILINGS - FILING PROCEDURES



In 2015, the number of patent filings increased by 8 percent, to nearly 2.5 million. The number of direct national filings increased by 9 percent, while the number of direct regional and PCT international phase filings increased by 1 percent. Overall, 89 percent of the filings were made according to direct national procedures.

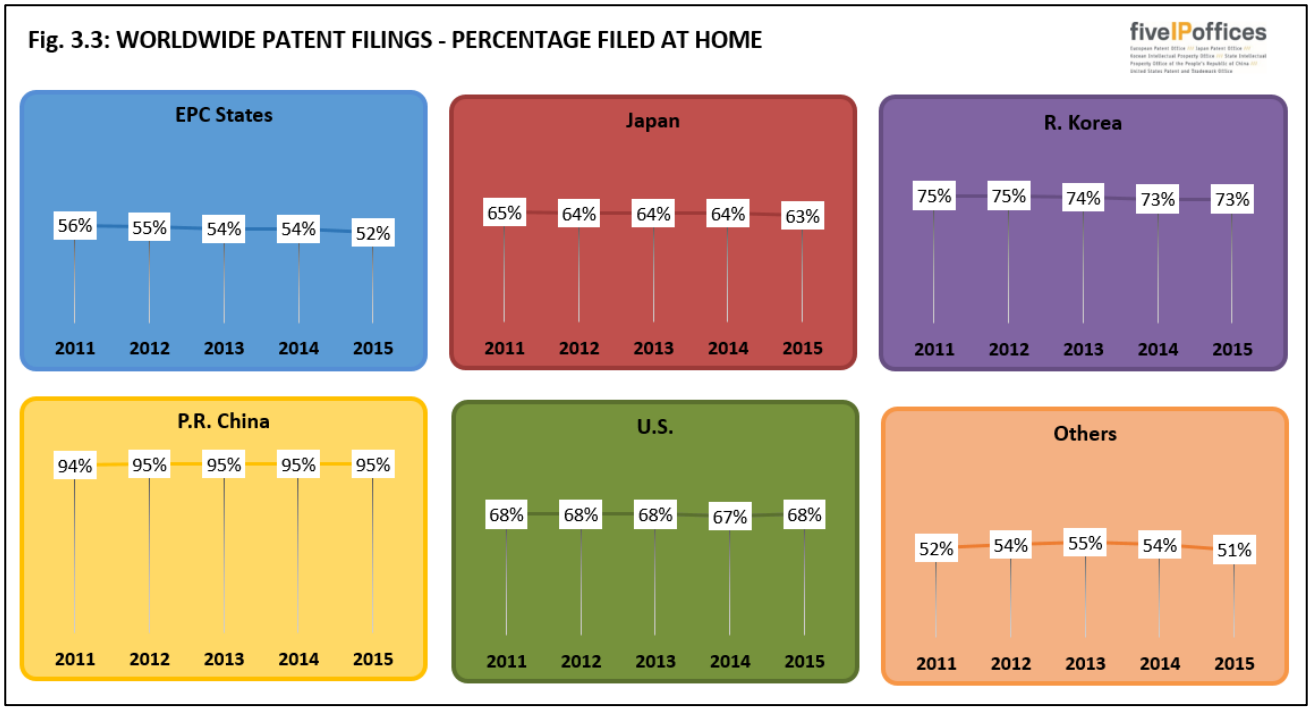
The contribution of the PCT system to filings will be discussed later in this chapter and in Chapter 5.

Fig. 3.2 shows the breakdown of the worldwide patent filings of Fig. 3.1 broken down by blocs of origin (residence of first-named applicant or inventor).



The IP5 Bloc's annual share slightly increased from 92 percent in 2011 to 93 percent in 2015. In 2015, the number of patent filings originating from P.R. China and R. Korea increased by 21 percent and 3 percent respectively, while the number of patent filings originating from the EPC states, Japan and the U.S. decreased by 1 percent.

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).



For the IP5 Blocs, P.R. China had the largest proportion of filings made at home in 2015 with 95 percent. Among the IP5 blocks, the EPC states[31] had the lowest proportion with 52 percent in 2015.

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

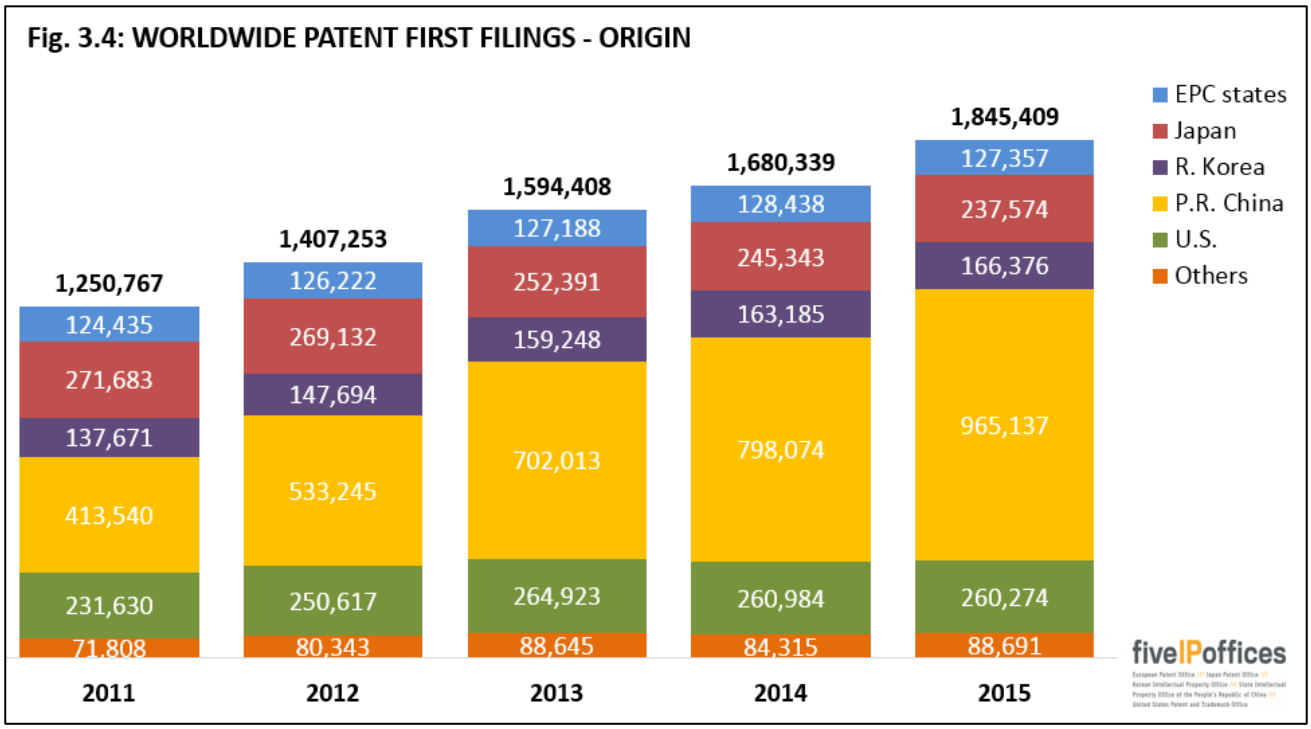
[31] For the purpose of reporting statistics for the EPC states considered as a bloc, a filing by a resident in an EPC state to another EPC state or to the EPO is considered to be filed within the bloc of origin. See the EPO section of Chapter 2 for a listing of the EPC states.

FIRST FILINGS

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

The process of obtaining patent protection starts with the first filing, an initial patent filing made to protect an invention or an innovation prior to any 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 965,137 first filings in 2015, the highest number of first filings by any bloc within the IP5 area up to this point. This was an increase of 21 percent compared to the 2014 number. There was also an increase in first filings from R. Korea of 2 percent, while the U.S., the EPC states and Japan had decreases of 0.3 percent, 0.8 percent and 3 percent, respectively. Overall, first filings increased by 10 percent between 2014 and 2015.

Comparison of Figs. 3.2 and 3.4 allows to evaluate the 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 difference in the total for 2015 between Fig. 3.2 and Fig. 3.4, it can be estimated that there are 624,926 subsequent filings, meaning that on average there were 0.37 subsequent filings per first filing in 2014, assuming a one year delay.

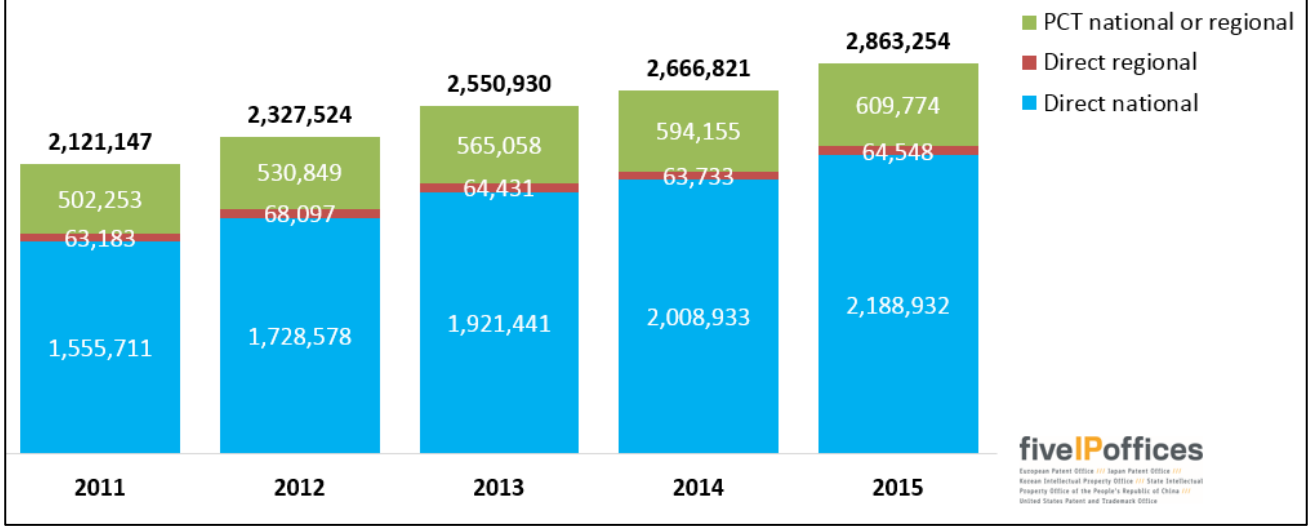
PATENT APPLICATIONS

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 numbers of patent applications in terms 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[32]. In the following figures, the number of PCT applications consists of a count of the applications that entered a national or 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 phase entry applications.

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

Fig. 3.5: WORLDWIDE PATENT APPLICATIONS - FILING PROCEDURES

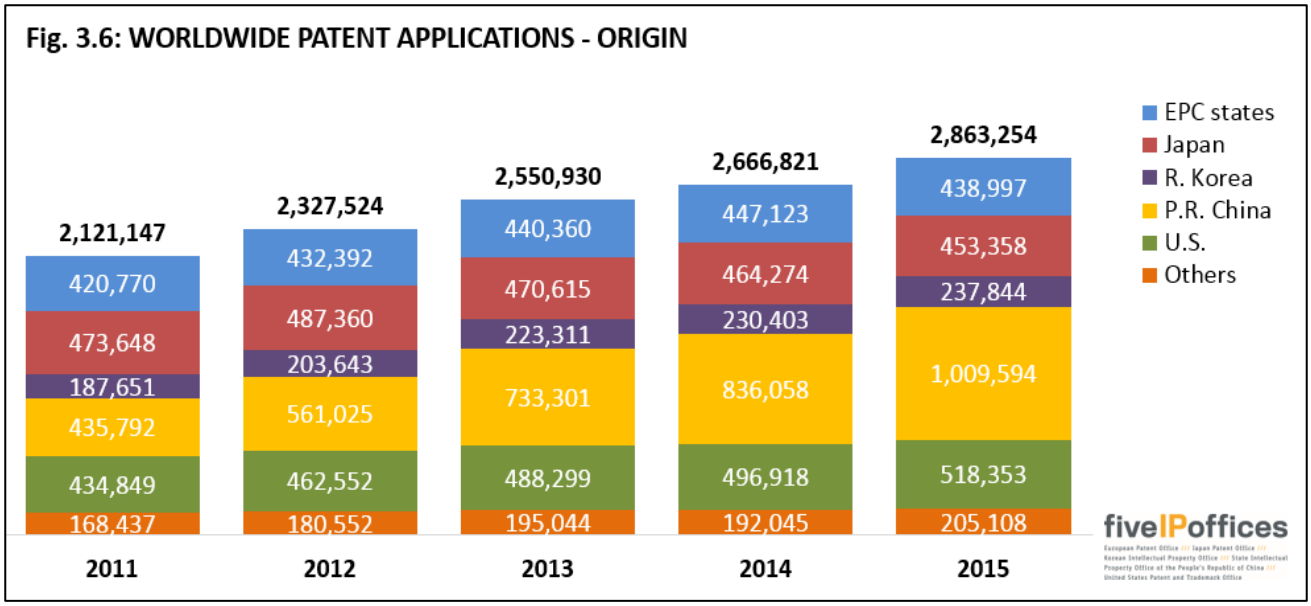


In 2015, nearly 2.9 million patent applications were filed worldwide. This represents a 7 percent increase compared to 2014.

The number of direct national applications increased by 9 percent and the number of PCT national/regional applications increased by 3 percent.

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

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

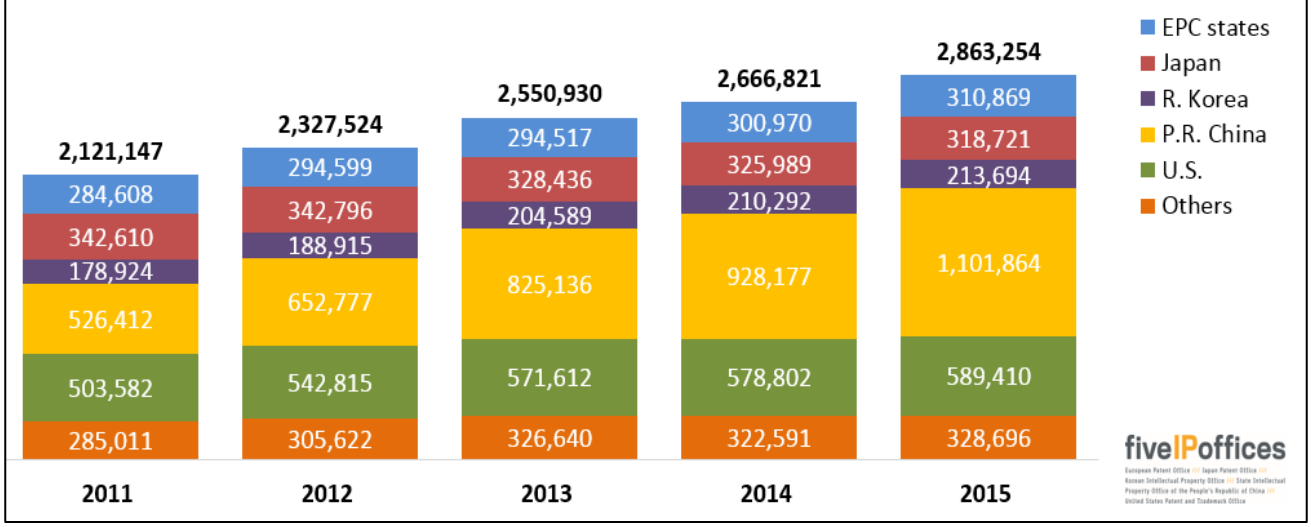


In 2015, the largest share of applications in the IP5 Bloc originated from P.R. China. P.R. China also had the largest percentage increase in applications by origin in 2015 (21 percent). The numbers of applications from R. Korea and the U.S. increased by 3 percent and 4 percent, respectively, while the numbers of applications from the EPC states and Japan each decreased by 2 percent.

The data for the 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.

Fig. 3.7: WORLDWIDE PATENT APPLICATIONS - FILING OR TARGET BLOC



In 2015, the number of patent applications increased for the EPC states, R. Korea, P.R. China, and the U.S. The P.R. China had the largest increase at 19 percent. The EPC states increased 3 percent, R. Korean and the U.S. each increased 2 percent, while the number of patent applications in Japan decreased by 2 percent.

DEMANDS FOR NATIONAL PATENT RIGHTS

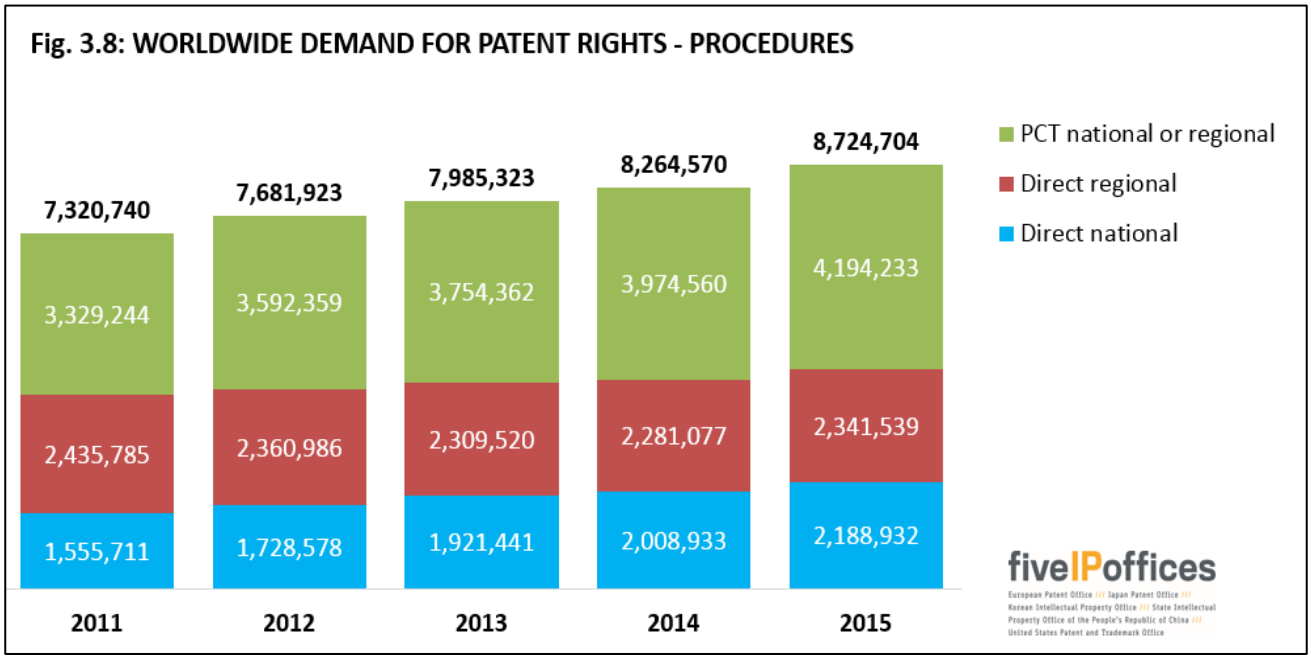
Patent applications counted in this section (with Figs. 3.8, 3.9, and 3.10) include direct national applications, national stage PCT applications and designated countries both in direct regional and in regional stage PCT applications.

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 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[33].

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



In 2015, there was an increase in the use of each of the three filing procedures noted in Figure 3.8. The use of the PCT procedure and the direct national procedure continued their upward trends of

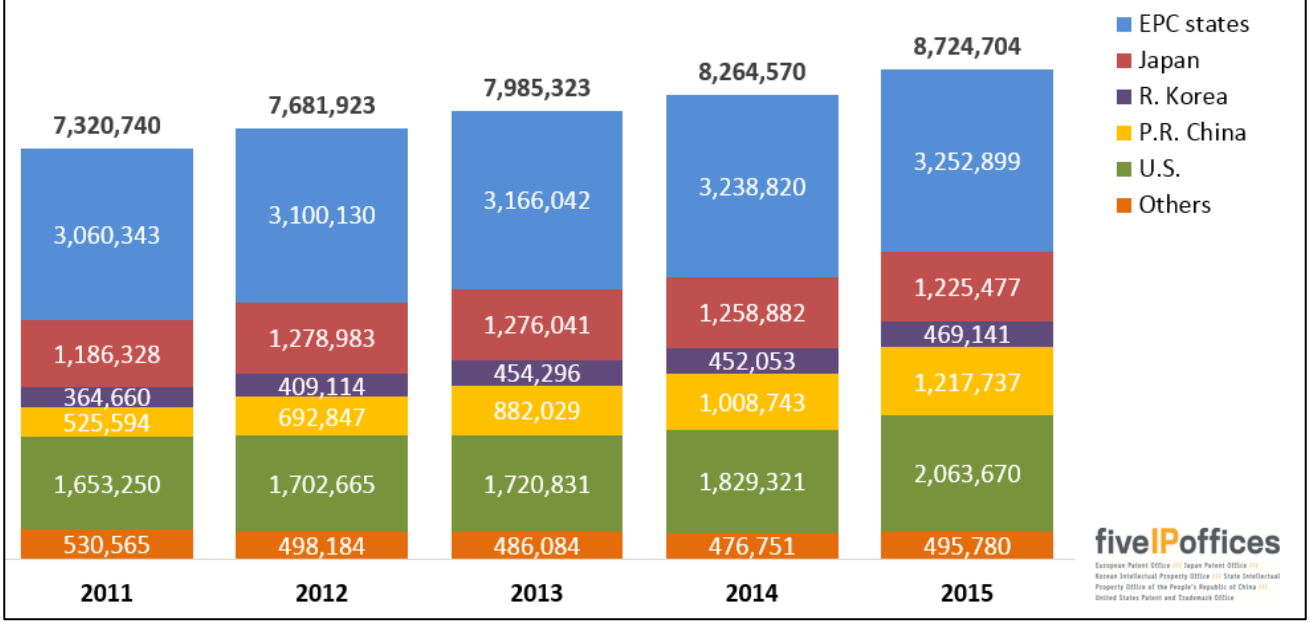
[33] At the end of 2015, 89 states were party to a regional patent system, ARIPO 19, EAPC 9, EPC 38, GCCPO 6 and OAPI 17. This compares to 86 states at the beginning of 2011. Also at the end of 2015, 148 states were party to the PCT, compared to 144 states at the end of 2011. In addition, national patents can also be created in other states that have extension or validation agreements with the EPO (see Chapter 2).

the past few years with increases of 6 percent and 9 percent, respectively. After several years of decreasing usage, the use of the direct regional procedure increased 3 percent in 2015.

Centralized filing procedures (PCT and direct regional) made up about 75 percent of the total demand in 2015, illustrating the importance of the use of these procedures to help users of the system to expand their patent protection without needing to make separate applications to every country of interest.

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.

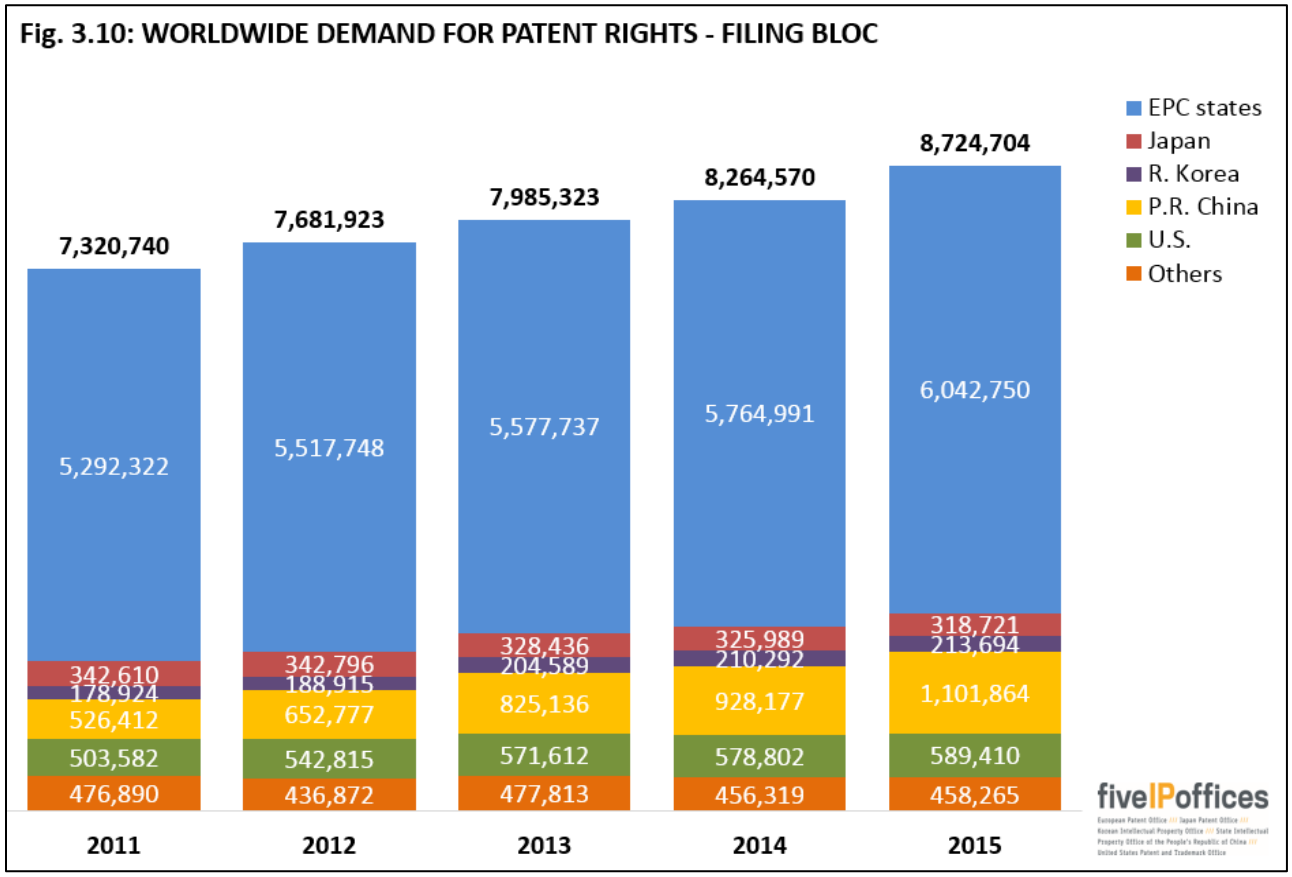
Fig. 3.9: WORLDWIDE DEMAND FOR PATENT RIGHTS - ORIGIN



From 2014 to 2015, the worldwide demand for patent rights increased by 6 percent. Demand from P.R. China, the U.S., R. Korea and the EPC states increased by 21 percent, 13 percent, 4 percent, and 0.4 percent, respectively, while the demand for patent rights decreased by 4 percent 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 more clearly in the next chart for the distribution of the patent rights.

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.



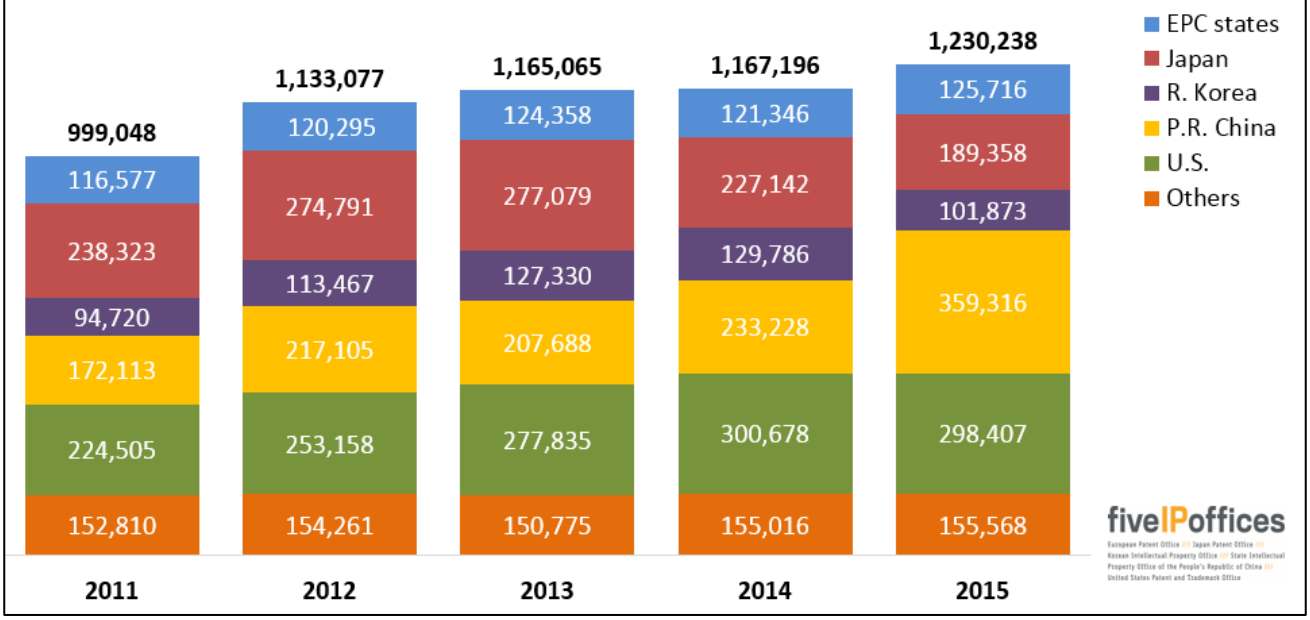
This chart illustrates the influence of regional patent systems on global demand for patents. In 2015, the demand for national patent rights increased in the EPC states, R. Korea, P.R. China and the U.S., while it decreased in Japan. P.R. China had the largest increase at 19 percent.

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



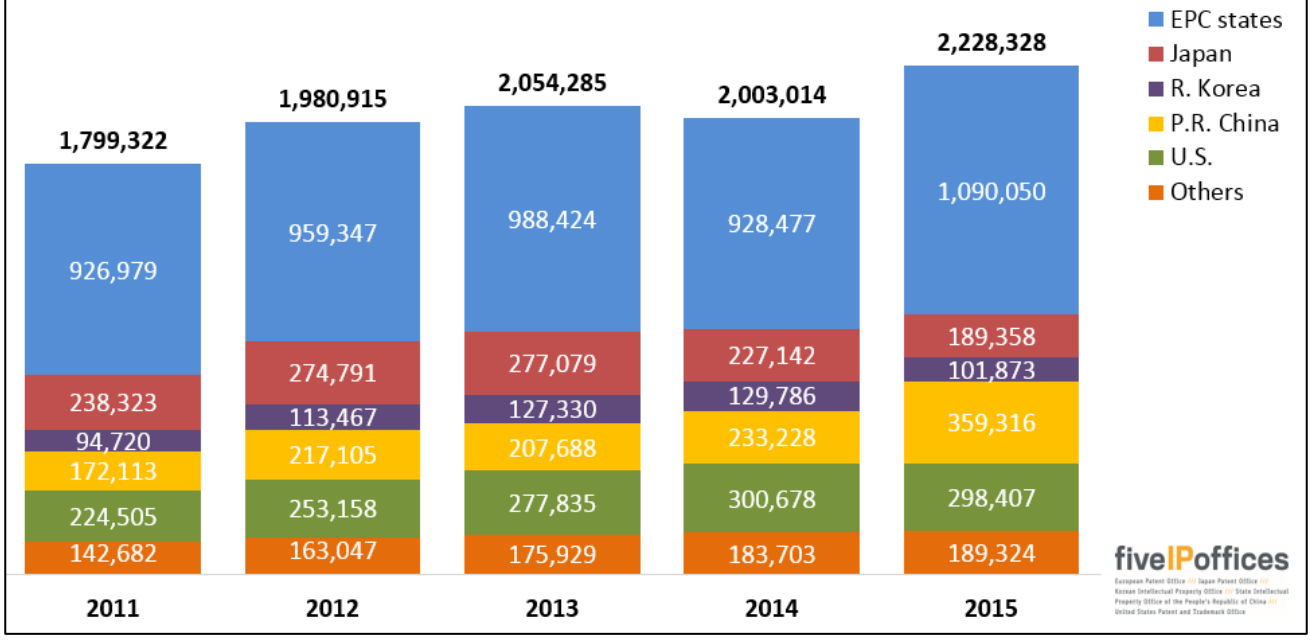
The total number of worldwide patents granted increased by 5 percent in 2015. The number of patent grants increased in the EPC states and P.R. China. P.R. China had the largest percentage increase, at 54 percent, and the EPC states increased by 4 percent, while grants in R. Korea, Japan, and the U.S. experienced decreases of 22 percent, 17 percent, and 1 percent, respectively.

The data for Others should be compared between years with caution. The changes from year to year may reflect different numbers of countries reporting their counts of grants as well as changes in the numbers of grants.

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 2015, more than 2.2 million patent rights were granted, which represents an 11 percent increase compared to 2014.

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.

In 2015, the number of national patent rights granted by the EPC states increased by 17 percent. Information for the Japan, P.R. China, R. Korea, and U.S. blocs is the same as in Fig 3.11 as found on the previous page. The data for Others should be compared between years with caution. The changes from year to year may reflect different numbers of countries reporting their count of grants as well as changes in the numbers of grants.

INTER-BLOC ACTIVITY

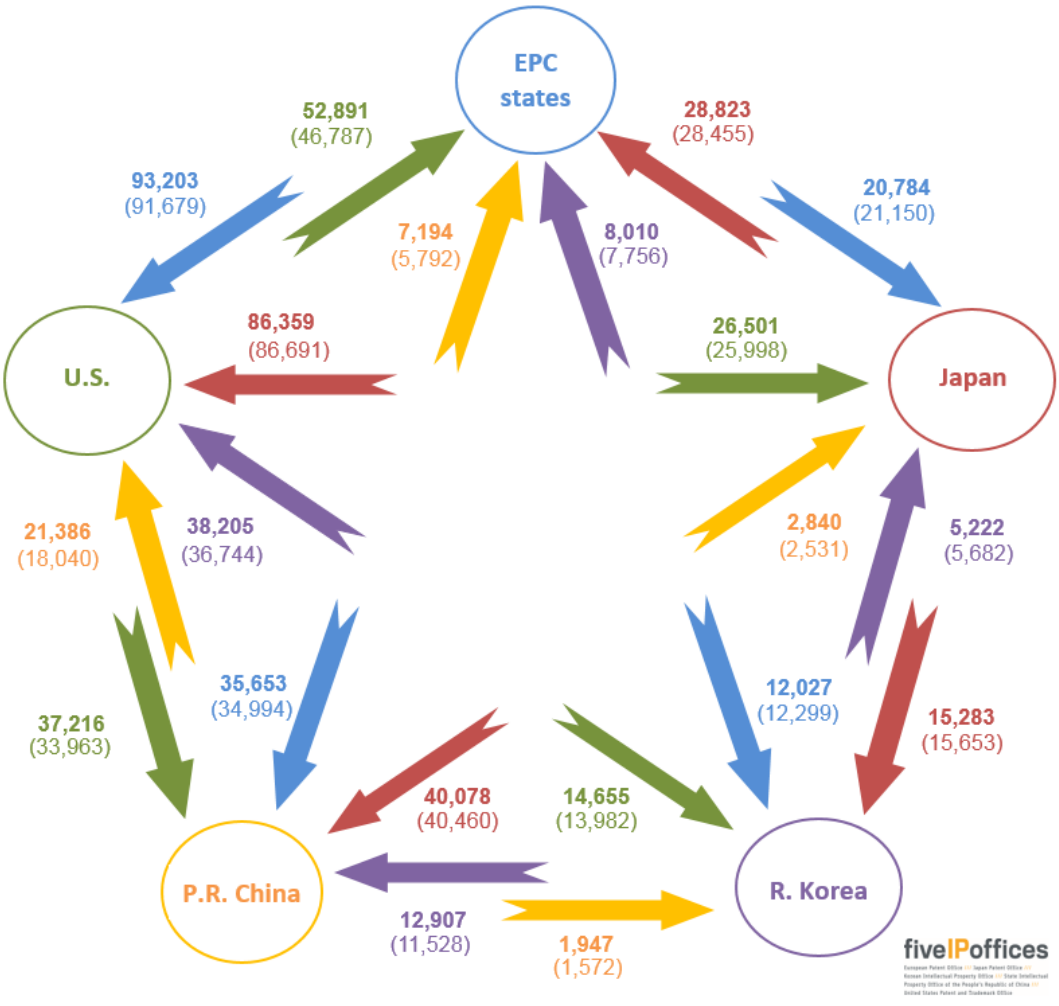
In this section, the flows between the different blocs and especially the IP5 Blocs are analyzed first in terms of applications and then in terms of patent families.

FLOWS OF APPLICATIONS

Fig. 3.13 shows the flows, between IP5 Blocs (residence of first-named applicants or inventors) of patent applications (as in Fig. 3.5) in 2015, with 2014 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 applications are counted only once. PCT applications are replicated over the numbers of national or regional procedures that are started.

Fig. 3.13: INTERBLOC ACTIVITY - APPLICATIONS 2015



As a general pattern, when applying abroad applicants worldwide filed many more applications in 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 2015, the following six flows decreased: from the EPC states to Japan and R. Korea; from Japan to R. Korea, P.R. China, and the U.S.; and from R. Korea to Japan. The other fourteen flows between blocs increased compared to 2014. The largest percentage increase of flow is from P.R. China to the EPC states (24 percent).

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)[34] 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 2011 and 2012. 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.

[34]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: 2011

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	R. Korea	P.R.China	U.S.	Other countries	
EPC States	124,435	51,829	49,082	-	16,508	9,897	30,160	43,274	21,112	6,627
		(41.7%)	(39.4%)		(13.3%)	(8.0%)	(24.2%)	(34.8%)	(17.0%)	(5.3%)
Japan	271,683	78,315	76,258	30,407	-	18,464	48,700	63,621	19,387	8,739
		(28.8%)	(28.1%)	(11.2%)		(6.8%)	(17.9%)	(23.4%)	(7.1%)	(3.2%)
R.Korea	137,671	22,097	21,838	7,201	5,717	-	9,885	19,823	2,986	3,188
		(16.1%)	(15.9%)	(5.2%)	(4.2%)		(7.2%)	(14.4%)	(2.2%)	(2.3%)
P.R.China	413,540	15,577	14,623	5,953	2,840	1,575	-	13,316	5,518	966
		(3.8%)	(3.5%)	(1.4%)	(0.7%)	(0.4%)		(3.2%)	(1.3%)	(0.2%)
U.S.	231,630	88,928	77,136	64,958	31,704	21,573	48,678	-	50,494	13,861
		(38.4%)	(33.3%)	(28.0%)	(13.7%)	(9.3%)	(21.0%)		(21.8%)	(6.0%)
Five blocs substotal	1,178,959	256,746	238,937	108,519	56,769	51,509	137,423	140,034	99,497	33,381
		(21.8%)	(20.3%)	(9.2%)	(4.8%)	(4.4%)	(11.7%)	(11.9%)	(8.4%)	(2.8%)
Others	71,808	19,066	19,066	4,887	2,385	1,270	6,450	16,341	-	637
		(26.6%)	(26.6%)	(6.8%)	(3.3%)	(1.8%)	(9.0%)	(22.8%)		(0.9%)
Global total	1,250,767	275,812	258,003	113,406	59,154	52,779	143,873	156,375	99,497	34,018
		(22.1%)	(20.6%)	(9.1%)	(4.7%)	(4.2%)	(11.5%)	(12.5%)	(8.0%)	(2.7%)

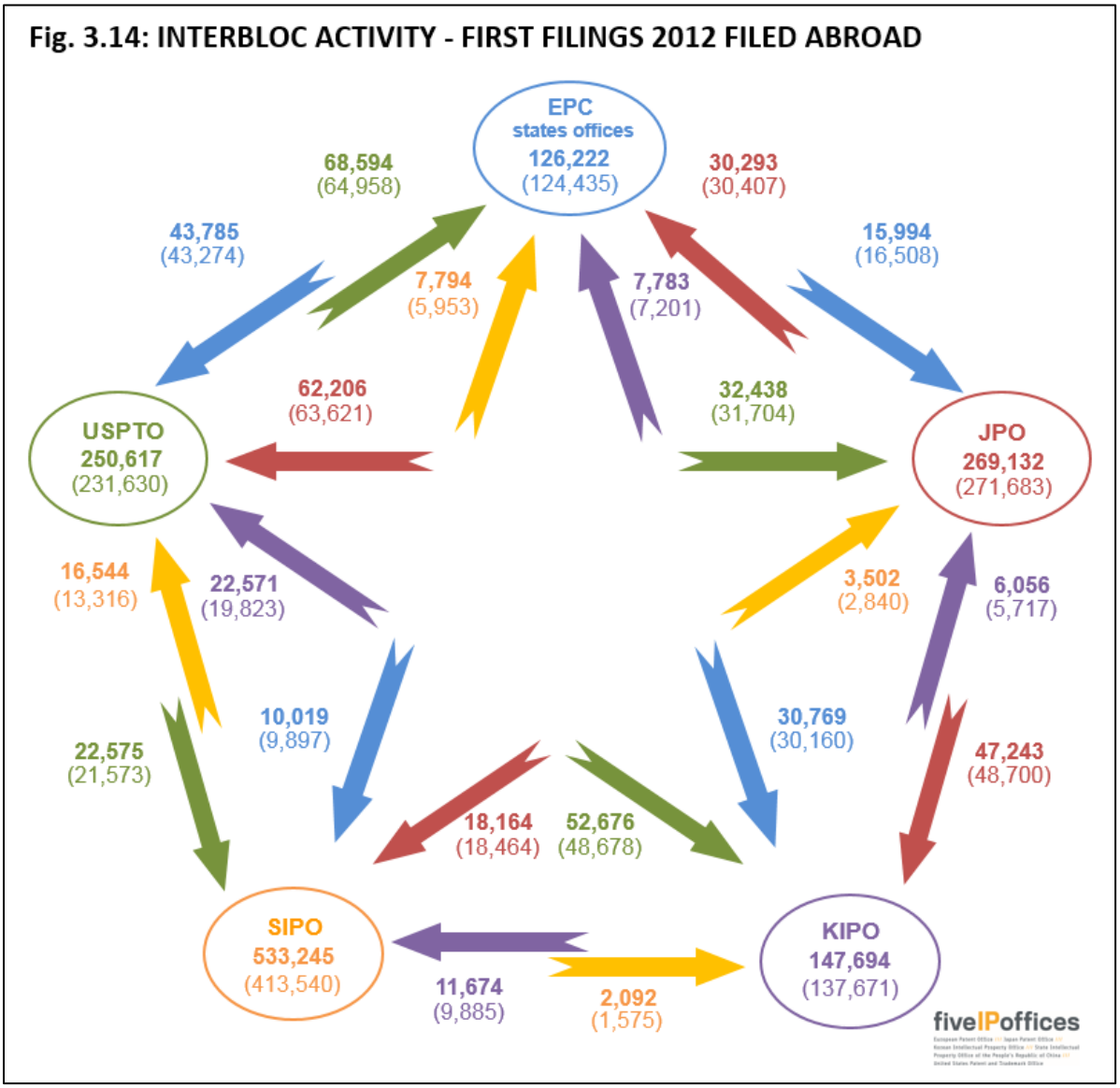
Year of priority: 2012

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	R. Korea	P.R. China	U.S.	Other countries	
EPC States	126,222	51,888	49,886	-	15,994	10,019	30,769	43,785	18,808	6,638
		(41.1%)	(39.5%)		(12.7%)	(7.9%)	(24.4%)	(34.7%)	(14.9%)	(5.3%)
Japan	269,132	77,215	75,092	30,293	-	18,164	47,243	62,206	18,584	8,321
		(28.7%)	(27.9%)	(11.3%)		(6.7%)	(17.6%)	(23.1%)	(6.9%)	(3.1%)
R.Korea	147,694	25,084	24,852	7,783	6,056	-	11,674	22,571	3,367	3,181
		(17.0%)	(16.8%)	(5.3%)	(4.1%)		(7.9%)	(15.3%)	(2.3%)	(2.2%)
P.R.China	533,245	19,279	18,105	7,794	3,502	2,092	-	16,544	6,176	1,173
		(3.6%)	(3.4%)	(1.5%)	(0.7%)	(0.4%)		(3.1%)	(1.2%)	(0.2%)
U.S.	250,617	93,967	81,764	68,594	32,438	22,575	52,676	-	51,408	13,966
		(37.5%)	(32.6%)	(27.4%)	(12.9%)	(9.0%)	(21.0%)		(20.5%)	(5.6%)
Five blocs subtotal	1,326,910	267,433	249,699	114,464	57,990	52,850	142,362	145,106	98,343	33,279
		(20.2%)	(18.8%)	(8.6%)	(4.4%)	(4.0%)	(10.7%)	(10.9%)	(7.4%)	(2.5%)
Others	80,343	20,016	20,016	4,835	2,263	1,249	6,669	17,232	-	573
		(24.9%)	(24.9%)	(6.0%)	(2.8%)	(1.6%)	(8.3%)	(21.4%)		(0.7%)
Global total	1,407,253	287,449	269,715	119,299	60,253	54,099	149,031	162,338	98,343	33,852
		(20.4%)	(19.2%)	(8.5%)	(4.3%)	(3.8%)	(10.6%)	(11.5%)	(7.0%)	(2.4%)

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 2012. The flow figures between blocs of origin and target blocs indicate the numbers of 2012 first filings from the bloc of origin that led to subsequent filings in the target bloc. The comparable figures for 2011 are given in parentheses.

Fig. 3.14: INTERBLOC ACTIVITY - FIRST FILINGS 2012 FILED ABROAD



Bilateral flows for 2012 are shown in Fig. 3.14. But the counts for multilateral flows to at least two other IP5 blocs may not yet be completed for that year. Therefore, the following discussion concentrates on 2011 data from Table 3 rather than the 2012 data.

From information in Table 3, out of all first filings in the IP5 Blocs in 2011 (1,178,959), 20 percent formed patent families that included at least one of the remaining IP5 Blocs (238,937). Proceeding to

a higher degree of selectivity, only 2.8 percent of all first filings in the IP5 Blocs in 2011 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 2011 differed considerably according to the bloc of origin of the first filings, as can be seen in Table 3 (U.S. 6.0 percent, EPC states 5.3 percent, Japan 3.2 percent, R. Korea 2.3 percent, P.R. China 0.2 percent and for Others 0.9 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 2011 patent family data as presented in Table 3. Four colored 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 2011. 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 colored 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 20.0 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 Japan circle indicates that only a small percentage and number of the patent families from EPC states were filed in Japan 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: 2011 PATENT FAMILIES - PERCENTAGES OF FIRST FILINGS WITH SUBSEQUENT FILINGS IN OTHER IP5 BLOCS

fiveIPoffices

First filings in	EPC states offices* 124,435	Japan(JPO) 271,683	R.Korea(KIPO) 137,671	P.R.China(SIPO) 413,540	U.S.(USPTO) 231,630
Bilateral families with subsequent filings in					
EPC states	-	11.2%	5.2%	1.4%	28.0%
Japan	13.3%	-	4.2%	0.7%	13.7%
R. Korea	8.0%	6.8%	-	0.4%	9.3%
P.R. China	24.2%	17.9%	7.2%	-	21.0%
U.S.	34.8%	23.4%	14.4%	3.2%	-

Three bloc families with subsequent filings in					
EPC states & Japan	-	-	2.6%	0.5%	12.1%
EPC states & R. Korea	-	3.5%	-	0.3%	7.8%
EPC states & P.R. China	-	8.9%	4.0%	-	17.2%
EPC states & U.S.	-	10.2%	5.0%	1.2%	-
Japan & R. Korea	6.1%	-	-	0.3%	6.8%
Japan & P.R. China	10.8%	-	3.2%	-	10.6%
Japan & U.S.	12.2%	-	3.7%	0.6%	-
R. Korea & U.S.	7.1%	5.2%	-	0.3%	-
P.R. China & R. Korea	7.2%	5.8%	-	-	7.9%
P.R. China & U.S.	20.0%	14.0%	6.0%	-	-
Four bloc families with subsequent filings in					
EPC states & Japan & R. Korea	-	-	-	0.2%	6.3%
EPC states & Japan & P.R. China	-	-	2.4%	-	9.9%
EPC states & Japan & U.S.	-	-	2.5%	0.5%	-
EPC states & R. Korea & P.R. China	-	3.4%	-	-	7.1%
EPC states & R. Korea & U.S.	-	3.4%	-	0.3%	-
EPC states & P.R. China & U.S.	-	8.4%	3.9%	-	-
Japan & R. Korea & P.R. China	5.7%	-	-	-	6.4%
Japan & R. Korea & U.S.	5.7%	-	-	0.3%	-
Japan & P.R. China & U.S.	10.0%	-	3.0%	-	-
P.R. China & R. Korea & U.S.	6.5%	4.5%	-	-	-
IP5 families	5.3%	3.2%	2.3%	0.2%	6.0%

** EPO or EPC states national offices*

From Fig. 3.15 and Table 3, the 2011 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 second most important market for the other IP5 Blocs is P.R. China and for USPTO the most important foreign market is the EPC States.

For the first filings in the EPC member states, the largest percentage of subsequent filings is directed to the U.S. (34.8 percent). In general, first filings in the EPC member states tend to result in a higher percentage of subsequent filings overseas, as compared to the first filings in other IP5 Blocs as seen in Fig. 3.15 and the first data row of Table 3.

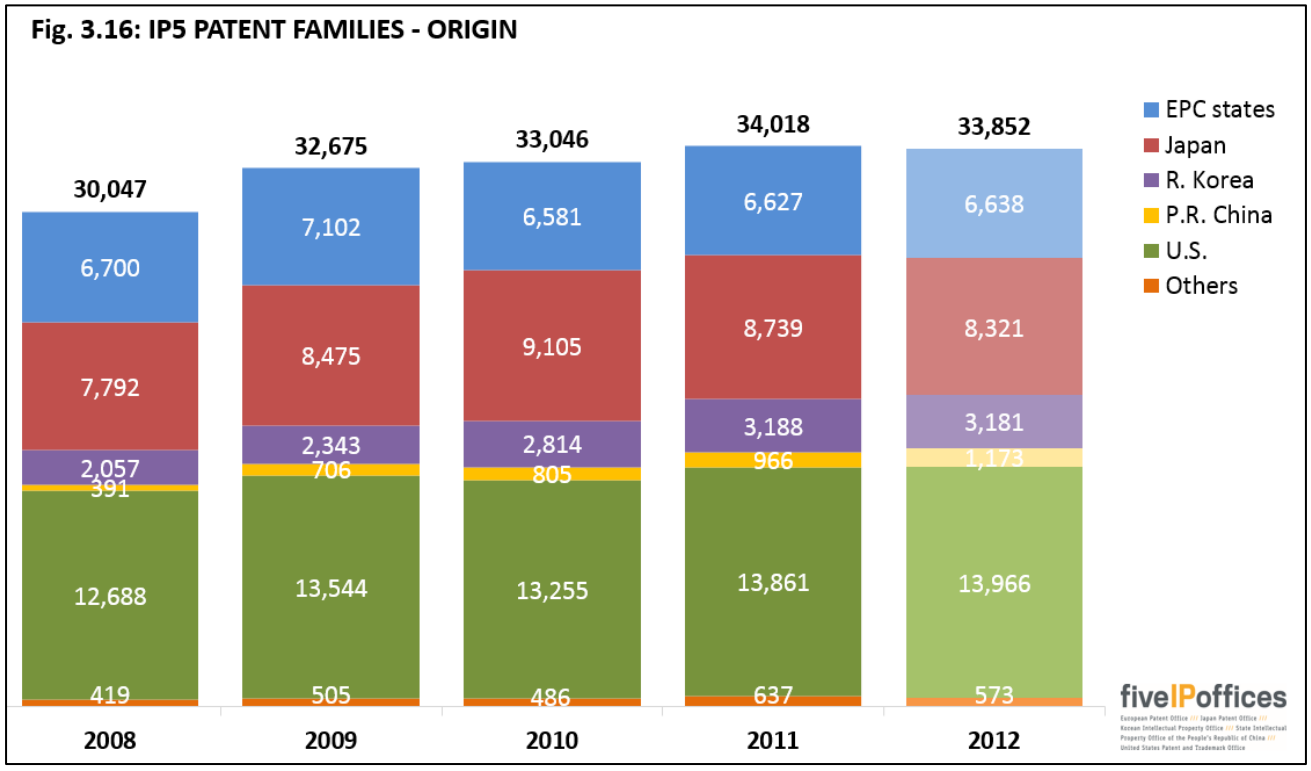
For the first filings in Japan, the largest percentage of subsequent applications is directed to the U.S. (23.4 percent) and P.R. China is the next largest (17.9 percent), while the EPC states is not too far behind at 11.2 percent.

For the first filings in R. Korea, as with the other blocs, the percentage of subsequent applications filed in the U.S. (14.4 percent) is the largest, followed by P.R. China (7.2 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.

For the first filings in P.R. China, the percentage of subsequent applications filed in the U.S. (3.2 percent) is the largest. The percentage that was filed in both the EPC member states and Japan is 0.5 percent. The percentage of subsequent applications that were filed in the EPC member states, Japan, and the U.S. is the same at 0.5 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 2011 and the preliminary 2012 data displayed in Table 3 (14,623 compared to 18,105, respectively).

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 (28.0 percent). The percentage of subsequent applications filed in the P.R. China (21.0 percent) is the next highest, while filings in Japan and R. Korea are at 13.7 percent and 9.3 percent, respectively.

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 2012 are still provisional, the last column is more lightly shaded.



The total number of IP5 patent families in 2012 was 33,852, of which 41 percent were from the U.S., 25 percent were from Japan, 20 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.