IP5 Statistics Report

2015 Edition

IP5 Statistics Report 2015 Edition

European Patent Office,
Japan Patent Office,
State Intellectual Property Office of the People's Republic of China,
Korean Intellectual Property Office,
United States Patent and Trademark Office

Edited by
JPO, December 2016

Executive Summary

The IP5 SR is an annual compilation of patent statistics for the five largest Intellectual Property Offices- the IP5 Offices - namely EPO, JPO, SIPO, KIPO and USPTO.

・At the end of 2014, 10.0 million patents were in force in the world (+6.2 percent). 90 percent of these patents were valid in one of the IP5 Offices jurisdictions.

・In 2014, 2.3 million patent applications were filed worldwide, either as direct national, direct regional or international phase PCT applications, of which 93 percent originated from the IP5 Blocs.

・In 2015, 2.4 million patent applications were filed at the IP5 Offices (+8 percent).

・In 2014, the proportion of applications filed via the PCT was 9 percent for applications originating from the IP5 Blocs.

・Together the IP5 Offices granted 1,017,375 patents in 2015 (6.5 percent more than 2014).

・In 2015, the main developments at the IP5 Offices were:

- IP5: On May 22, 2015, the 8th Meeting of the IP5 Heads of Office was held in Suzhou, China. At the meeting, requests from users were discussed to expand the Patent Prosecution Highway (PPH) program to more offices and improve the operation of the PPH. The meeting decided to discuss PPH initiatives within the IP5 with the aim of improving accessibility for users. In addition, the IP5 Offices reached common recognition on plans on collaborative new IT-related collaborative services.

- EPO: In 2015 the EPO further modernised its structure and increased efficiency and quality, leading to 6% more granted patents. Early certainty from search led to some significant improvements in timeliness. ISO 9001 certification was extended to patent information and post-grant activities. EU member states adopted a complete secondary legal framework for the unitary patent and the rules of procedure were adopted for the Unified Patent Court.

- JPO: The JPO achieved a long-term goal (FA11), at the end of FY2013[1], to shorten the period from filing a request for examination to issuing a first action (FA pendency) to 11 months or less. Now, the JPO is steadily moving toward the next decade goal, which is further shortening “total pendency” and “FA pendency” to 14 months or less on average and 10 months or less on average, respectively. In 2015, while speeding up the examination process, the JPO also focused on improving examination quality. As a result, the number of first actions issued was 235,809, and the number of patent grants was 173,015.

- SIPO: In 2015, the number of applications for invention patents received by SIPO reached 1,101,864 (+18.7%), and 359,316 patents for invention were granted (+54.1%). The average examination period for invention patents was 21.9 months. In December 2015, the State Council of the P. R. China issued Some Opinions of the State Council on Accelerating the Construction of the IP Powerful Nation under the New Situation, which was another

[1] JPO’s fiscal year 2013: April 1, 2013 through March 31, 2014.

programmatic document for guiding the IP work after Outline of the National Intellectual Property Strategy.

- KIPO: In 2015, patent applications submitted to KIPO amounted to 213,694, showing a 1.6 percent increase from 2014, and the number of PCT phase international filings reached to 14,594, a 11.1 percent growth rate. Despite receiving an ever-increasing number of applications, the KIPO reduced first action pendency to 10 months in order to afford its customers timely protection.

- USPTO: In fiscal year (FY) 2015[2] , the USPTO reduced first and final action pendencies to 17.3 months and 26.6 months, respectively. Concurrently, the backlog of unexamined patent applications was reduced to 553,221, despite an historical average filing growth rate of 5 percent.

[2] USPTO's fiscal year 2015: October 1, 2014 through September 30, 2015.

Preface

The IP5 Statistics Report (IP5 SR) is jointly produced by the "IP5 Offices", a group that consists of the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), and the United States Patent and Trademark Office (USPTO) along with the support of the International Bureau (IB) of the World Intellectual Property Organization (WIPO). It follows on from a provisional 2015 key IP5 statistical data report that was made earlier in 2016. The latest reports along with other data exchanges and information about the Group can be found at www.fiveipoffices.org.

Collaboration between the IP5 Offices has proven to be successful in many areas[3]. The Common Patent Classification (CPC) is now used by more than 45 offices. The IP5 Offices have been key players in developing and expanding the Patent Prosecution Highway (PPH). They recently launched a more specific IP5 PPH project to help applicants to obtain patents faster and more efficiently while exploiting the work previously done by another IP5 office. More can be found on the IP5 Offices homepage. On May 22, 2015, the 8th Meeting of the IP5 Heads of Office was held in Suzhou, China. At the meeting, requests from users were discussed to expand the Patent Prosecution Highway (PPH) program to more offices and to improve the operation of the PPH. The meeting decided to discuss PPH initiatives within the IP5 with the aim of improving accessibility for users. In addition, the IP5 Offices reached common recognition on plans on collaborative new IT-related collaborative services.

Collaboration was successful also in the area of patent statistics. In addition to promoting a better understanding of patenting activity both at the IP5 Offices and worldwide, this report explains each office's operations and informs about patent grant procedures. It discusses background activities at each office, reviews worldwide patenting developments and then compares the patent related work at the IP5 Offices. The IP5 SR supplements annual reports for each of the IP5 Offices and also presents specific statistics that are collected and published by the WIPO.

There are diverse factors that influence patent filing trends. In the past, trend breaks have been mainly caused by changes to patent rules and fees as well as by sudden changes in the economic climate. Every year there is a background of changes at one or more of the IP5 Offices. As the global patent system becomes more harmonized, common economic driving forces have been a major influence on patent filings at the offices.

According to the World Economic Outlook[4] of the International Monetary Fund (IMF), global growth remains moderate and is projected to be 3.1 percent in 2016, which represents a slight downward revision and causes some current problems like further downward pressure on interest rates in advanced economies. On the other hand there is improved financial market sentiment towards emerging market economies and China, with some signs of firming of commodity prices. It seems likely that the drivers for patent filings will remain positive. Worldwide patent filings grew 4 percent in 2014. More recent data are available from the IP5 Offices (see Chapter 2 and 4 of this report). In 2015, filings grew 21.0 percent for the SIPO, 2.0 percent for the KIPO, 1.8 percent for the USPTO and 1.6 percent for the EPO. But the filings decreased by 2.7 percent at the JPO, which shows that applicants were more selective in filing applications, meaning that intellectual property strategies of companies, there are further shifting from quantity to quality. The data showed a total annual growth of 8.6 percent for overall filings at the IP5 Offices.

[3] www.fiveipoffices.org/activities.html
[4] World Economic Outlook October 2016, www.imf.org.

Although patent filing is closely tied to economic growth, political and technological factors are also influential. Globalisation of markets and production continues to be a key business trend. There is a worldwide tendency to harmonize patent laws with common international standards and to facilitate filing of applications across borders. These factors have had a positive impact on worldwide patent growth over recent years.

The IP5 Offices hope that this report provides useful information to the readers. The IP5 Offices will continue to improve and refine the report to better serve expectations and objectives of the public. Definitions related to the terminology used in the report are given in annex 1 and 2 that appear at the end.

When reading this report, please bear in mind that the procedures and practices among the IP5 Offices differ in a number of areas. Therefore, care should be taken when analysing, interpreting, and comparing the various statistics.

Materials from this report can be freely reproduced in other publications, but we request that this should be accompanied by a reference to the title and the web site location of this report, www.fiveipoffices.org/statistics.html.

An additional annex appears in the web version that gives a glossary of patent related terms. A data file is also available that contains statistics covering more years.

EPO, JPO, SIPO, KIPO, and USPTO
With cooperation of WIPO
December 2016

Table of contents

Tables

Graphs

Chapter 1

INTRODUCTION

Intellectual Property (IP) refers to a variety of mechanisms that have been established for protecting "*creations of the mind*"[5], including:

- Patents for invention
- Utility models
- Industrial designs
- Trademarks
- Geographic indications

to protect industrial innovations, and

- Copyrights

to cover literary and artistic creations.

This report focuses on industrial property rights and almost exclusively on patents for Invention[6]. It is notable that the activity of patents for invention is recognised throughout the world as a useful indicator of innovative activity.

In order to obtain protection for their innovations, applicants for patents for invention may use the following types of granting procedures, or combinations of them:

- National procedures
- Regional procedures (for example, those created by the European, Eurasian, African and Gulf regional organisations)
- the Patent Cooperation Treaty (PCT) procedure

Each country and region maintains its own patent procedures with the intent of encouraging innovative activities and optimizing the regional benefits of innovation. Enhanced international cooperation led to the establishment of different regional and international patenting procedures, but nevertheless patent law varies from country to country. The scope of an individual patent application can also differ according to location. These factors limit the degree to which the patenting activity in different countries and regions can be directly compared.

The patent systems at all IP5 Offices are based on the first-to-file principle and follow the Paris Convention. This drives to a large extent the usage of the patent systems worldwide. A first patent application is usually filed to the local authority to protect the invention, followed within the one year priority period by subsequent applications to expand protection to other countries.

Separate references are made to "direct" applications filed under national and regional procedures and "PCT" international phase applications in order to distinguish the two subsets of applications handled by the patent offices. While applications filed under national procedures are handled by

[5] See also, World Intellectual Property Organization, "What is Intellectual Property?". www.wipo.int/about-ip/en/.

[6] Patents for invention are called utility patents in the case of the USPTO which are different from utility model patents as explained in Chapter 6.

national authorities, regional applications are subject to a centralized procedure and usually only after grant do they fall under national (post grant) regulations. PCT applications are handled at first by appointed offices during the international phase. About 30 months after the first filing, the PCT applications enter the national/regional phase to be treated as national or regional applications according to the regulations of each designated office.

In this report, patenting activities are presented for the following six geographical blocs:

- The European Patent Convention (EPC) contracting states (EPC states in this report) corresponding to the territory of the 38 states party to the EPC at the end of 2015
- Japan (Japan in this report)
- People's Republic of China (P.R. China in this report)
- Republic of Korea (R. Korea in this report)
- United States of America (U.S. in this report)
- The rest of the world (Others in this report)

The first five of these blocs are called the "IP5 Blocs". These blocs are referred to as blocs of origin on the basis of the residence of the applicant (throughout the report) or as filing blocs on the basis of the place where the patents are sought.

The contents of each chapter in this report are briefly discussed below. With the exception of some items presented in Chapter 6, all statistics relate to patents for invention.

Please refer to Annex 2 for explanations of statistical and procedural terms that are used. In addition, definitions of patent related terms can be found in the glossary located in the web version of this report[7].

Chapter 2 – The IP5 Offices

A summary of the recent developments in each of the IP5 Offices is presented. Definitions for budget item terminology appearing in the chapter are provided in Annex 1.

Chapter 3 - Worldwide Patenting Activity

An assessment of worldwide patent activity is presented in this chapter. This covers not only patenting activity at the IP5 Offices but in the rest of the world as well.

There is some indication of the interdependence and importance of the major geographical markets. The numbers of applications filed are presented in separate sections that use different definitions for counting. This provides a discussion of worldwide bloc-wise patenting activity for filings, first filings, applications, demands for national patent rights, grants and national patent rights granted. Next, a description of inter-bloc activity is presented, firstly in terms of the flows of applications between the IP5 Blocs, and then in terms of patent families, where a patent family is a defined group of patent filings that claims priority to a single filing[8].

[7] www.fiveipoffices.org/statistics.html.
[8] For a further discussion of patent families, see the term definitions in Annex 2.

Statistics are derived primarily from the WIPO Statistics Database[9], which are collected from each country and region.

Chapter 4 – Patent Activity at the IP5 Offices

This part of the report presents the substantive activities of the IP5 Offices and gives statistics on patent application filings and grants at the offices.

In the first part of the chapter, the statistics give insight into the work that is requested and carried out at the IP5 Offices.

Statistics are given for requests for patents with the IP5 Offices, including domestic and foreign filing breakdowns. Then, statistics are provided displaying the breakdown of applications by sectors and fields of technology according to the International Patent Classification (IPC) [10].

Some comparative indication of the services that have actually been demanded may be seen in the statistics on granted patents. The numbers of grant actions by the IP5 Offices, broken down by the blocs of origin of the grants, are provided. The distributions of the numbers of grants per applicant are also described.

To illustrate the similarities as well as the differences in the granting procedures at the IP5 Offices, characteristics and statistics of the five patent granting procedures are given in the last part of the chapter. Work is not always performed at a comparable point in time at the various offices. Consequently, neither the number of applications filed nor the number of requests for examination is a perfect basis for a comparison of the offices.

Chapter 5 – The IP5 Offices and the Patent Cooperation Treaty (PCT)

In this chapter, the influence of the PCT on patenting activities is displayed through worldwide activities broken down by geographical blocs and IP5 Offices, particularly in terms of proportions of patent filings that use the PCT, proportions of PCTs from the international phase that then enter the national/regional phase, the share of PCTs among applications, the share of PCTs among grants and the proportions of PCT usage within patent families. As with Chapter 3, statistics are derived primarily from the WIPO Statistics Database, which are collected from each country and region. Statistics are also included to describe the PCT related activities of the IP5 Offices including activities as Receiving Office (RO), International Searching Authority (ISA), and International Preliminary Examining Authority (IPEA).

Chapter 6 – Other Work

This chapter is dedicated to some other patenting activities that are not common to all of the IP5 Offices, as well as to work related to other types of industrial property rights. This supplements the information that is provided in the rest of the report.

[9] 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/.
[10] www.wipo.int/classifications/ipc/en/.

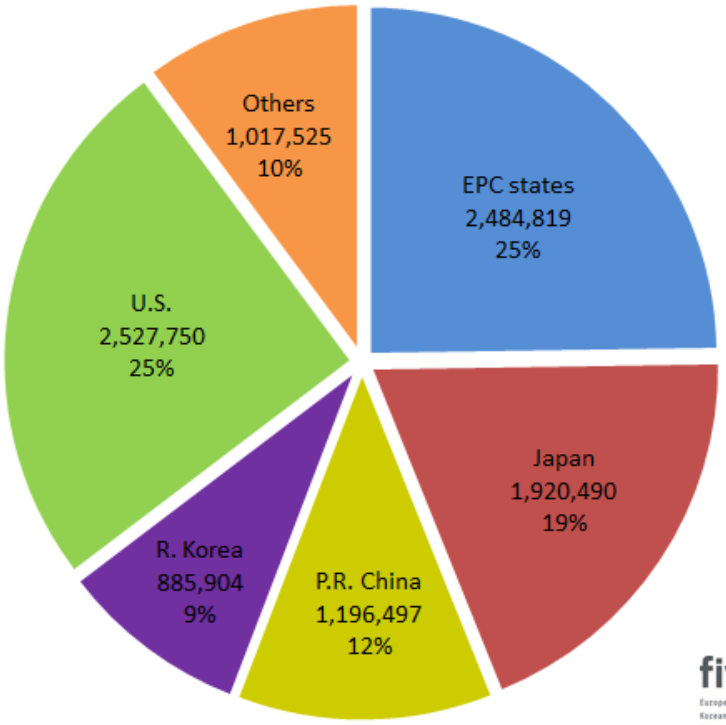
Chapter 2

THE IP5 OFFICES

As the world sees economic barriers between nations fade away, innovators want their intellectual creations to be protected concurrently in multiple major markets. It is believed that more than 250,000 patent applications for the same inventions are filed each year in two or more of the IP5 Offices, leading to increasing backlogs. To address this issue, the IP5 Offices are working together to try to reduce the amount of duplication of work that takes place between offices for these patent applications.

Patents are used to protect inventions, and their counts are recognized as a measure of innovative activity. Fig. 2.1 shows the number of patents in force worldwide at the end of 2014. The data are based on the most recent worldwide patent information available from the WIPO Statistics Database[11].

Fig. 2.1: PATENTS IN FORCE END OF 2014



At the end of 2014, 90 percent of the 10.0 million patents that were in-force were valid in one of the IP5 Offices jurisdictions. This demonstrates the prominent role that is played by the IP5 Offices.

[11] www.wipo.int/ipstats/en/statistics/patents/. Data for patents in force for 2014 are missing for some countries in the WIPO data. Where available, the most recent previous year's data were substituted for missing 2014 data.

The Patent Prosecution Highway (PPH) leverages acceleration procedures available at each office, while enabling participating offices to share available work results. It is a framework in which an application found to be patentable/allowable by the Office of Earlier Examination (an office which has examined a patent application first) will be subject to accelerated examination with simple procedures, upon the request of the applicant, in a participating Office of Later Examination (an office which will then process the corresponding application). The advantages of utilising the PPH include shortening the periods of first action and final disposition, reducing the number of office actions, and raising the rate of patent grants. Along with these, there are cost reduction effects concerning handling intermediate documents. Above all the PPH allows applicants to access acceleration prosecution before a given office under less stringent conditions, on the basis of a patentability assessment made by another office. The number of PPH participating offices has expanded to 36 and the cumulative number of requests for PPH in the world reached over 100 thousand by the end of December 2015[12].

The IP5 and "Global" PPH are the two most significant multilateral PPH frameworks that were both launched in January 2014. With the IP5 Offices working towards the further unification and simplification of the PPH participation conditions, the PPH is expected to become a more useful system in the future.

[12] PPH statistics and other information are available at the PPH Portal Site www.jpo.go.jp/ppph-portal/statistics.htm, that is maintained by JPO.

EUROPEAN PATENT OFFICE

The mission of the EPO is to support innovation, competitiveness, and economic growth across Europe through a commitment to high quality and efficient services. Its main task is to grant European patents according to the EPC. Moreover, under the PCT, the EPO acts as a receiving office as well as a searching and examining authority. A further task is to perform, on behalf of the patent offices of several member states (Belgium, Cyprus, France, Greece, Italy, Latvia, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, San Marino and Turkey) state of the art searches for the purpose of national procedures. The EPO plays a major role in the patent information area, developing tools and databases.

Member states

The EPO is the central patent granting authority for Europe, providing patent protection in up to 42 countries on the basis of a single patent application and a unitary grant procedure.

At the end of 2015, the 38 members of the underlying European Patent Organisation were:

Albania	Austria	Belgium	Bulgaria	Croatia
Cyprus	Czech Republic	Denmark	Estonia	Finland
France	Germany	Greece	Hungary	Iceland
Ireland	Italy	Latvia	Liechtenstein	Lithuania
Luxembourg	Malta	F.Y.R. of Macedonia	Monaco	Netherlands
Norway	Poland	Portugal	Romania	San Marino
Serbia	Slovakia	Slovenia	Spain	Sweden
Switzerland	Turkey	United Kingdom		

Two other states, Bosnia-Herzegovina and Montenegro, had agreements with the EPO to allow applicants to request an extension of European patents to their territory.

Two more states, Moldova and Morocco, had agreements to validate European patents in their territory.

The national patent offices of all the above states also grant patents. After grant, a European patent becomes a bundle of national patents to be validated in the states that were designated at grant. The territory of protection of European patents was 42 countries, covering a population of about 650 million people.

Highlights of 2015

2015 was a very positive year for the EPO. To keep up with the growing demand for our services (applications increased by some 5 percent on 2014), the EPO has implemented a number of internal reforms to modernise its structure, increase efficiency, and enhance high quality standards. These efforts paid off in 2015, resulting in a major increase in our performance (6 percent more patents were granted).

In 2015, the EPO increased its production (search, examination and opposition) by 14 percent. The number of searches completed by the EPO was up by 10 percent to about 245,700, while the number of final actions in examination and oppositions increased to about 132,700 actions including the PCT

international phase work. The number of published granted patents was about 68,000. Some 2,340 decisions were completed by the EPO Boards of Appeal in 2015.

Launched in 2014, the Early Certainty for Search initiative aims at increasing legal certainty for applicants by providing a search report with written opinion within 6 months from filing. It also benefits the general public by enhancing the transparency of pending patent rights in Europe, providing an overview of prior art and patentability early on in the proceedings. The programme led to some significant improvements in terms of timeliness in 2015, as 85 percent of the searches completed were on target, which is underlined by the strong reduction of the number of cases awaiting examination (see Table 4.3). 90 percent of the PCT international phase search reports were ready on time for publication with the application by WIPO.

The validation agreements with Morocco and the Republic of Moldova entered into force on March 1st 2015 and on November 1st respectively. Under the terms of the agreements, European patent applicants and proprietors will be able to validate the legal effects of their European patents and applications on the territory of these countries, even though they are not EPO member states.

In 2015, the EPO obtained ISO 9001 certification for its patent information and post-grant activities, extending the certification to the entire patent process.

Every year the EPO carries out user satisfaction surveys on its search, examination and patent administration services. These surveys obtain input that is considered together with other quality-related data to enable reviews to be made of the quality and efficiency of our internal processes in these areas. The result for 2015 shows a further increase to 79% satisfaction for search and examination. In 2015 the Intellectual Assets Magazine (IAM) survey ranked the EPO as the best of the five largest patent offices for quality. This was the fourth consecutive IAM survey in which EPO was ranked number 1 for the quality of its products and services.

In April 2015, the Federated European Patent register was launched. From a single access point, this new service offers free legal-status information about European patents in the national post-grant phase.

As part of its co-operation in the IP5, the Global Dossier service offers a free online file inspection straight from the EPO website for patent applications filed with all IP5 Offices. The service provides Chinese, Japanese and Korean patent application files in their original language, as well as machine-translated versions in English. Portugal, Norway and Switzerland started using the Cooperative Patent Classification (CPC) in 2015, bringing the number of offices using the CPC up to 20. With the signature of a Memorandum of Understanding, Mexico also committed itself to adopting the CPC..

The EPO is the world's largest PCT authority. It carries out nearly 40 percent of all PCT searches, and nearly 60 percent of PCT substantive examinations (see Chapter 5). Introduced in November 2014, the system called “PCT Direct” was extended to all the other receiving offices of the PCT. This links first filings handled by the EPO with the subsequent PCT applications for which the EPO acts as ISA independently of the place where the PCT international phase application was filed. In conjunction with the PPH, it allows a fast track prosecution in other PPH offices, especially outside Europe.

Since the 26 participating EU member states reached political agreement on the unitary patent in late 2012, steady progress has been made. In 2015 Europe moved closer to this much-awaited reform. At the end of 2015, the member states adopted a complete secondary legal framework including

the budgetary and financial rules on the fees distribution between member states. Finally, the Unified Patent Court rules of procedure were adopted. By mid-September 2016, 11 countries had ratified the Agreement on the Unified Patent Court: Austria, Belgium, Bulgaria, Denmark, Finland, France, Luxembourg, Malta, Portugal, Sweden and the Netherlands. To enter into force the Agreement needs to be ratified by at least 13 states, including the three largest participating countries in terms of patents in force.

Grant Procedure

Activities associated with searches, examinations, oppositions, appeals and classifications are all performed by EPO staff. The EPO does not outsource any of its core activities. The decision to grant or refuse a patent is taken by a division of three examiners. In Table 2.1, production figures for filings, applications, searches, examinations, oppositions and appeals in the European procedure are given for the years 2014 and 2015. There was a further increase in demand in 2015 as represented by the overall number of patent applications filed.

The EPO fast track procedure, Programme for Accelerated Prosecution of European Patent Applications (PACE), can be requested without any additional fee and is open for any field of technology. In 2015, the number of PACE requests increased by 13 percent to 23,390 (7,890 searches, 15,500 examinations). PACE was requested for about 7 percent of the European searches and almost 10 percent of the European examinations.

Table 2.1: EPO PRODUCTION INFORMATION

EPO PRODUCTION FIGURES	2014	2015	Change	% Change
Patent filings (Euro-direct & PCT international phase)	274,367	278,867	4,500	1.6%
Patent applications (Euro-direct & Euro-PCT regional phase	151,981	160,022	8,041	5.3%
Searches carried out				
European (including PCT supplementary)	111,852	136,460	24,608	22.0%
PCT international	84,696	84,910	214	0.3%
On behalf of national Offices and other	26,755	24,367	-2,388	-8.9%
Total production search	**223,303**	**245,737**	**22,434**	**10.0%**
Examination - Opposition (final actions)				
European examination	115,595	121,242	5,647	4.9%
PCT Chapter II	7,987	9,258	1,271	15.9%
Oppositions	2,143	2,190	47	2.2%
Total final actions examination-opposition	**125,725**	**132,690**	**6,965**	**5.5%**
European patents granted	64,613	68,421	3,808	5.9%
Appeals settled				
Technical appeals	2,300	2,287	-13	-0.6%
Other appeals	60	48	-12	-20.0%
Total decisions	**2,360**	**2,335**	**-25**	**-1.1%**

Patent Information

A key activity of the EPO is collating patent data and making it available to the public through its products and services such as Espacenet and as raw data for commercial providers.

The EPO's patent databases remain the most comprehensive collection of patent literature. As a result of co-operation with patent offices worldwide, full-text patent collections in languages such as Chinese, Japanese, Korean, and Russian are being added, bringing the total number of documents in this database to more than 94 million by the end of 2015. These databases are available through services such as Espacenet and Open Patent Service from the EPO and also via numerous commercial providers. For users interested in performing statistical analyses of patent data, the EPO's PATSTAT databases and the new PATSTAT online services launched in 2015 are the most relevant.

Users can translate the full text and abstracts of patents in Espacenet between English and 31 other languages (covering all EPO member states languages, as well as Chinese, Japanese, Korean, and Russian). Translation from and into French or German is also available for EPO member states languages. 15,000 – 20,000 translations are made on a daily basis, which, based on the information available, makes it the most heavily used automated patent translation tool in the world. Espacenet and Patent Translate are free of charge.

International and European Cooperation

The EPO continues to be engaged in different types of co-operation programmes both inside and outside Europe: including the European Patent Network (EPN), Trilateral (EPO, JPO, USPTO), IP5, and bilateral agreements.

The EPO initiated the joint, comprehensive IP5 PPH pilot programme that started in January 2014, with the objective to promote inter alia the use of PCT work products for PPH purposes. This project enables users with a positive patentability opinion from one office to request accelerated treatment at all or some of the other Offices, while at the same time allowing Offices to share work results on corresponding applications. The EPO also started new PPH pilots with Israel, Canada, Mexico and Singapore in 2015. Similarly, in the course of 2015, the EPO laid the groundwork for the expansion of its PPH network, e.g. with Australia.

The EPO hosts the Common Citation Document (CCD) which in 2015 contained over 200 million citations. Currently, it contains enriched citation data from EPO search reports, Chinese and Swiss (2010 onwards) as well as Croatian (2012 onwards) search reports. More countries are expected to become available in the context of the Quality at Source project, such as Estonia, Spain, Lithuania and Portugal.

The EPO provides support to patent offices in Europe through cooperative activities within the EPN. Under the current EPN Co-operation Roadmap 2012-2015, this focuses on three main areas: information technology, training and patent awareness via patent information.

Economic Studies

During 2015, the Economic and Scientific Advisory Board (ESAB) issued statements on patent aggregation and its impact on competition and innovation policy and on economic effects of a possible grace period for inventors, should it ever be introduced in Europe. There was also further cooperation with the United Nations Environmental Programme regarding Green Patents.

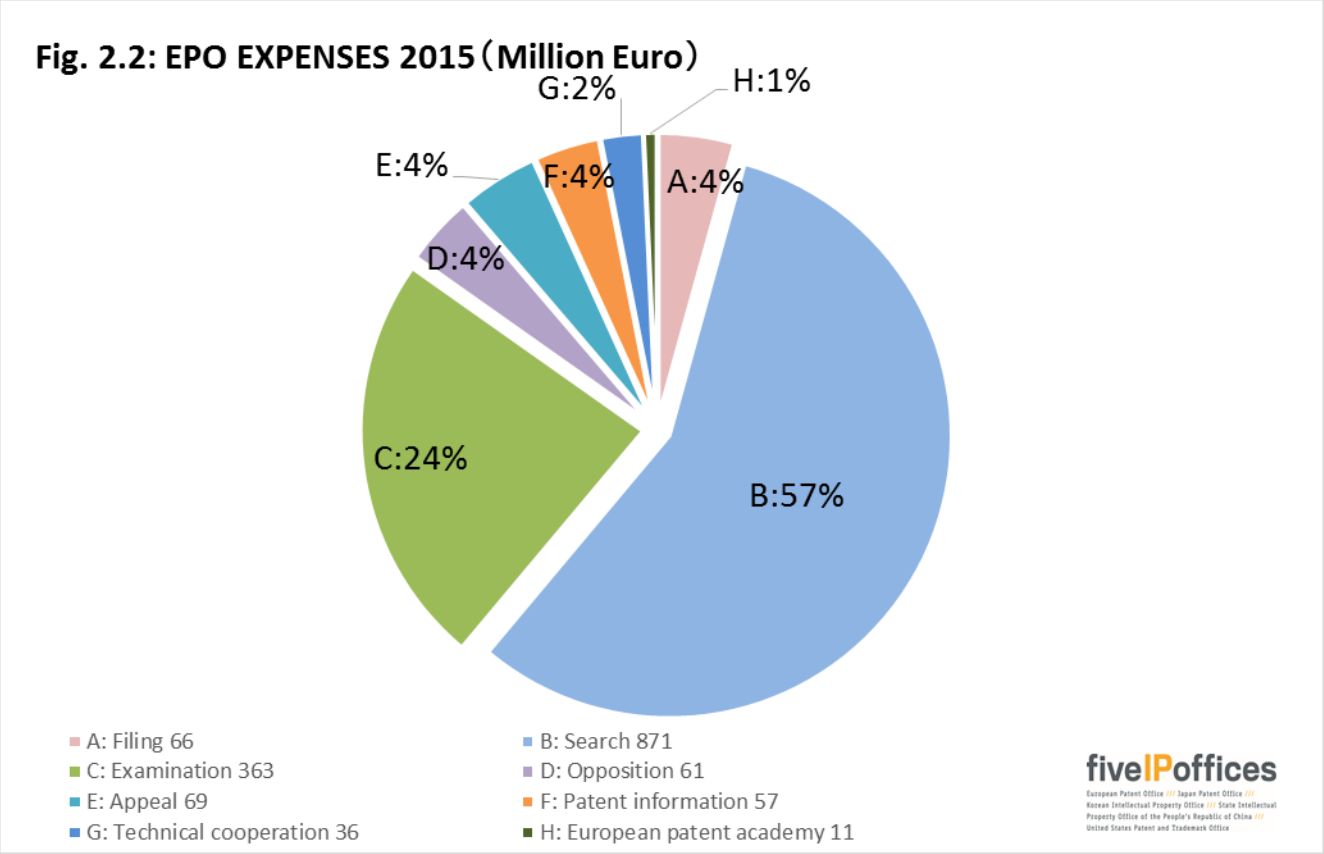
EPO Budget

The EPO is financially autonomous and does not receive any subsidies from the Contracting States of the Organisation. Expenses are therefore mainly covered by revenue from fees paid by applicants and patentees. In 2015, the EPO budget amounted to 2.1 billion EURO.

Fees related to the patent grant process, such as the filing, search, examination, and appeal fees as well as renewal fees for European patent applications (i.e. before grant) are paid to the EPO directly. 50 percent of the renewal fees for European patents (i.e. after grant) are kept by the Contracting States of the Organisation where the European patent is validated after the central grant process.

On the expenses side, in addition to the salaries and allowances supported by a patent office, the EPO, as the office of an international organisation, also finances other social staff expenses such as pensions, fees for sickness and long-term care as well as education costs for the children of the employees. The EPO community consists of about 22,600 persons (most are active staff, pensioners, and their respective family members).

Fig. 2.2 shows EPO expenses[13] under the International Finance Reporting Standards (IFRS) by category in 2015.



A description of the items in Fig. 2.2 can be found in Annex 1.

EPO Staff

At the end of 2015, the EPO staff totalled about 6,800 employees from 34 different European countries[14]. 127 examiners were recruited during the year. The total number of search, examination, and opposition examiners reached a record figure of 4,227. Boards of appeal are composed of 167 members. Staff complement in other areas was reduced.

Following their recruitment, examiners are included in a training programme for three years. The staff work in the three official languages of the EPO (English, German, and French).

More information

Further information can be found on the EPO's Homepage:
www.epo.org

[13] The EPO uses the word "expenses" *in* accordance with the IFRS reporting approach.
[14] For more details, see the 2015 EPO social report at www.epo.org/about-us/annual-reports-statistics.html.

JAPAN PATENT OFFICE

Toward the World's Fastest and Utmost Quality in Patent Examination

Since FY2014, the following year after FA11 was achieved, the JPO has been moving toward realization of the "World's Fastest and Utmost Quality in Patent Examination," taking into account changing circumstances surrounding the patent system and newly raised issues.
To this end, the JPO has been implementing various measures with the three pillars, which are "maintaining speed," "granting high-quality rights" and "cooperation and collaboration with foreign IP offices."

1) Initiatives for Timely Examination

a) Securing the Necessary Number of Examiners

In FY2015, continuing from FY2014, the JPO made efforts to maintain and enhance its capabilities of examination, for example, by rehiring some of the examiners whose fixed-term employment contracts expired. For the FY2016 budget, the seats of 16 permanent examiners and 100 fixed-term examiners were requested. The JPO will continue to make efforts including securing the necessary number of patent examiners in order to ensure further improving and strengthening the patent examination system.

b) Outsourcing Preliminary Prior Art Search

The JPO has been promoting the speeding up of examination through utilizing private sector vitality by outsourcing prior art searches, which examiners are primarily responsible for, to registered search organizations. There are eleven registered search organizations as of December 2015. In FY2015, about 156,000 applications[15] were outsourced, out of which, for about 102,800 applications, nearly two thirds of the total, the coverage of search was expanded even to foreign patent documents.

2) Measures toward Enhancement in Examination Quality

a) Measures for Quality Management

In April 2014, the JPO announced the "Quality Policy on Patent Examination" as fundamental principles of quality management. In August 2014, the JPO released the "Quality Management Manual for Patent Examination" (Quality Manual) that documents and outlines the quality management system including quality management and its implementation system.

b) Subcommittee on Examination Quality Management

In August 2014, the JPO established the Subcommittee on Examination Quality Management that consists of external experts under the Intellectual Property Committee of the Industrial Structure Council, the Ministry of Economy, Trade and Industry, for the purpose of receiving objective validation and evaluation regarding the implementation system of examination quality management at the JPO and its implementation status, and then reflecting the results on the examination quality

[15] The number of documentary-based reports was 339, while the number of communication-based reports, where searchers have face-to-face meeting with examiners aiming for efficient understanding of the claimed invention in the application and prior arts, was about 155,700.

management system. In FY2015, the JPO received the results of official evaluations by the Subcommittee on the implementation system and implementation status of its quality management based on the evaluation items and criteria that were established in FY2014, as well as suggestions for improvement.

c) Infrastructure for Prior Art Search

Prior art search is one of the important pillars for maintaining and improving examination quality, and therefore, it is crucial to constantly keep infrastructure in good condition. In order to allow users to efficiently search national and foreign patent documents, the JPO revises and reclassifies search indexes on a regular basis in order to make the JPO's File Index (FI) updated and complied with the latest International Patent Classification (IPC). In FY2015, FI classification with 250 main groups and F-terms with 19 themes were revised. The JPO has also been working on improving infrastructure for searching standards-related documents, and as a result of such efforts, the JPO has stored standards-related documents owned by ISO (International Organization for Standardization) within the JPO's internal database in FY2015.

3) Association and Cooperation with Overseas Offices

a) Patent Prosecution Highway

The PPH is a framework in which an application judged to be patentable by the Office of First Filing (an office with which the first patent application was filed) will be subject to accelerated examination with simple procedures, upon the request of the applicant, in the Office of Second Filing that is in cooperation with the Office of First Filing for this program. The PPH was advocated by the JPO in 2006, and was launched between Japan and the US for the first time in the world. Since then, the number of PPH participating offices has expanded, and in 2015, the JPO started the PPH with Czech Republic, Egypt, Romania and Estonia.

b) International Examiner Exchange Program

For the purpose of promoting work-sharing of patent examinations among the IP offices based on appropriate mutual understanding of prior art search and examination practice, disseminating the JPO's examination practice and examination results to foreign IP offices, harmonizing patent examinations at a higher level of quality and patent classifications, promoting the JPO's initiatives, etc., the JPO has been implementing the International Examiner Exchange Program where examiners communicate directly and to build up a good work relationship with each other. The JPO has implemented a short term or a mid-to-long term Examiner Exchange Program with 25 IP offices and organizations in total during the period from April 2000 to the end of December 2015. In 2015, the JPO dispatched 53 examiners mainly to emerging countries including the ASEAN countries, India and Brazil in addition to the five major IP offices, as well as received 22 examiners from other IP offices.

c) US-JP Collaborative Search Pilot Program

As a new form of patent examination cooperation, the JPO and the USPTO commenced US-JP Collaborative Search Pilot Program (hereinafter, referred to as "US-JP Collaborative Search"), starting from August 1, 2015. US-JP Collaborative Search Pilot Program is an initiative concerning inventions applied for patents in both Japan and the U.S. for which examiners in both the JPO and the USPTO conduct their own searches and share search results along with their opinions before

sending a first office action to the applicant. Based on the search results and opinions provided from both Offices, the examiners in each Office independently but contemporaneously notify the first examination results at an earlier stage. The following effect would be expected through this initiative: “Users could predict the timing, more accurately, when they can acquire patent rights on their inventions for which they file patent applications in both Japan and the US since both the JPO and the USPTO examiners issue a first action contemporaneously at an earlier stage.” Also, “it would be possible to grant stronger and more stable patent rights to applicants since both the JPO and the USPTO examiners conduct prior art search for the a group of identical applications in a collaborative manner.

JPO Production Information

In Table 2.2, production figures for applications, examination, grants, appeals or trials, and PCT activities in the Japanese procedure are given for the years 2014 and 2015.

Aiming to achieve "the World's Fastest and Utmost Quality in Patent Examination", the JPO has been further accelerating patent examination and continuing to focus on raising the quality of patent examination. As a result, the JPO completed 235,809 First Actions and 241,687 Final Actions in FY 2015. In addition, during FY 2015, the JPO granted 189,358 patents.

Table 2.2: JPO PRODUCTION INFORMATION

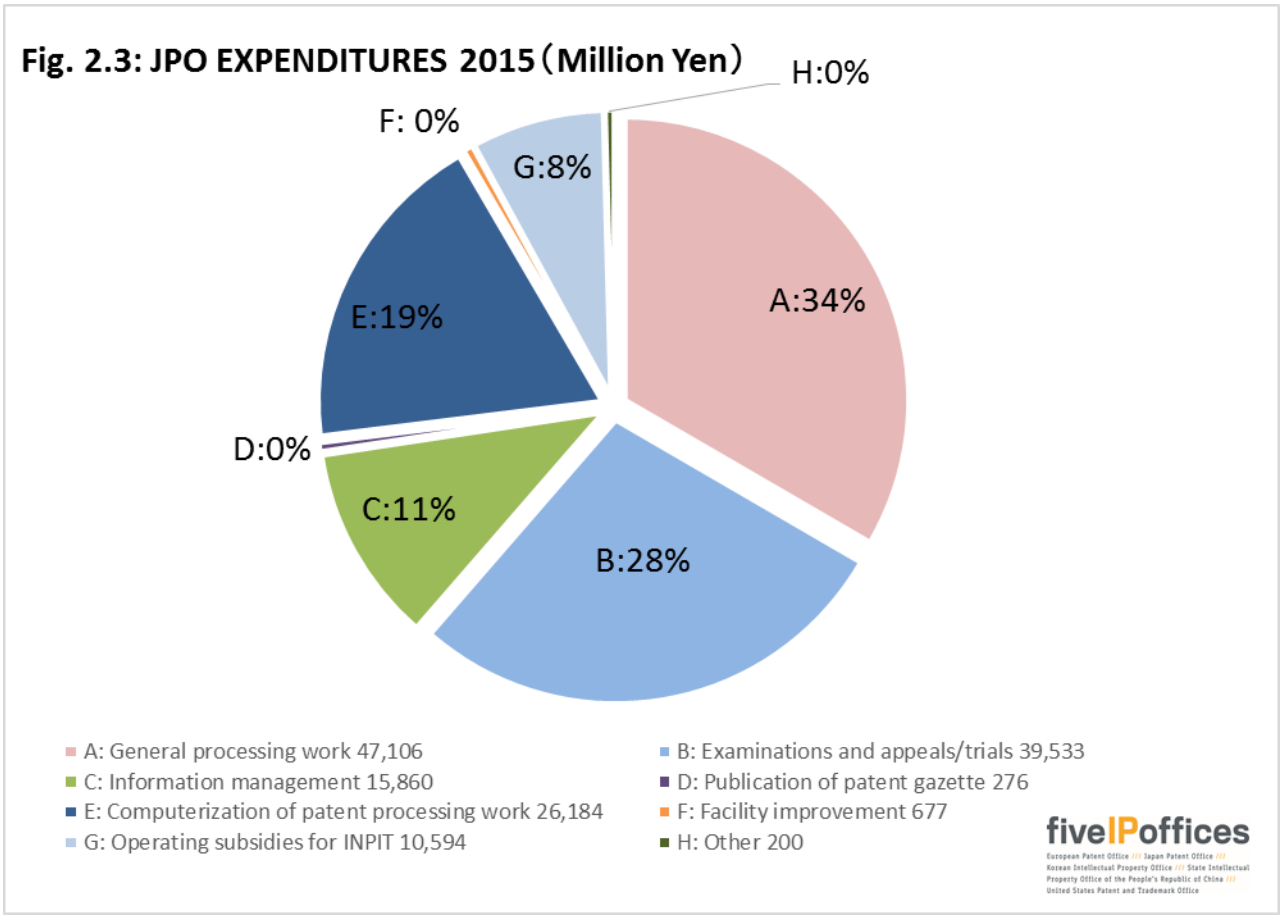
JPO PRODUCTION FIGURES	2014	2015	Change	%
Applications filed (by Origin of Application)				
Domestic	265,959	258,839	-7,120	-2.7%
Foreign	60,030	59,882	-148	-0.2%
Total	**325,989**	**318,721**	**-7,268**	**-2.2%**
Applications filed (by Types of Application)				
Divisional Applications[16]	27,878	28,242	364	1.3%
Converted Applications[17]	103	91	-12	-11.7%
Regular Applications	298,008	290,388	-7,996	-2.7%
Total	**325,989**	**318,721**	**-7,268**	**-2.2%**
Examination				
Requests	245,535	241,412	-4,123	-1.7%
First Actions	255,001	235,809	-19,192	-7.5%
Final Actions	296,740	241,904	-54,836	18.5%
Grants				
Domestic	177,750	146,749	-31,001	-17.4%
Foreign	49,392	42,609	-6,783	-13.7%
Total	**227,142**	**189,358**	**-37,784**	**-16.6%**
Appeals/Trials				
Demand for Appeal against refusal	25,710	21,858	-3,852	-15.0%
Demand for Trial for invalidation	215	227	12	5.6%
PCT activities				
International searches	40,079	43,571	3,492	8.7%
International preliminary examinations	2,190	2,515	325	14.8%

[16] Divisional application(s) is/are one or more new patent application(s) which is/are filed by dividing a part of the patent application that includes two or more inventions under certain conditions.

[17] Converted applications include patent applications which are converted from an application for utility model registration or design registration (under Article 46 of Patent Act), and patent applications filed based on a registration of utility model (under Article 46bis).

JPO Budget

Fig. 2.3 shows JPO expenditures by category in 2014.



A description of the items in Fig. 2.3 can be found in Annex 1.

JPO Staff Composition

As of the end of FY 2015, the total number of staff at the JPO was 2,821. This includes 494 fixed-term patent examiners.

Examiners:	Patent / Utility model:	1,702
	Design:	48
	Trademark:	138
Appeal examiners:		387
General staff:		546
Total:		2,821

More information

Further information can be found on the JPO's Homepage:
www.jpo.go.jp

STATE INTELLECTUAL PROPERTY OFFICE OF THE P.R. CHINA

Main Responsibilities

Organizing and coordinating IPR protection work nationwide and improving the construction of IPR protection system; Standardizing the basic orders of patent administration; Drawing up the policies of foreign-related IP work; Working out the development programs for the patent work nationwide, drafting patent working plans, examining and approving special working plans, taking up the responsibility of the construction of the national public service system of patent information, promoting the spread and utilization of patent information with related departments and undertaking the work of patent statistics; Laying down the criteria of affirming the exclusive rights of patents and integrated circuit layout designs and appointing organizations to manage the work of right affirmation; Publicizing and popularizing patent laws, regulations and policies and drafting plans of IP-related education and training according to regulations.

Statistical Overview of 2015

1) Patent Examination Status

In accordance with the Patent Law of the People's Republic of China, the SIPO is the authority to receive and examine applications for invention, utility model, and design patents, and to grant patent rights in compliance with the Patent Law. The mechanism of earlier publication and request for substantive examination applies when processing invention patent applications, while the duration of patent rights for invention is 20 years, counted from the date of filing. The preliminary examination mechanism applies when processing utility model and design applications, while the duration of patent rights for them is 10 years, counted from the date of filing.

2) Patent Applications Received in 2015

In 2015, SIPO received 2,798,500 applications for the three kinds of patents, increasing 19 percent compared to 2014. Among these applications were 1,101,864 for invention patents, 1,127,577 for utility model patents, and 569,059 for design patents.

4) Patents Granted in 2015

In 2015, SIPO granted 1,718,192 patents, among which 359,316 were for invention patents, showing an increasing of 54.1 percent compared to the previous year, and 876,217 for utility model patents and 482,659 for design patents.

In Table 2.3, production figures for applications, examination, grants, re-examination and invalidation, PCT activities are given for the years 2014 and 2015. The data in table 2.3 concentrate only on invention patents.

Table 2.3: SIPO PRODUCTION INFORMATION

SIPO PRODUCTION FIGURES	2014	2015	Change	% Change
Applications filed				
Domestic	801,135	968,251	167,116	20.9%
Foreign	127,042	133,613	6,571	5.2%
Total	**928,177**	**1,101,864**	**173,687**	**18.7%**
Examination				
First actions	534,733	661,265	126,532	23.7%
Final actions	430,661	557,625	126,964	29.5%
Grants				
Domestic	162,680	263,436	100,756	61.9%
Foreign	70,548	95,880	25,332	35.9%
Total	**233,228**	**359,316**	**126,088**	**54.1%**
Re-examination and invalidation				
Re-examination requests	24,452	12,678	-11,774	-48.2%
Invalidation requests	3,422	3,724	302	8.8%
PCT activities				
International searches	25,614	27,925	2,311	9.0%
International preliminary examinations	344	436	92	26.7%

4) Examination Period

In 2015, the average examination periods for invention patents applications was 21.9 months. SIPO adopted time-sliced segment management in the whole examination procedure for examination period management by objectives to ensure well-distributed and reasonable examination period. In 2015, the average examination periods for utility model and design applications were within 2.9 months and 3.0 months as counted from the date of filing, further shorted compared with the year 2014.

Informatization and Documentation

In 2015, on the stable operation of the Chinese Electronic Patent Examination System (E-System) and the Patent Search and Service System (S-System), SIPO continued to improve the system and optimize the function by launching 26 supporting projects, which enhanced the system capability and satisfied the operation of Patent Office, Patent Re-examination Board, 7 Patent Examination Cooperation Centers, 6 IP Rapid Activist and Assistance Centers, 32 Patent Application Receiving Offices and the increasing demands and service of public users. CEPCT system was improved by optimizing the function and enhancing the continuous service ability, and the rate of PCT electronic application rose from 30 percent at the beginning of the year to 60 percent by the end of year. The Design Intelligent Search System of China (D-System)(Third Stage) was put into practice.

By the end of 2015, SIPO had more than 450 kinds of patent documentation, newly increasing 9 countries (including Brazil) English full text patent literature data for public service; SIPO had 156 non-patent literature databases, most of which were internet online databases, covering more than

20,000 electronic periodicals, over 1,200,000 electronic books, 2,690,000 academic dissertations, 2,530,000 conference papers, more than 200,000 standard documents.

International Cooperation

In 2015, SIPO participated actively in IP international affairs, conscientiously implemented the coordination function of foreign-related intellectual property rights, and completed a number of works successfully.

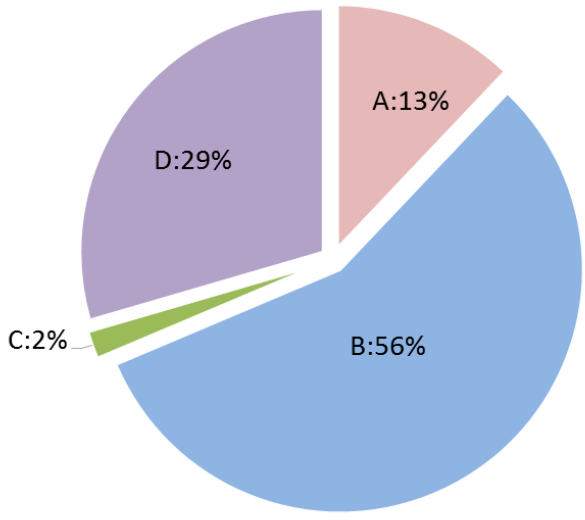
Memorandum of understanding between the State Intellectual Property Office of the People's Republic of China and the World Intellectual Property Organization on voluntary donation was signed with the WIPO, marking the establishment of WIPO China Trust Fund.
The 8th IP5 heads meeting was successfully held in Suzhou. SIPO attended the first Industrial Design 5 Form and its related activities, and signed an Agreed Statement an Administering a New Industrial Design Framework.

SIPO further enhanced cooperation with all nations and institutions in the patent affairs of training, examination, classification, documents, automation, etc. Until now, SIPO has signed 20 PPH pilot agreements, among which 19 pilot projects had started and the pilot project with Hungary would start on March 1, 2016.

SIPO Budget

Fig. 2.4 shows SIPO expenditures by category in 2015.

Fig. 2.4: SIPO EXPENDITURES 2015（Million Yuan）



A description of the items in Fig. 2.4 can be found in Annex 1.

SIPO Staff Composition

The SIPO has seven functional departments, a party committee of institution, a supervision department, a retired personnel department. Subordinated to SIPO are the Patent Office, the Patent Re-examination Board and other Subordinate public institutions, 2 enterprises and 4 social organizations. In total, the SIPO has 14,003 full-time employees.

The Patent Office, an organization under the SIPO with 16 departments, 7 Subordinate public institutions and one affiliated enterprise, is mainly responsible for receiving and examining patent applications, granting patents and handling other administrative matters entrusted by the SIPO. It has a staff of 2,937 currently, among which 1,812 employees are examiners for invention patents, 248 employees are for utility models and designs, 272 employees are for preliminary examination and work-flow management. Moreover, 344 employees work in support departments (i.e. patent documentation, automation, examination affairs administration) and 261 employees are responsible for general administration. Seven Patent Examination Cooperation Centers, as the institutions under the Patent Office, who share the responsibility of patent examination, among which the Beijing Center was founded in 2001 and has 2,724 employees at present, the Jiangsu Center was founded in 2011 and has 1,505 employees, the Guangdong Center was founded in 2011 and has 1,471 employees, and the Henan Center was founded in 2012 and has 894 employee. The Hubei, Tianjin, and Sichuan Center were all founded in 2013 and have 835, 582, and 543 staff members respectively. China Patent Technology Exploitation Enterprises, which is the only wholly owned enterprise under the Patent Office, has 452 employees.

The Patent Re-examination Board is a public institution separated from the Patent Office in 2003 to report directly to SIPO. With a staff of 292, the Board is responsible for processing patent re-examination and invalidation requests.

SIPO has 6 other directly subordinated public institutions, 4 social organizations and one enterprise, with a total staff of 1,677.

At the end of 2015, the SIPO had a total staff of 14,003. The breakdown was as follows.

SIPO Functional Department		91
Patent Office: Examiners:		
	Invention	1,812
	Utility Model & Design	248
	Preliminary Examination and Flow Management	272
	Supporting Departments	344
	General Administration	261
	Total	2,937
Patent Re-examination Board		292
Other Subordinate Units under the Office		10,683
Total		14,003

More information

Further information can be found on the SIPO's Homepage:
www.sipo.gov.cn/

KOREAN INTELLECTUAL PROPERTY OFFICE

Overview

As the Korean governmental agency primarily responsible for overseeing intellectual property rights (IPRs), the Korean Intellectual Property Office (KIPO) strives to conduct its intellectual property (IP) administration in accordance with the national paradigm of creative economy, which seeks to foster innovation and new engines of economic growth to drive Korea's future prosperity.

Domestically, KIPO has put as great an emphasis as possible on further developing its examination services, as well as promoting economic sustainability through a virtuous cycle of IP creation and utilization. On the international front, the KIPO strengthened its cooperation with foreign IP offices and other international organizations it regularly interacts with.

Examination Service

1) Reducing First Action pendency

As technological development continues to increase, the KIPO is reducing its first office action pendency for IPRs in order to afford its customers timely protection.

In 2015, first office action pendency was 10.0 months for patents and utility models, 4.7 months for trademarks, and 4.4 months for designs. Compared to 2014, this was a reduction of 1.0 month for patents and utility models, 0.7 month for trademarks, and 1.1 month for designs.

With IPR application submissions continuously on the rise, KIPO's goal for 2016 is to maintain its current average first office action pendency through improved outsourcing of prior art searches and the recruitment of additional examiners.

2) Enhancing examination quality

The KIPO shifted its examination paradigm from the existing system—in which examiners simply give their reasons for refusal—to a more customer-oriented examination system that helps applicants acquire high-quality patents by boosting interactive communication with examiners regarding the proper scope of the inventions. Services include:

A) Preliminary examination
Preliminary examination was first introduced in 2014, enabling applicants and patent examiners to communicate with each other prior to first office actions in order to discuss the overall direction of the examination and resolve any possible reasons for rejection. In 2015, preliminary examination became available in all cases of accelerated examination.

B) Review of pre-amendments
The process of reviewing pre-amendments was introduced in 2015 as a way of informing applicants of whether reasons for rejection can be resolved prior to the final amendment.

C) Collective examination
Collective examination is a customized service in which, at the applicant's request, separate applications involving patent, design, and/or trademark rights for a single product are examined

simultaneously. In 2015, the service was further expanded to include new technologies resulting from national R&D projects.

In Table 2.4, production figures for applications, examination, grants and PCT activities of patents are given for the years 2014 and 2015.

Table 2.4: KIPO PRODUCTION INFORMATION

KIPO PRODUCTION FIGURES	2014	2015	Change	% Change
Applications filed				
Domestic	164,073	167,273	3,200	2.0%
Foreign	46,219	46,421	202	0.4%
Total	**210,292**	**213,694**	**3,402**	**1.6%**
Applications filed (by Types of Application)				
Divisional Applications[18]	7,725	7,586	-139	-1.8%
Converted Applications[19]	84	62	-22	-26.2%
Others	202,483	206,046	3,563	1.8%
Total	**210,292**	**213,694**	**3,402**	**1.6%**
Examination				
Requests	169,894	176,346	6,452	3.8%
First actions	166,915	164,773	-2,142	-1.3%
Final actions	177,289	149,620	-27,669	-15.6%
Grants				
Domestic	97,294	76,318	-20,976	-21.6%
Foreign	32,492	25,555	-6,937	-21.3%
Total	**129,786**	**101,873**	**-27,913**	**-21.5%**
Applications in appeal	**7,335**	**9,112**	**1,777**	**2.4%**
PCT activities				
International searches	30,128	27,958	-2,170	-7.2%
International preliminary examinations	250	232	-18	-7.2%

[18] A divisional application is filed to divide a patent application (known as the parent application) into two or more applications.

[19] A patent applicant may convert an application for utility model registration to a patent application within the scope of matters stated in the description or drawing initially attached to the patent application.

Promoting the Creation and Utilization of IP

1) Regional IP Centers

KIPO currently operates 30 Regional IP Centers (RIPC) across Korea to further promote the spirit of invention, enhance overall IPR awareness, encourage IPR creation throughout the region, and improve the region's business competitiveness via IPRs. The centers serve as important strategic hubs that coordinate IP creation and utilization activities throughout the country.

The centers responded to 11,407 requests for patent consultations, 3,953 requests for brand consultations, 2,637 requests for design consultations, and held 28 invention promotion events. Korea's IP Creative Zones supported patent applications for 204 ideas and trained 938 inventors on everything from idea development to patenting and commercialization.

Furthermore, the KIPO extended its IP talent-sharing project nationwide in order to match 207 talent donors with 131 aid recipients for a total of 185 instances of talent sharing.

An examination of this talent sharing showed that design development support accounted for 56 cases, followed by 47 IP application consultations, 27 cases of brand development support, 19 IP management consultations, 6 IP trainings, etc.

2) Fostering the Star IP Company Project

The KIPO is working to nurture the potential of Korea's Star IP companies as a method for improving IP creation and utilization among Small and Medium-Sized Enterprises (SMEs). The Star IP Company Project involves identifying regional SMEs with impressive growth potential and, over a three-year period, assisting them with transforming their ideas into patents through the use of customized patent maps, as well as brand and design development. Through this Project, the KIPO provides professional consultations on IP management strategies in order to foster regional business standouts. Since 2010, the Office has nurtured a total of 1,066 promising SMEs into Star IP companies: 108 in 2010, 203 in 2011, 157 in 2012, 151 in 2013, 227 in 2014 and 220 in 2015. In 2015, the Office provided intensive customized support to Star IP companies.

Global IP Cooperation

1) Bilateral cooperation

In 2015, the KIPO actively worked to promote bilateral cooperation with foreign IPR authorities by holding more than 20 meetings with the heads of other IP Offices.

As a result of a bilateral meeting between the commissioners of KIPO and the USPTO, Korea and the US agreed to further expand and strengthen cooperative relations through pilot projects pertaining to the Collaborative Search Program (CSP), exchanges of IP experts, and annual meetings for information technology experts. KIPO and SIPO agreed to host a joint seminar on strengthening the IPR capabilities of universities and to exchange administrative judges in order to share information on IP disputes. China, Japan, and Korea jointly agreed to exchange IP examination quality management information, and KIPO has regularly worked with the EPO/OHIM to host bilateral meetings for strengthening cooperative relations. In celebration of the 130th anniversary of diplomatic ties between their two countries, the patent offices of Korea and France agreed to jointly host IPR-related events scheduled for 2016.

With Sweden, the KIPO worked to develop the "Asia Patent Information Search Service" which, starting in 2016, will provide search services for Asian patent information that was previously very difficult for Europeans to access. 2015 was also the year the Office began providing PCT international search services to Saudi Arabia.

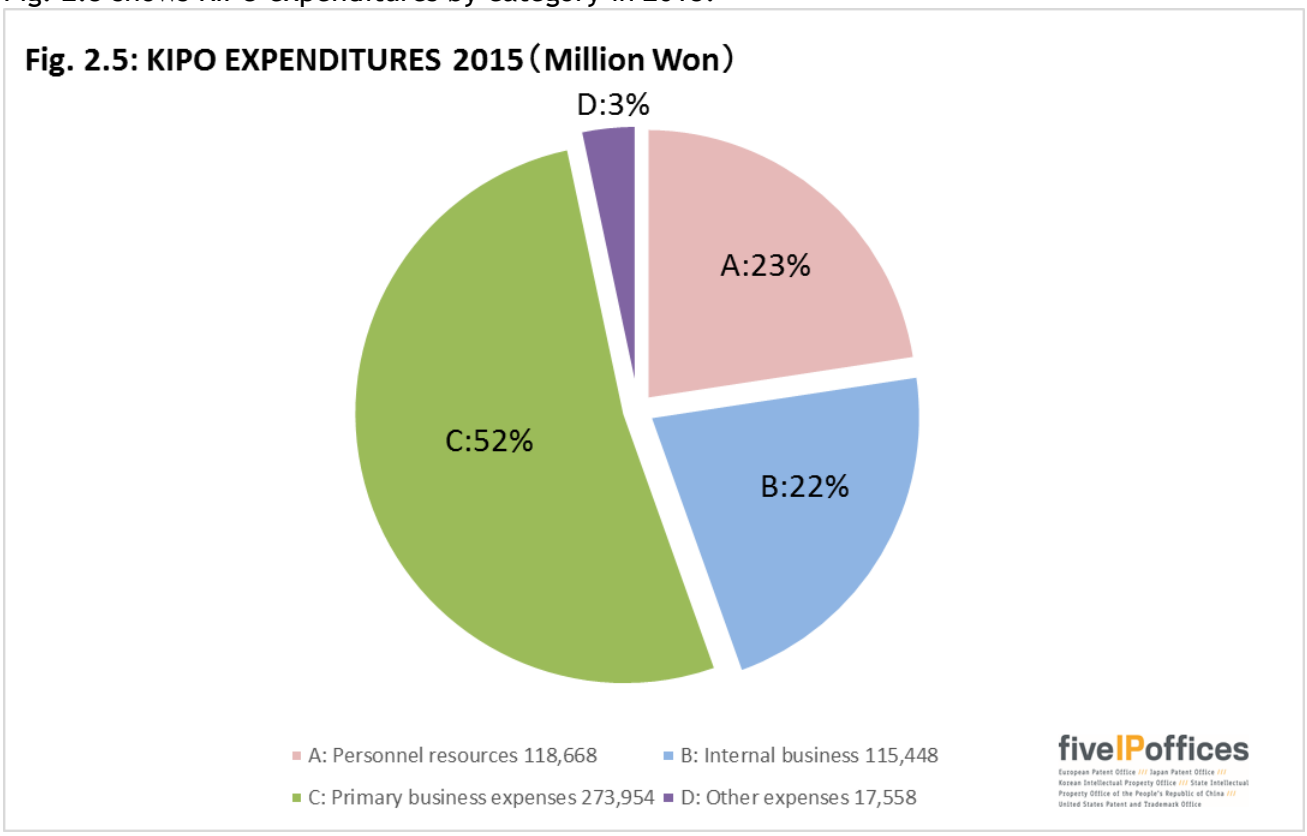
Also in 2015, the number of countries participating in Patent Prosecution Highways with Korea increased to 24—up from 21 in 2014.

2) Collaboration with WIPO Academy

On April 20th 2015, during the 15th meeting of the WIPO Committee on Development and Intellectual Property (CDIP), the KIPO hosted a launch ceremony for IP IGNITE, an IP educational platform that serves as an audio-visually enhanced version of WIPO Academy's Distance Learning-101 (DL-101). Within its 12 modules, IP IGNITE covers everything from basic IP fundamentals to advanced information on international IP law and WIPO-administered treaties. Its easy-to-understand storytelling methods and flash animation make studying IP more enjoyable.

KIPO Budget

Fig. 2.5 shows KIPO expenditures by category in 2015.



A description of the items in Fig. 2.5 can be found in Annex 1.

KIPO Staff Composition

At the end of 2015, the KIPO had a total staff 1,600. The breakdown is as follows.

Examiners	
Patents and Utility Model	843
Designs and Trademarks	159
Appeal examiners	106
Other staff	492
Total	1,600

More information

Further information can be found on KIPO's Homepage:
www.kipo.go.kr

UNITED STATES PATENT AND TRADEMARK OFFICE

Mission Statement
The mission of the United States Patent and Trademark Office (USPTO) is:

> *Fostering innovation, competitiveness and economic growth, domestically and abroad by delivering high quality and timely examination of patent and trademark applications, guiding domestic and international intellectual property policy, and delivering intellectual property information and education worldwide, with a highly skilled, diverse workforce.*

The USPTO is pivotal to the success of innovators. In fulfilling the mandate of Article 1, Section 8, Clause 8, of the U.S. Constitution, "*To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries*", the USPTO is on the cutting edge of technological progress and achievement in the United States.

The USPTO provides valued products and services to its customers in exchange for fees that are appropriated to fund its operations. The powers and duties of the USPTO are vested in the Under Secretary of Commerce for Intellectual Property and Director of the USPTO, who consults with the Patent Public Advisory Committee and the Trademark Public Advisory Committee. The USPTO operates with two major business lines, Patents and Trademarks.

The USPTO's Strategic Plan for Fiscal Years 2014-2018 sets forth the Agency's three mission-focused strategic goals and one management goal, as well as the proposed objectives and initiatives to meet those goals. The plan is designed to continue strengthening the capacity of the USPTO, improve the quality of issued patents and registered trademarks, and shorten the time it takes to get a patent. This plan will continue to enhance and accelerate the innovation and job growth needed to transform the U.S. economy, foster competitiveness, and drive the creation and growth of U.S. businesses. This plan was developed with input from the public advisory committees, stakeholders, the public, and USPTO employees.

- Goal 1: Optimize Patent Quality and Timeliness.
- Goal 2: Optimize Trademark Quality and Timeliness.
- Goal 3: Provide Domestic and Global Leadership to Improve IP Policy, Protection, and Enforcement Worldwide.
- Management Goal: Achieve Organization Excellence.

Agency News

FY 2015 marked the two hundred and twenty-fifth anniversary of the Patent Act when President George Washington signed the bill that laid the foundation of the modern American patent system. This was the first time in American history that the law gave inventors rights to their creations. The USPTO celebrated this milestone in a year filled with contemporary accomplishments, most significantly surrounding patent quality. The USPTO launched the Enhanced Patent Quality Initiative, a substantive, multi-faceted effort to produce the highest quality work products, to provide exceptional customer service, and to measure performance through the most rigorous quality metrics.

The USPTO continued to make great strides in reducing the unexamined patent application backlog and patent pendency. The backlog of unexamined applications was reduced from 605,646 at the end of FY 2014 to 553,221 at the end of FY 2015, a year-on-year reduction of 8.7 percent.

Average first action pendency and total pendency also continued to decline. Average first action pendency decreased to 17.3 months, and total pendency was reduced to 26.6 months over the same period. The USPTO is on track to attain its long-term goal of 10-month first action pendency and 20-month total pendency by FY 2019.

FY 2015 has also been a time of progress for the Agency's four regional offices. The USPTO had the grand openings for the permanent locations of the Silicon Valley California regional office in October 2015 and the Texas regional office in November 2015. These locations, in addition to the headquarters in Virginia and the Michigan and Colorado regional offices, provide inventors, entrepreneurs, and small businesses assistance in every U.S. continental time zone. Staff in these offices work closely with intellectual property services, start-ups and job-growth accelerators in their regions.

Likewise, the Trademarks business unit continued to excel. Despite record levels of new trademark applications, the Agency exceeded its target performance levels in FY 2015. Moreover, trademark fee reductions for new filings and maintenance of registrations saved applicants and registrants more than $21.6 million in user fees over the past year. Those fee reductions were available to applicants who agreed to forgo paper correspondence, thereby leading to a more efficient and cost-effective examination process.

Lastly, FY 2015 was another year of improved technological capabilities, which provided further reliability and enhancements to the telework program, a vital part of the USPTO that both saves millions of dollars each year by allowing continued operations during shutdowns of the physical office and contributes to USPTO's consistent ranking as one of the "Best Places to Work in the Federal Government."

International Cooperation and Work Sharing

The USPTO continued working with international IP offices to generate work sharing efficiencies. On January 1st 2015, the USPTO successfully transitioned to the Cooperative Patent Classification (CPC) system from the United States Patent Classification system. Searching based on CPC provides a more comprehensive search result set by expanding the documents available for viewing and retrieval.

The U.S. ratified the Hague Agreement concerning the international registration of industrial designs. Critically important for American businesses and entrepreneurs, the treaty, which took effect on May 13th 2015, enables U.S. applicants pursuing protection for industrial designs to file a single application with either the USPTO or WIPO.

The USPTO continues to work with other IP offices and industry groups on modernization of the global patent system. One element of this is the Global Dossier, the first component of which is to provide secure online access to the file histories of related applications from participating Offices. Beginning in spring 2015, USPTO examiners had access to the dossier information of the related IP5 applications. In June 2015, the USPTO became a providing Office, allowing access to U.S. dossiers through the IP5 Global Dossier User Interfaces. The USPTO also expanded work sharing bilaterally by initiating a priority document exchange agreement with SIPO as well as a work sharing agreement with the Brazilian Institute of Intellectual Property.

The USPTO, through the Global Intellectual Property Academy (GIPA), provides IP educational programs for U.S. government officials, domestic small- and medium-sized enterprises (SMEs), universities, and the public. In FY 2015, GIPA conducted 106 training programs for foreign government and 35 programs targeted to U.S. SMEs.

Table 2.5 includes production figures for application filings, PCT searches and examinations, first actions, grants, applications in appeal and interference, and patent cases in litigation for the years 2014 and 2015.

Table 2.5: USPTO PRODUCTION INFORMATION

USPTO Production Information	2014	2015	Change	% Change
Applications filed				
Utility(patents for invention)[20]	578,802	589,410	10,608	1.8%
Domestic	285,096	288,335	3,239	1.1%
Foreign	293,706	301,075	7,369	2.5%
Plant	1,063	1,140	77	7.2%
Reissue	1,265	1,049	-216	-17.1%
Total Utility, Plant, Reissue	**581,130**	**591,599**	**10,469**	**1.8%**
Design	35,378	39,097	3,719	10.5%
Provisional	170,143	170,371	228	0.1%
Total	**786,651**	**801,067**	**14,416**	**1.8%**
Requests for Continued Examination(RCE)[21]	171,126	169,430	-1,696	-1.0%
PCT Chapter I Searches	**22,142**	**21,740**	**-402**	**-1.8%**
PCT Chapter II Examination	**1,243**	**1,610**	**367**	**29.5%**
First actions(includes utility, plant, and reissue applications)	**593,723**	**633,336**	**39,613**	**6.7%**
Grants (total)	**300,677**	**298,407**	**-2,270**	**-0.8%**
U.S. residents	144,621	140,969	-3,652	-2.5%
Foreign	156,056	157,438	1,382	0.9%
Japan	53,848	52,409	-1,439	-2.7%
EPC states	47,733	47,529	-204	-0.4%
S. Korea	16,469	17,924	1,455	8.8%
P.R. China	7,236	8,116	880	12.2%
Others	30,770	31,460	690	2.2%
Applications in appeal and interference proceedings				
Ex-parte Cases Received	9,585	8,055	**-1,530**	-16.0%
Ex-parte Cases Disposed	9,489	12,289	**2,800**	29.5%
Inter-partes Cases Contested	238	234	**-4**	-1.7%
Inter-partes Cases Disposed	247	222	**-25**	-10.1%
Patent Cases in Litigation				
Cases filed	132	374	242	183.3%
Cases disposed	254	320	66	26.0%
Pending cases (end of calendar year)	158	373	215	136.1%

[20] Unless otherwise noted, the USPTO statistics presented elsewhere in this report are limited to utility patent applications and grants.

[21] A Request for Continued Examination is a USPTO procedure under which an applicant may obtain continued examination of an application by filing a submission and paying a specified fee, even if the application is under a final rejection, appeal, or a notice of allowance.

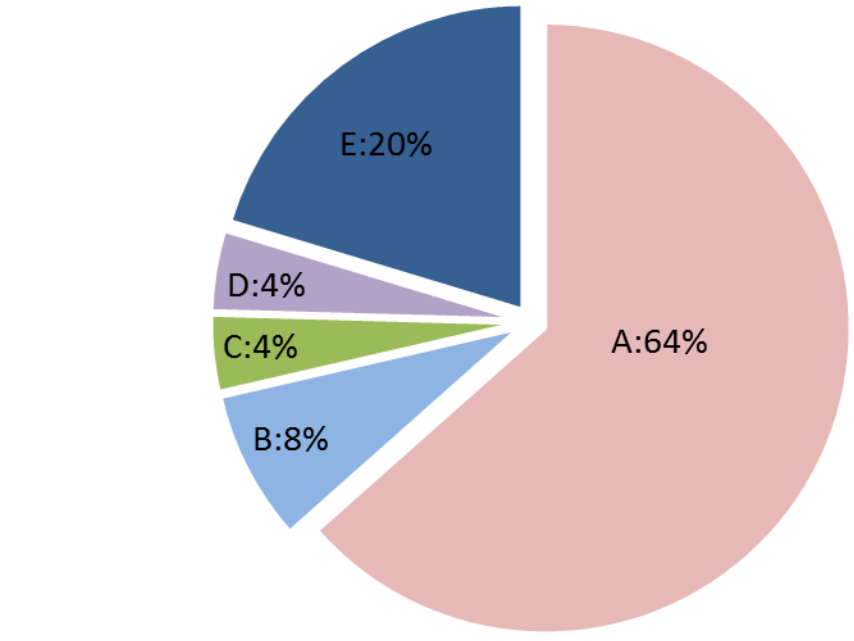
USPTO Budget

The USPTO utilizes an activity based information methodology to allocate resources and costs that support programs and activities within each of the three strategic goals. In FY 2015, USPTO expenditures totaled $3,176.1 million. Agency-wide, 21.9 percent of expenditures were allocated to IT security and associated IT costs.

Goal 1 - Optimize Patent Quality and Timeliness	$2,804.3 million
Goal 2 - Optimize Trademark Quality and Timeliness	$ 312.3 million
Goal 3 - Provide Domestic and Global Leadership to Improve IP Policy, Protection and Enforcement Worldwide	$ 59.5 million

Fig. 2.6 shows USPTO expenditures by category in 2015.

Fig. 2.6: USPTO EXPENDITURES 2015 (Million Dollar)



A description of the items in Fig. 2.6 can be found in Annex 1.

USPTO Staff Composition

At the end of FY 2015, the USPTO work force was composed of 12,667 federal employees. Included in this number are 8,977 Utility, Plant, and Reissue patent examination staff and 184 Design examination staff; 456 Trademark examiner attorney staff, and 3,050 managerial, administrative and technical support staff.

More information

Further information can be found on the USPTO's website:
www.uspto.gov

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).

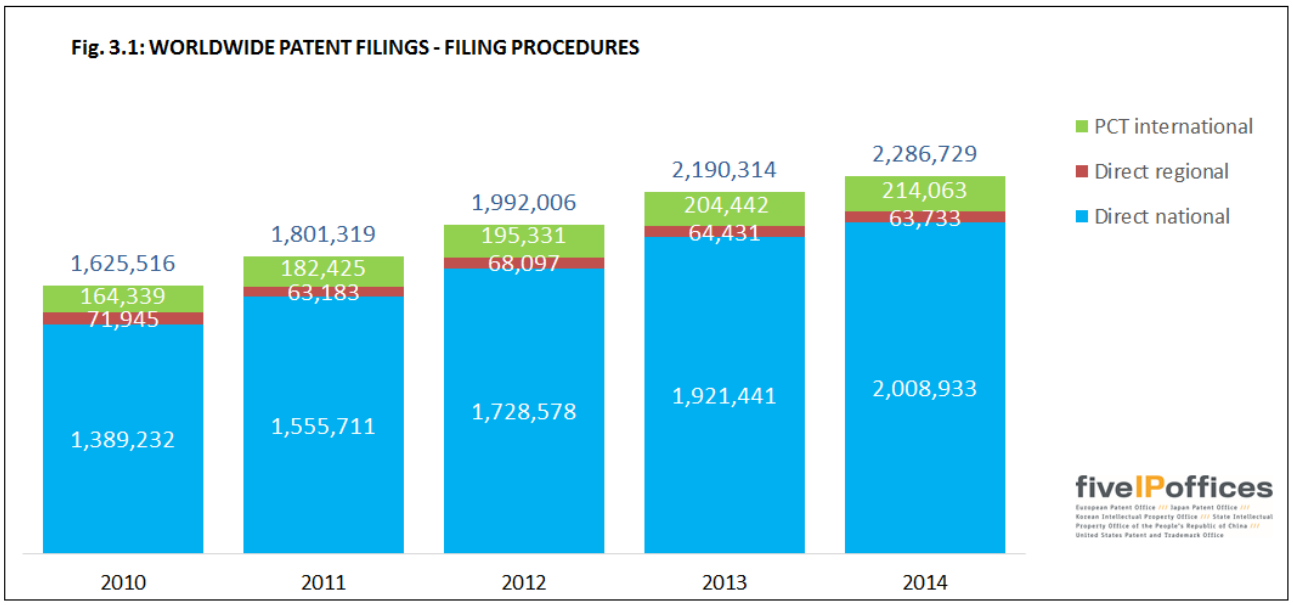
[23] The EAPO is the Eurasian Patent Office. The ARIPO is the African Regional Intellectual Property Office. The GCCPO is the Gulf Cooperation Council Patent Office. The OAPI is the African Intellectual Property Organization.

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.

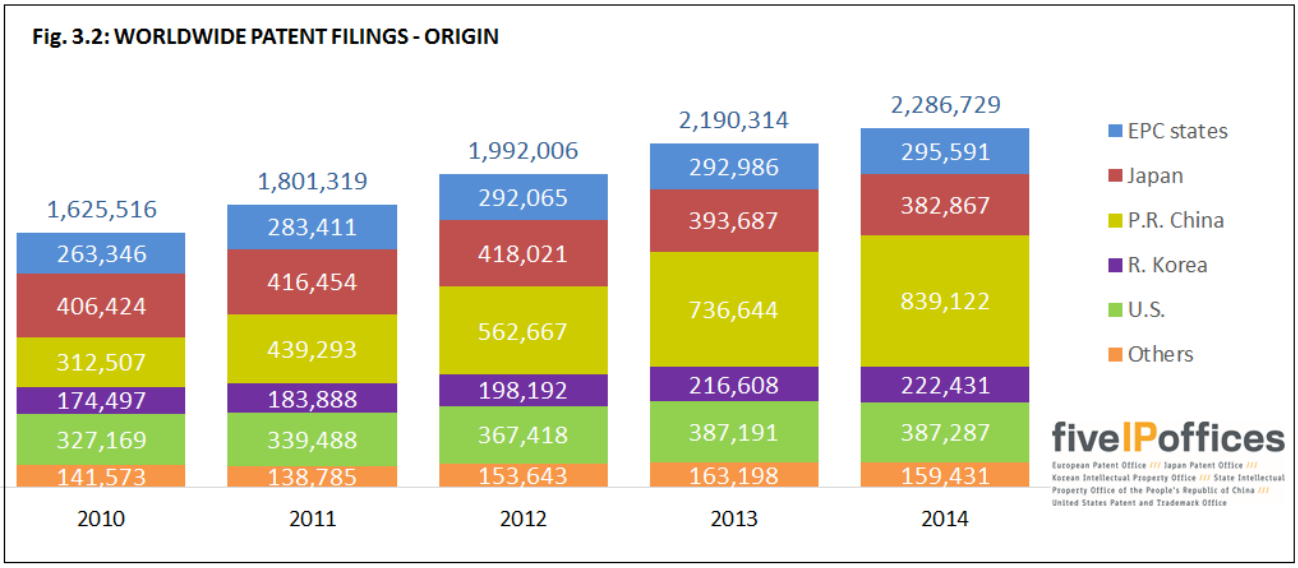


In 2014, the number of patent filings increased by 4 percent, to nearly 2.3 million. The numbers of direct national and PCT international phase applications increased by 5 percent respectively, while the number of direct regional applications decreased marginally. 88 percent of the applications were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

Fig. 3.2: WORLDWIDE PATENT FILINGS - ORIGIN

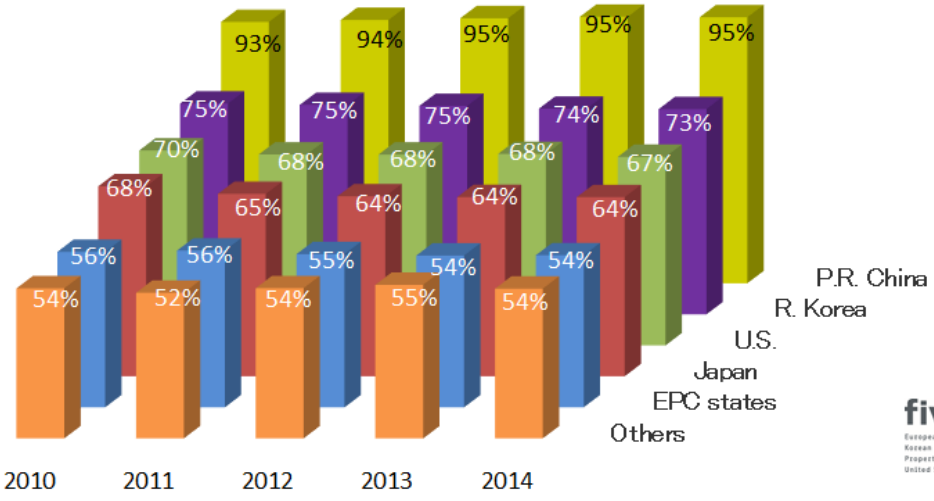


The IP5 Blocs annual share increased from 91 percent in 2010 to 93 percent in 2014. In 2014, the numbers of patent applications originating from P.R. China, R. Korea and the EPC states increased by 14 percent, 3 percent and 1 percent respectively over the shares reported for 2013.

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.

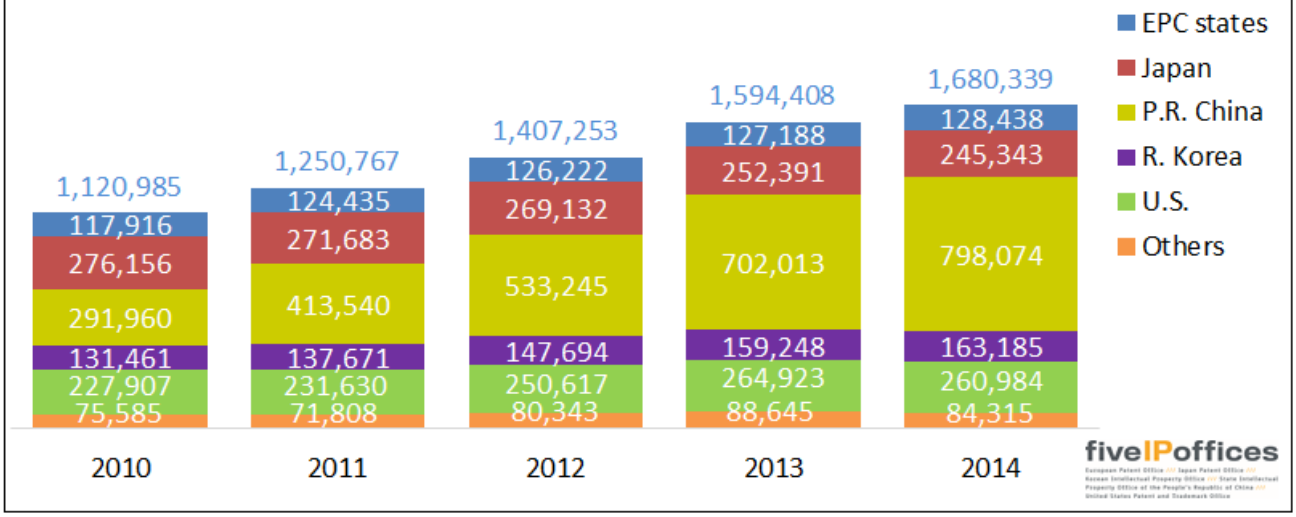
FIRST FILINGS

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).

Fig. 3.4: WORLDWIDE PATENT FIRST FILINGS - ORIGIN



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.

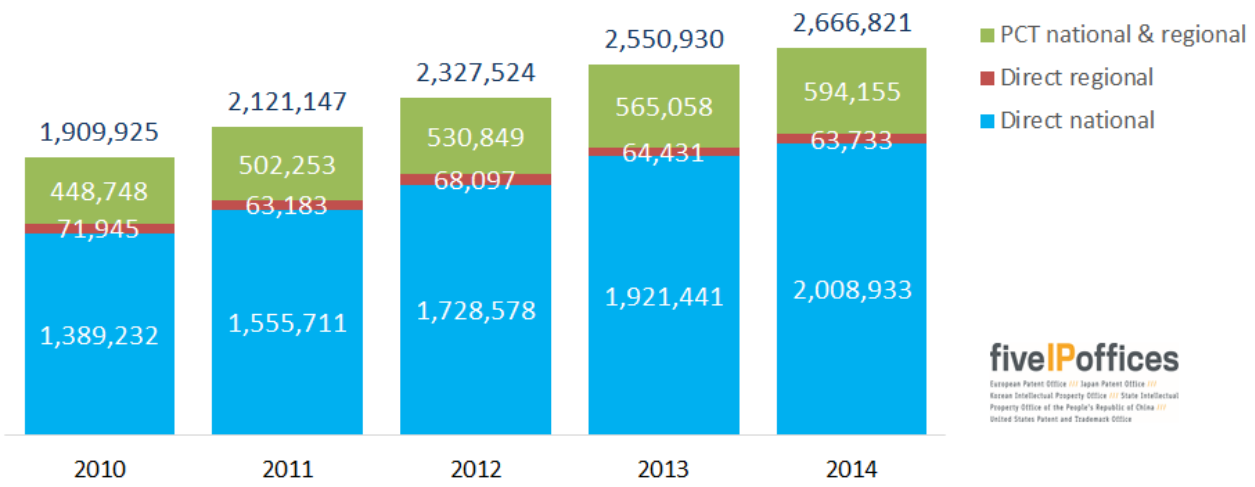
PATENT APPLICATIONS

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

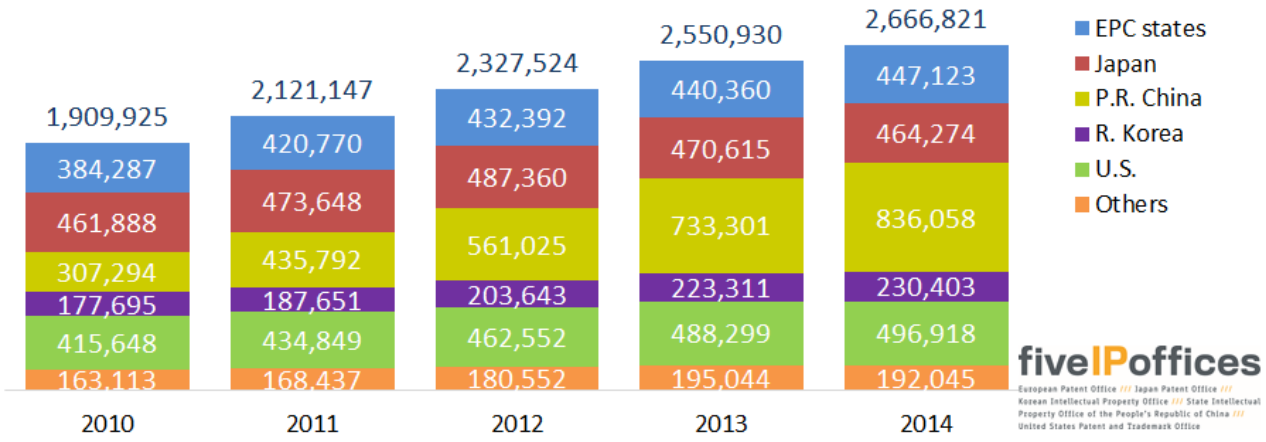


In 2014, almost 2.7 million patent applications were filed worldwide. This represented a 5 percent increase compared to 2013. The number of direct national applications and the number of PCT national/regional applications each increased by 5 percent.

[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

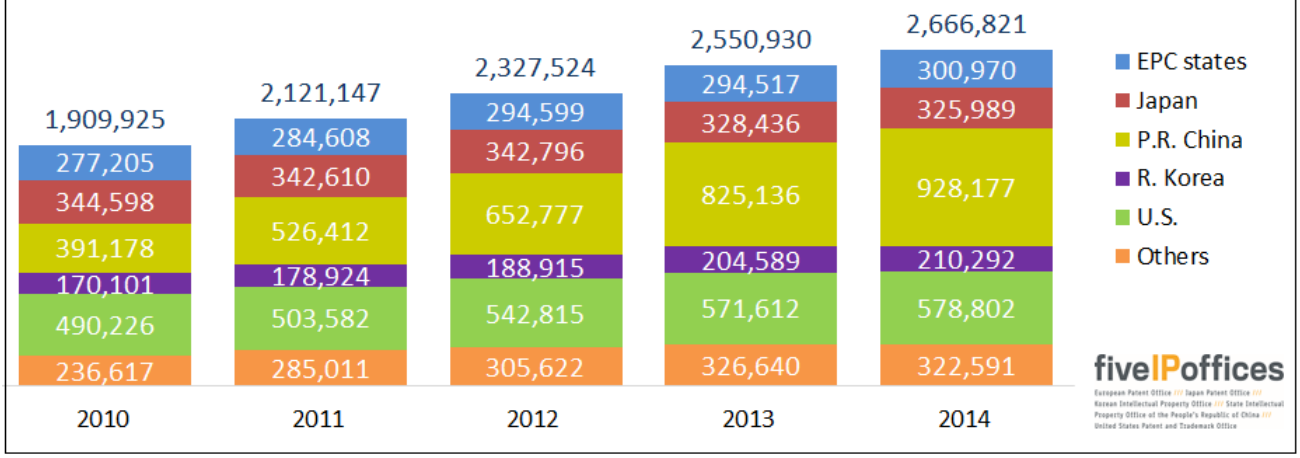


The number of patent applications increased for most of the IP5 Blocs in 2014, with P.R. China remaining the region from which the largest share of applications originated. P.R. China also had the largest percentage increase in applications by origin in 2014 (14 percent). The number of applications from 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.

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



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

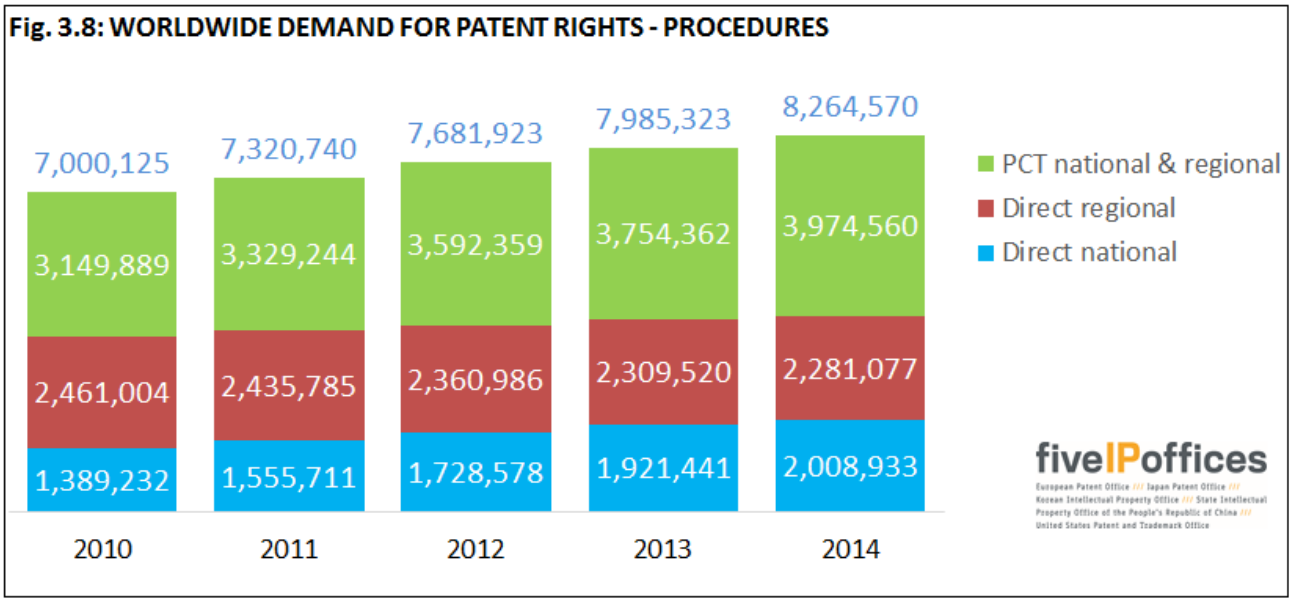
Patent applications counted in this section (with Figs. 3.8, 3.9, and 3.10) include direct national applications, national stage PCT applications and designated countries in direct regional and in regional stage PCT applications.

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.

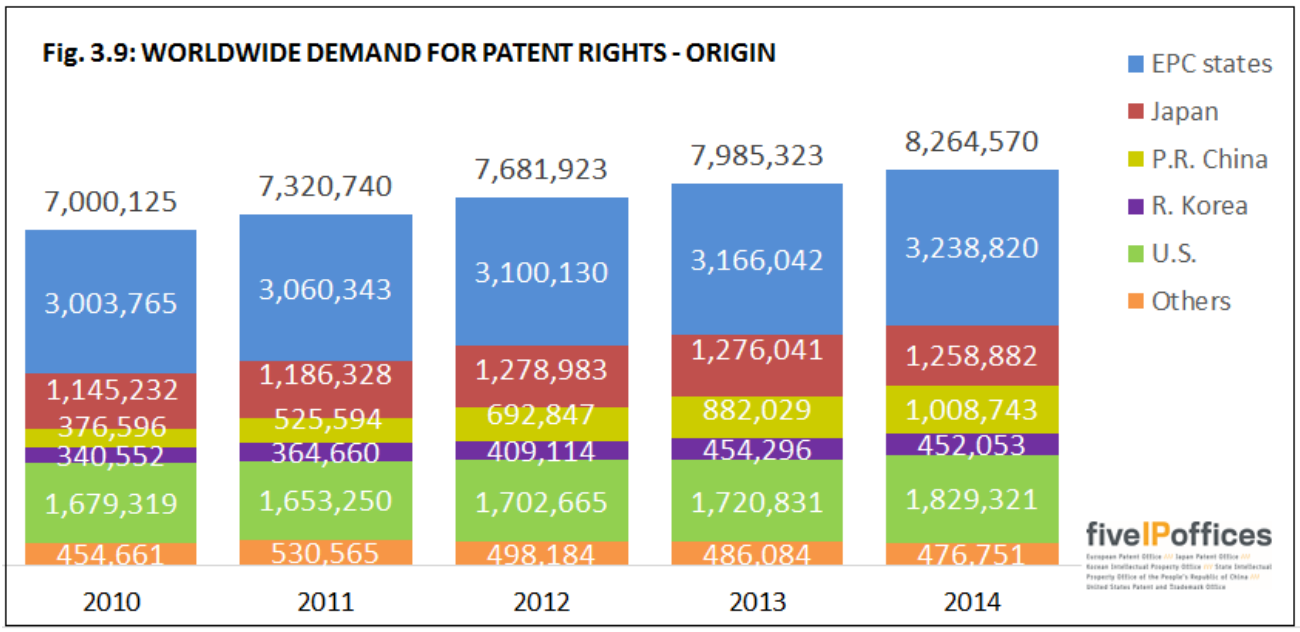
Fig. 3.8: WORLDWIDE DEMAND FOR PATENT RIGHTS - PROCEDURES



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

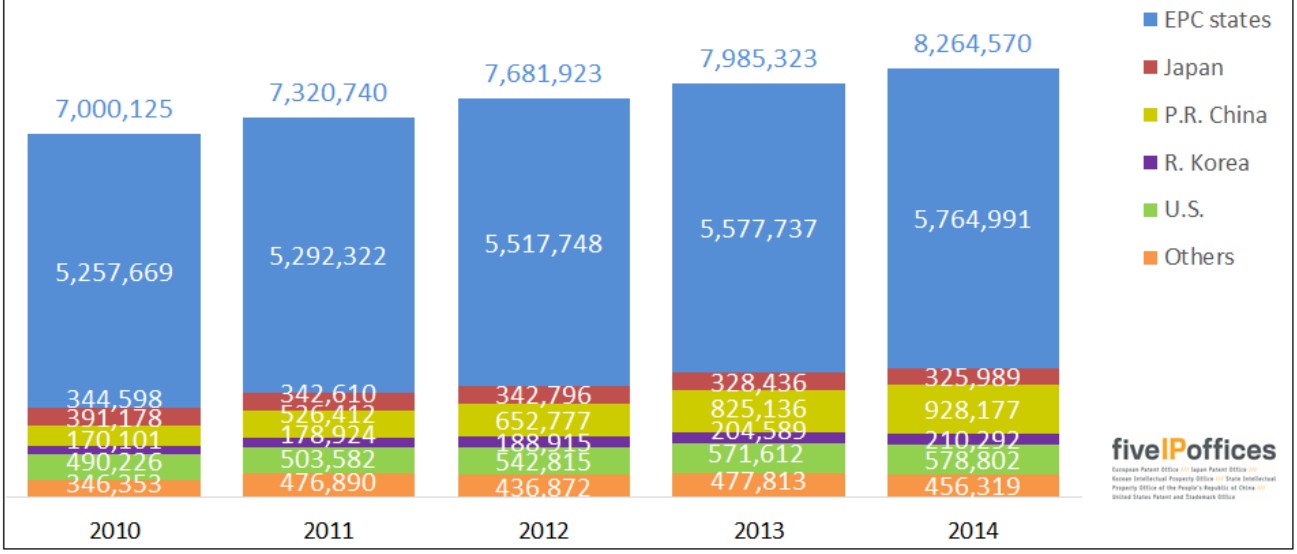


From 2013 to 2014, the demand for patent rights increased from P.R. China, the U.S. and the EPC states by 14 percent, 6 percent and 2 percent respectively, while the demand for patent rights decreased marginally from Japan.

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.

Fig. 3.10: WORLDWIDE DEMAND FOR PATENT RIGHTS - FILING BLOC



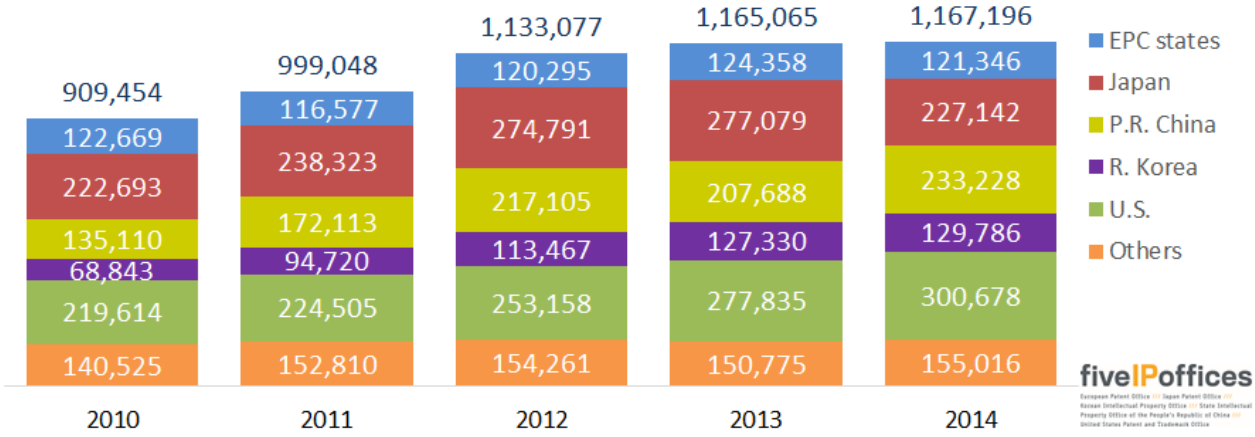
This chart demonstrates the influence of regional patent systems on global demand for patents. In 2014, the demand for national patent rights decreased in Japan and increased in P.R. China, the EPC states, R. Korea and the U.S. Demand in P.R. China had the largest increase at 12 percent. The fact that 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.

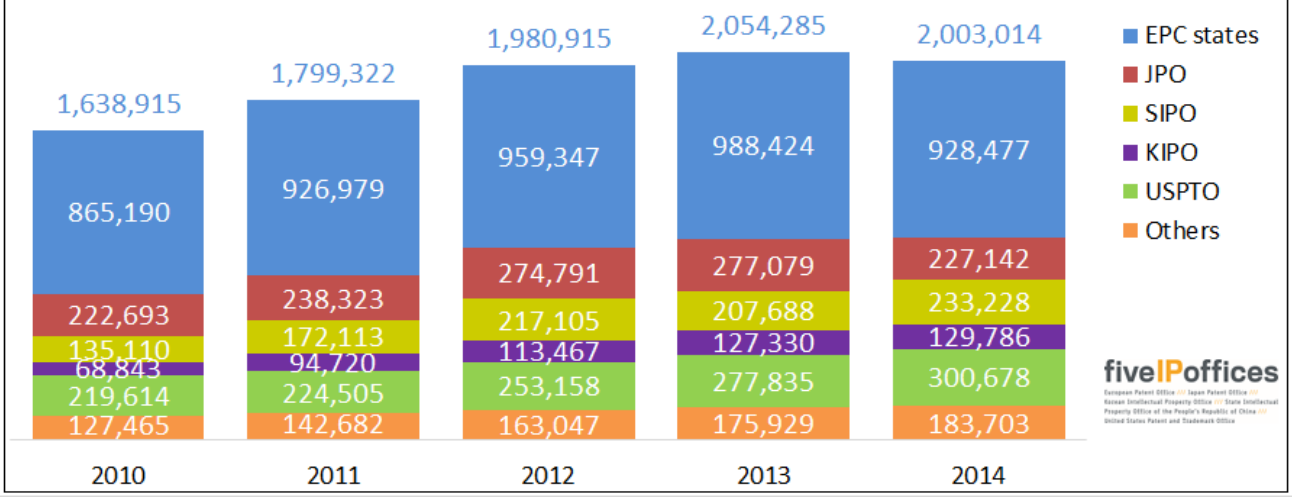
The data for Others, which show a small steady increase from year to year, should be compared between years with care. The changes may reflect different numbers of countries reporting their count of grants as well as changes in the numbers of grants.

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.

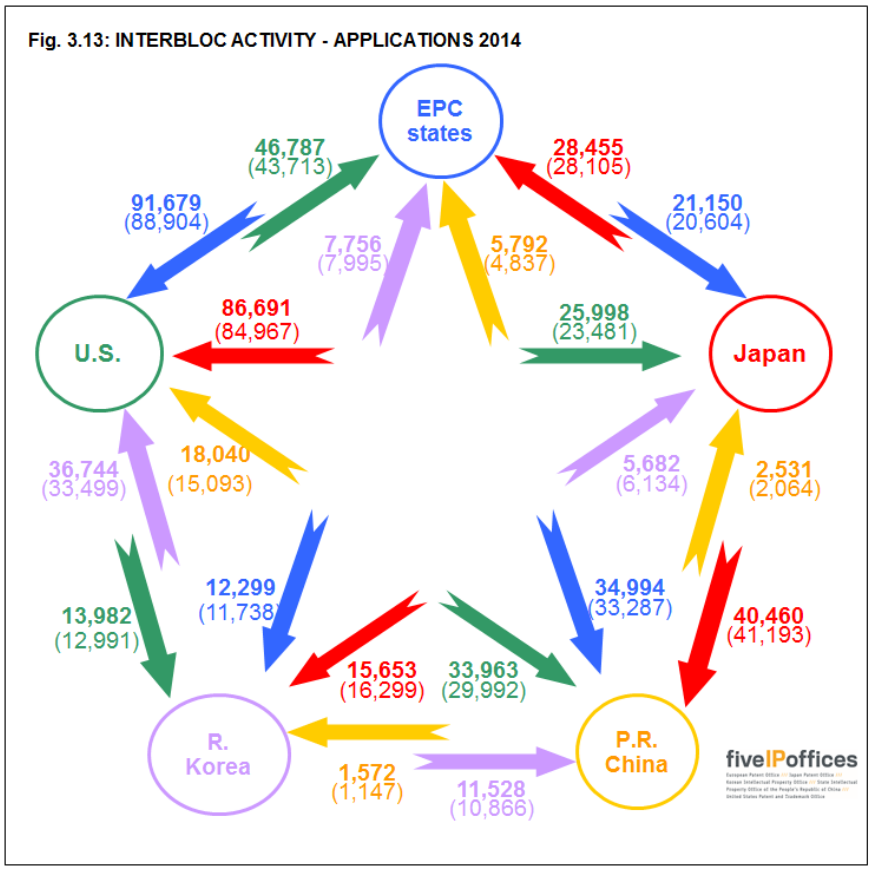
INTER-BLOC ACTIVITY

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

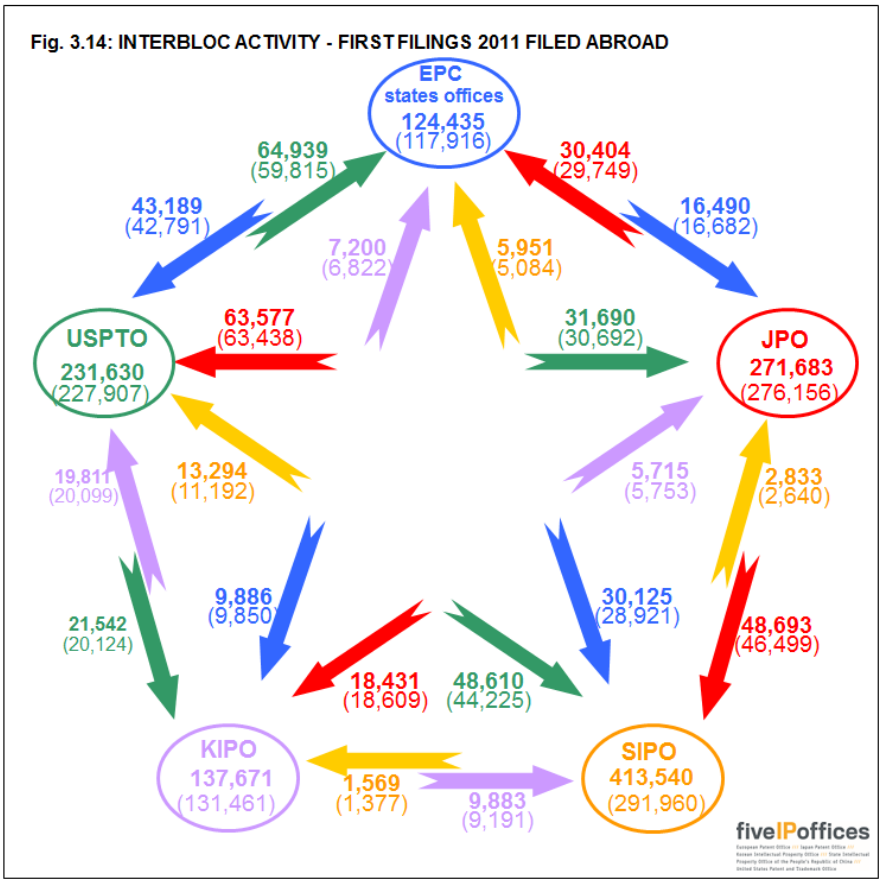
Bloc of origin from which priority is claimed	**First Filings** in Bloc of Origin	**Flows to Subsequent Filings** First filings in Bloc of Origin leading to priority claims in filings in:								**IP5 Patent Families** from bloc of origin
		Any other Blocs	Any other Five Bloc	EPC States	Japan	P.R.China	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

fiveIPoffices

	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.

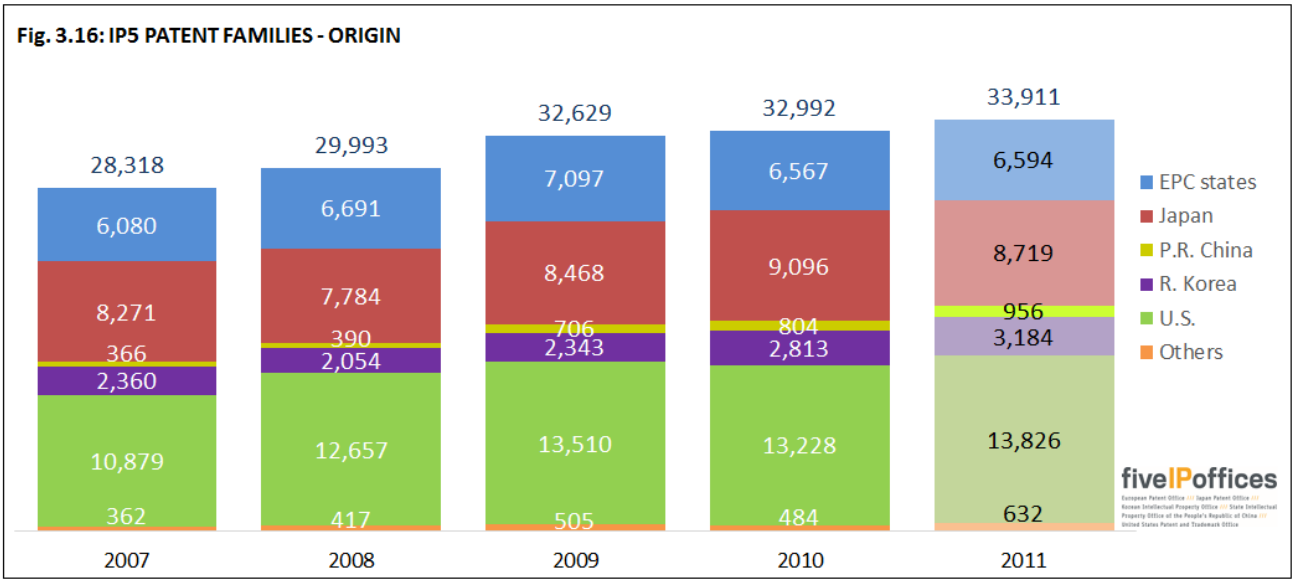
Japan has the highest number of first filings in 2010 of 276,156 and the percentages that led to subsequent filings in the EPC states, R. Korea and P.R. China are lower than the percentage for first filings in the U.S. This makes the flows (numbers of patent families) from Japan to the EPC states, R.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

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 2014, most of the information that appears here includes data also for 2015. The patent office statistics for Europe in this chapter are for the EPO only and do not include 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. For patent applications, the representations are analogous to those appearing in Chapter 3 (Figs. 3.5, 3.6, 3.7, and 3.13) which show the numbers of requests for patents as patent applications[28]. 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.

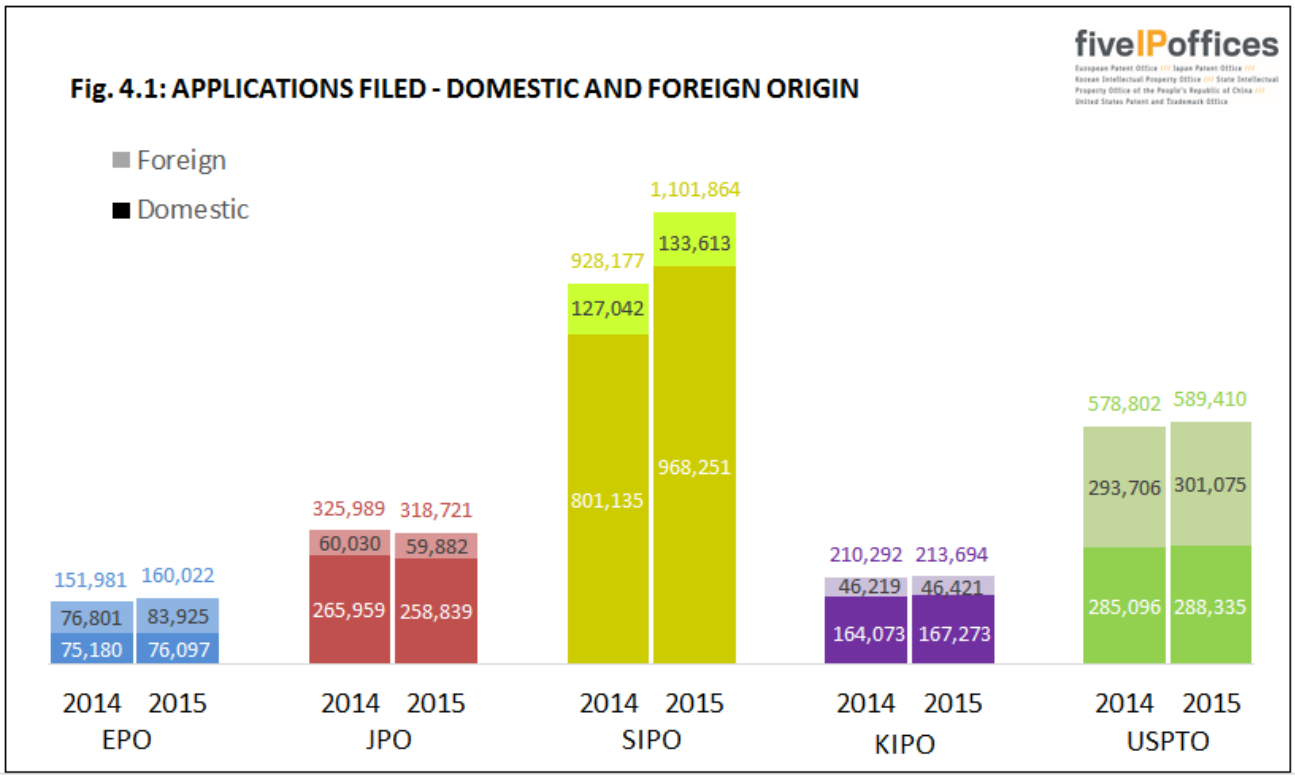
For granted patents, the statistics combine information by office and bloc of origin, displaying comparisons by year of grant. The representations here are similar to those for Fig. 3.10, where granted patents are counted only once, except that, for EPC states, only the EPO is considered as the granting authority. Hereinafter "patent grants" will signify 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.

[28] See the section "Guide to figures in Chapter 3".

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 2015, a total of 2,383,711 patent applications were filed at the IP5 Offices, an increase of 8.6 percent from 2014 (2,195,241).

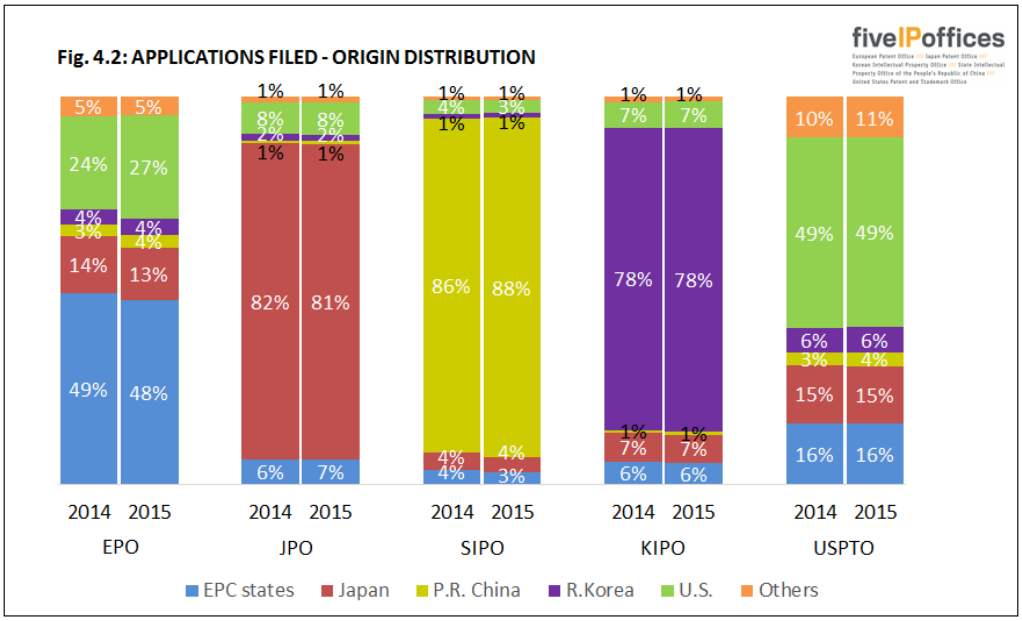
There were increases in patent applications at the SIPO, the KIPO, the EPO and the USPTO. At the SIPO, patent applications increased by 19 percent. Also applications at the EPO, the KIPO and the USPTO increased 5 percent, 2 percent and 2 percent respectively. The extent of the decrease in patent applications at the JPO was less than 2 percent.

At the SIPO, the KIPO, the EPO and the USPTO, both domestic and foreign applications increased. At the JPO, foreign applications and domestic applications decreased marginally. The SIPO had a particularly large increase in domestic filings of 21 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 2014 and 2015.

Table 4.1: 2015 APPLICATIONS FILED - ORIGIN

Office	EPO	JPO	SIPO	KIPO	USPTO
Origin					
EPC states	76,097	20,784	35,365	12,024	93,203
Japan	21,426	258,839	40,078	15,283	86,359
P.R.China	5,721	2,840	968,251	1,951	21,386
R.Korea	6,411	5,222	12,907	167,273	38,205
U.S	42,692	26,501	37,216	14,657	288,335
Others	7,675	4,535	8,047	2,506	61,922
Total	160,022	318,721	1,101,864	213,694	589,410



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 2015, an application filed at the EPO contained 14.2 claims (14.1 in 2014), one filed at the JPO contained 10.2 claims (9.5 in 2014), one filed at the SIPO contained 7.6 claims (7.6 in 2014), one filed at the KIPO contained 11.6 claims (11.1 in 2014), while one filed at the USPTO had 17.7 claims (17.8 in 2014).

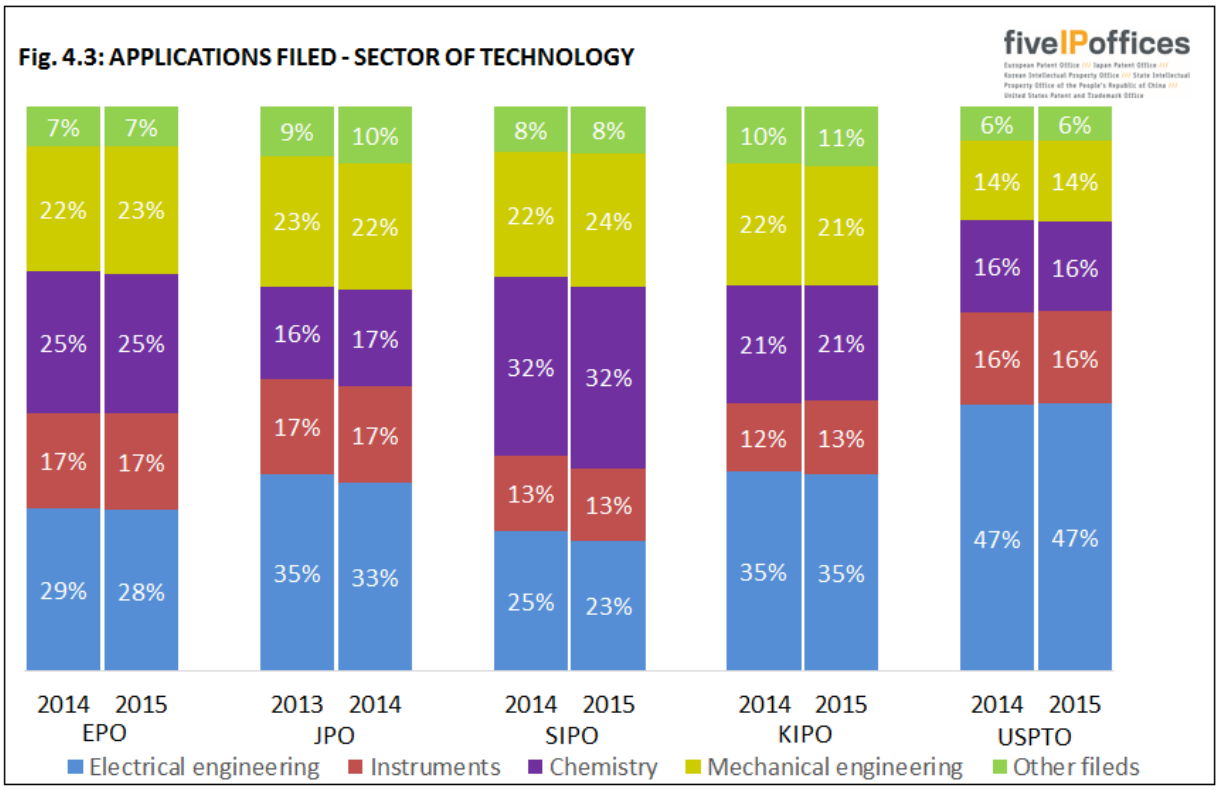
The shares of patent application filings by bloc of origin are generally consistent for 2014 and 2015 for each office, except that for EPO the share for U.S. origin increased from 24 percent in 2014 to 27 percent in 2015.

SECTORS AND 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 sectors[29]. Fig. 4.3 shows the distribution of applications at each office according to the five main sectors of technology.

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 2014 and 2015, while for the JPO the breakdown is given for the filing years 2013 and 2014[30].

Fig. 4.3: APPLICATIONS FILED - SECTOR OF TECHNOLOGY

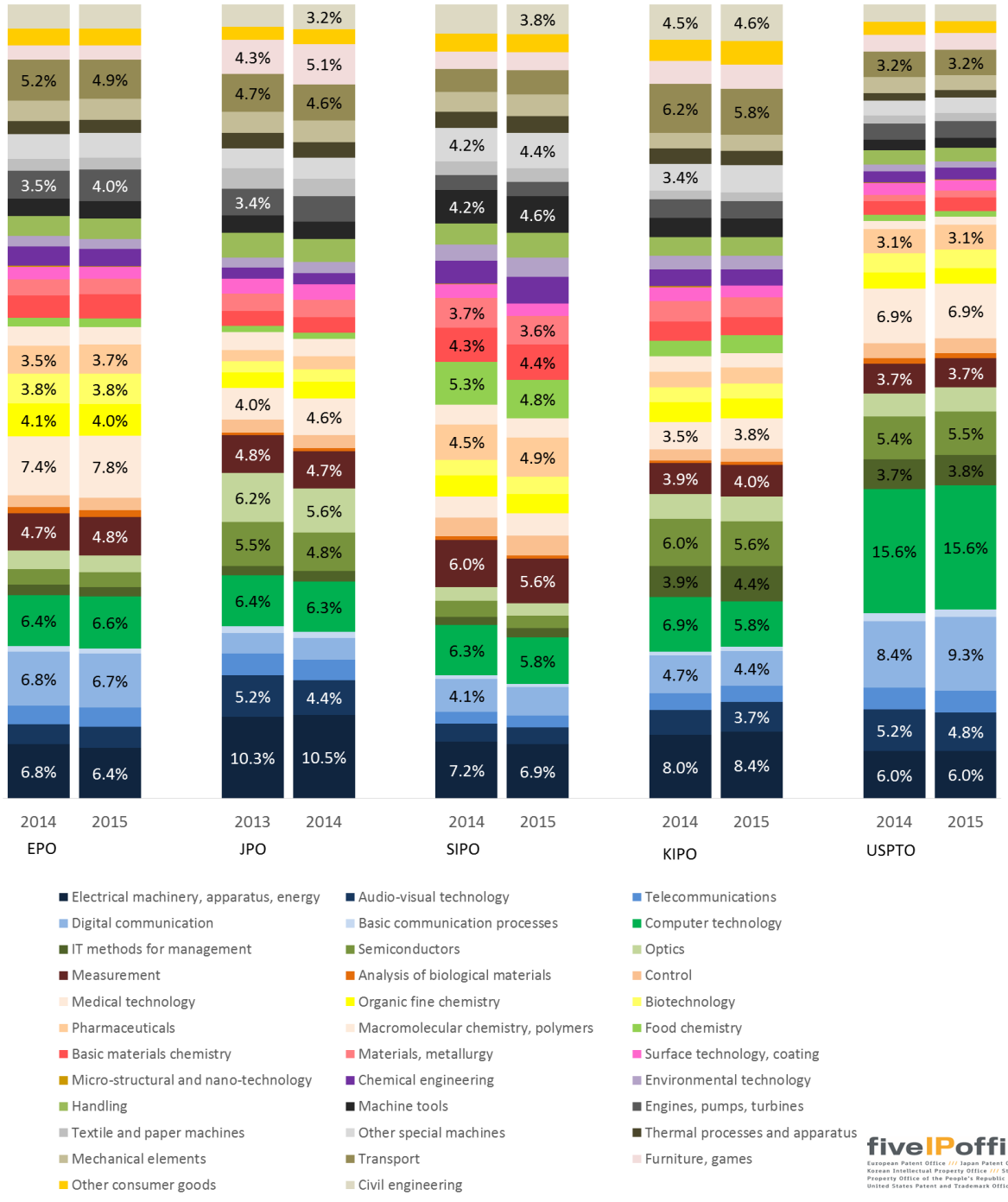


The Electrical engineering sector is more prominent at the USPTO than in the other IP5 Offices. A higher proportion of applications are filed in the Chemistry sector at the SIPO and at the EPO than in the other IP5 Offices. At each office, the distribution between sectors of technology was fairly stable between the two years reported, although at SIPO Mechanical engineering rose from 22 percent to 24 percent and there were declines at both JPO and SIPO of 2 percent for Electrical engineering.

[29] www.wipo.int/ipstats/en/statistics/technology_concordance.html.
[30] JPO data for 2014 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 the more detailed fields of technology at each office, where the 10 leading fields in each case are highlighted by writing the percentages in text format.

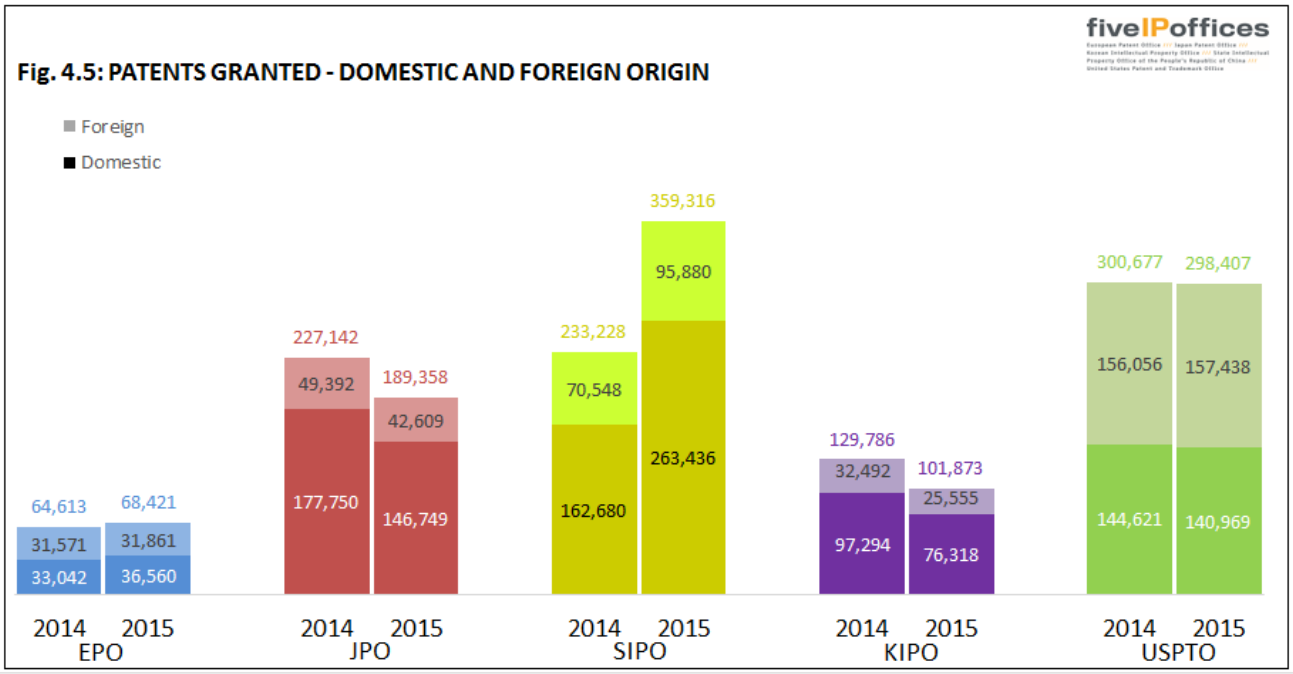
Fig. 4.4: APPLICATIONS FILED - FIELD OF TECHNOLOGY



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. At USPTO, 25% of all applications are concentrated into the two fields, "*Basic communication processes*" and "*Digital communication*" - no such degree of concentration of the largest fields is seen at any of the other IP5 Offices. "*Digital communication*" is a leading field at all offices except the JPO, while "*Medical technology*" and "*Transport*" are leading field at all offices except the SIPO. "*Electrical machinery, apparatus, energy*" has a larger share of applications at the JPO (10.5 percent) than at the KIPO (8.4 percent) and the SIPO (6.9 percent) respectively. "*Computer technology*" has a larger share of applications at the USPTO (16 percent). For the other leading fields: "*Pharmaceuticals*" is a leading field at the SIPO, the EPO, and the USPTO; "*Semiconductors*" is a leading field at the KIPO, the USPTO, and the JPO; "*Audio-visual technology*" is a leading field at the USPTO, the JPO, and the KIPO; "*IT methods for management*" is a leading field at the KIPO and the USPTO.

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 or inventor).



Together the IP5 Offices granted a total of 1,017,375 patents in 2015. This was 61,928 more than in 2014 and represents an increase of 6 percent.

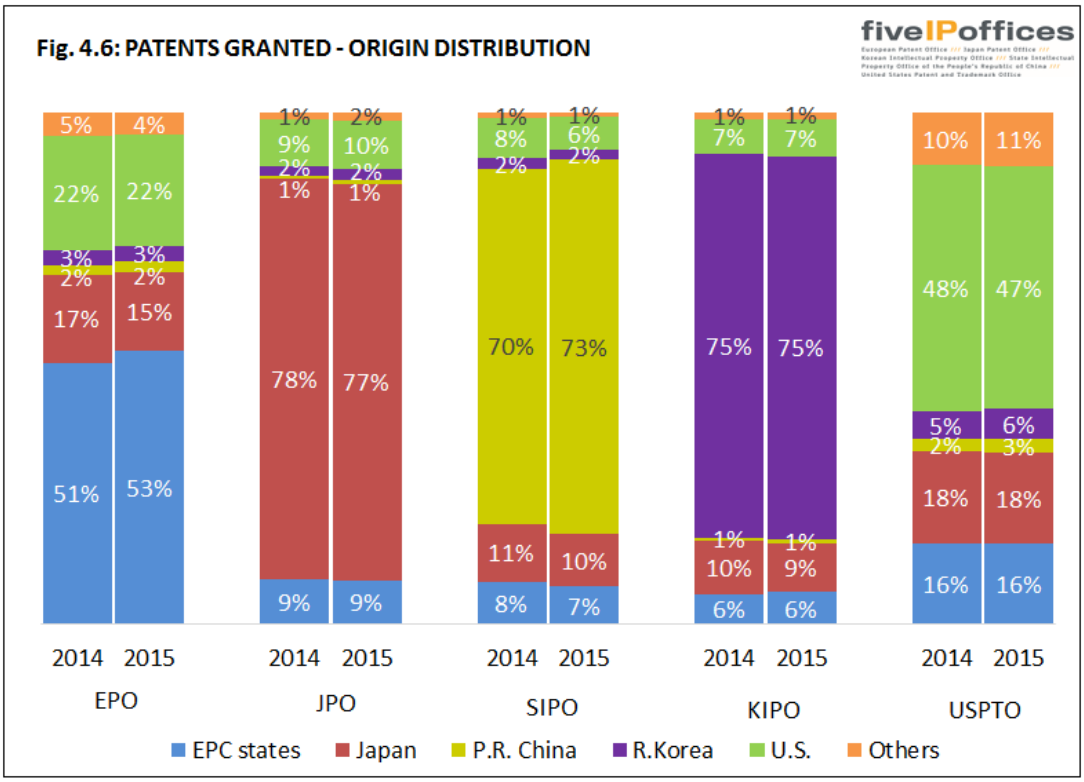
In 2015, the number of patents granted at the SIPO and the EPO increased by 54 percent and 6 percent respectively, while the number of patents granted at the KIPO, the JPO, and the USPTO decreased by 22 percent, 17 percent and 1 percent respectively. The differences between the IP5 Offices regarding 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").

Table 4.2 and Fig. 4.6 show the number and the respective shares of patents granted by origin (residence of first-named owner or inventor) at each office for 2014 and 2015.

Table 4.2: 2015 PATENTS GRANTED - ORIGIN

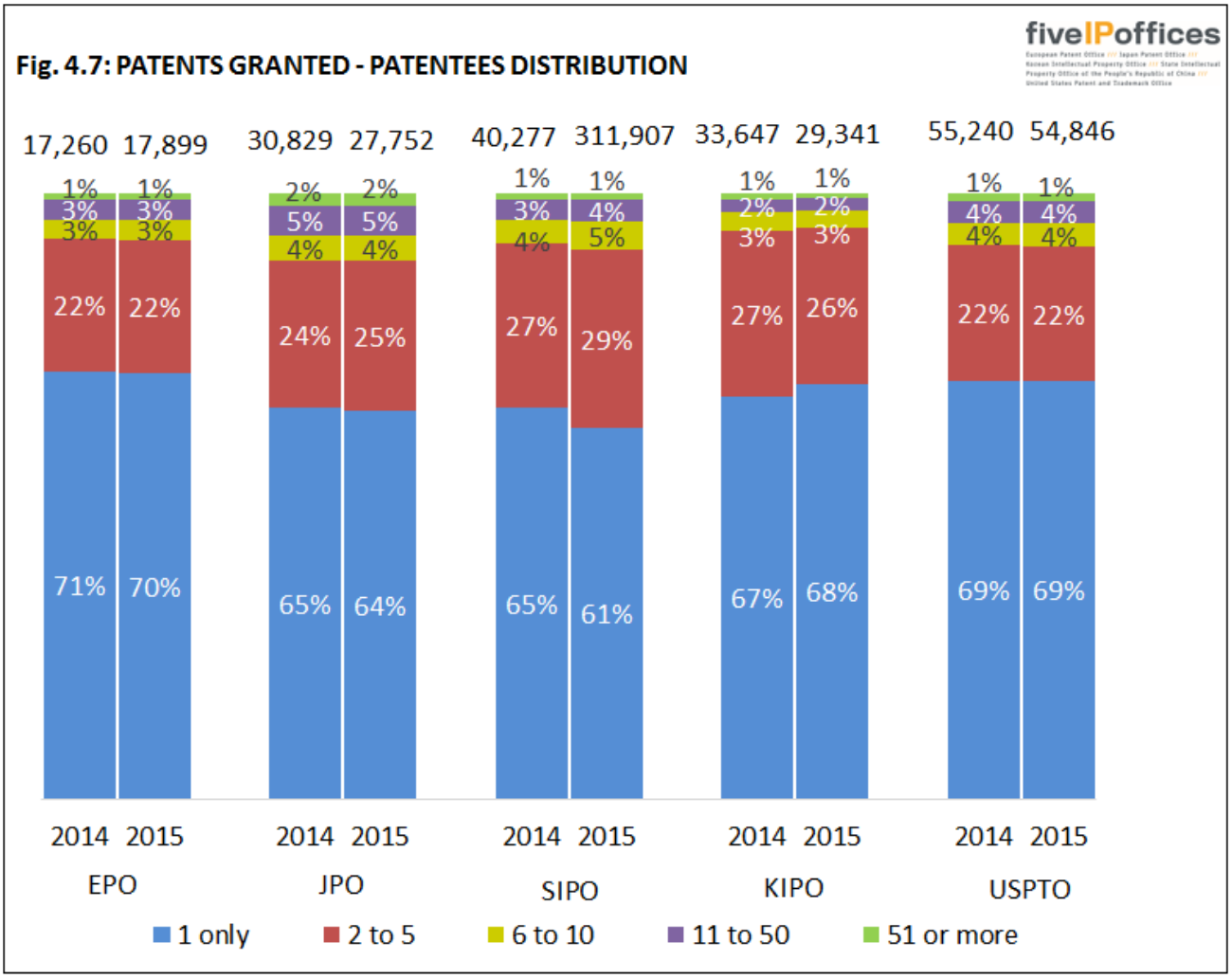
Office	EPO	JPO	SIPO	KIPO	USPTO
Origin					
EPC states	36,560	16,321	26,726	6,432	47,529
Japan	10,585	146,749	36,418	9,615	52,409
P.R.China	1,407	1,535	263,436	853	8,116
R.Korea	1,987	3,886	6,262	76,318	17,924
U.S	14,950	17,995	23,157	7,337	140,969
Others	2,932	2,872	3,317	1,318	31,460
Total	68,421	189,358	359,316	101,873	298,407

Fig. 4.6: PATENTS GRANTED - ORIGIN DISTRIBUTION



At the EPO, the share of domestic granted patents is higher than the corresponding share in applications as shown in Fig 4.2. This may be partially due to the much lower share of first filings made at the EPO than that made at the other IP5 Offices. At the other offices, the share in domestic granted patents is slightly lower than the share of domestic applications. In the case of SIPO, the difference is much larger and it can by partially explained by the strong growth in domestic applications observed during the past few years which is not yet reflected in the distribution of granted patents.

Fig. 4.7 shows the breakdown of patentees by numbers of patents granted in 2014 and in 2015.



This diagram shows that the distribution of grants to patentees is similar at each office in that it is highly skewed at all of them, because there are many more grantees that receive low numbers of grants rather than high numbers of grants. The proportions are generally consistent between 2014 and 2015 for each office.

Most of the patentees received only one grant in a year. In 2015, the proportion was between 61 percent (SIPO) and 70 percent (EPO). The proportion of patentees that received less than 6 patents was between 89 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 SIPO (5 percent), the USPTO (5 percent), the EPO (4 percent), and the KIPO (3 percent).

In 2015, the average number of patents received was 4 at the EPO, 7 at the JPO, 4 at the SIPO, 4 at the KIPO and 5 at the USPTO. The greatest number of patents granted to a single applicant was 1,142 at the EPO, 4,613 at the JPO, 2,844 at the SIPO, 2,975 at the KIPO and 7,309 at the USPTO.

MAINTENANCE

A patent is enforceable for a fixed term and depends on actions taken by the 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.

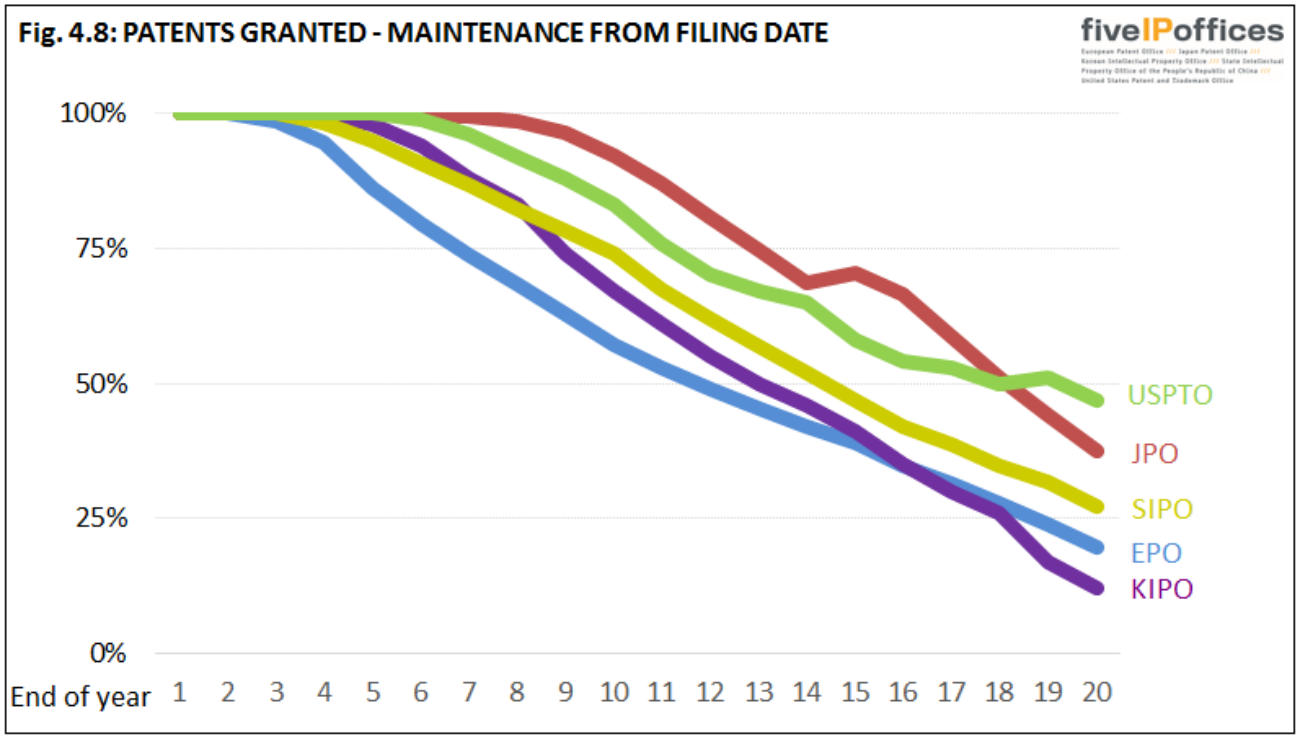
At the EPO, renewal fees are payable from the third year after filing in order to maintain the application. After the patent has been granted, annual renewal fees are then paid to the national office of each designated EPC contracting state in which the patent has been registered. These national patents 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 question to choose 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 for 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.

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. The EPO proportion represents a weighted average ratio of the maintenance of the validated European patents in the 38 EPC states[31].



Over 50 percent of the patents granted by the JPO and the USPTO are maintained for at least 18 years from filing, compared to 14 years at the SIPO, 13 years at the KIPO and 12 years at the EPO. In addition to patentees' behaviour, these differences can be partially explained by differences in the procedures, such as a multinational maintenance system (EPO), deferred examination (JPO, KIPO, SIPO) and a stepped maintenance payment schedule (USPTO). Changes in patent laws and administrative processes also may have some effect on maintenance rates.

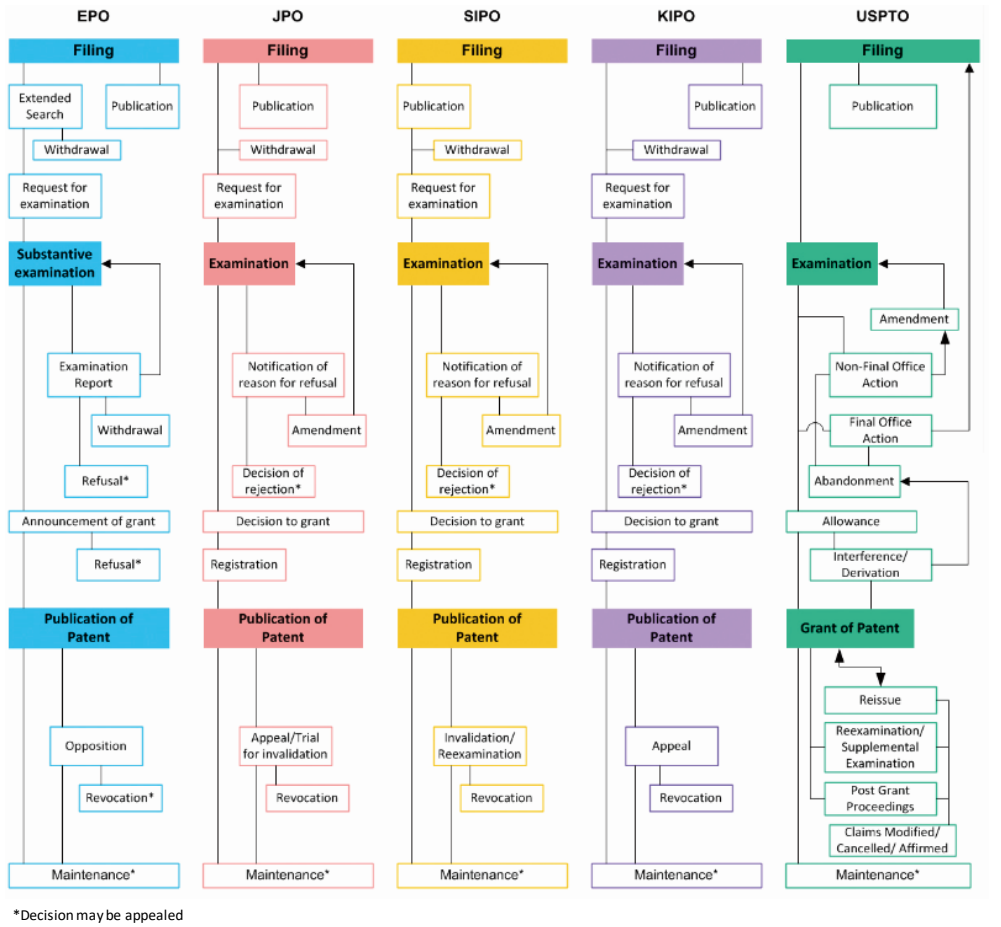
The USPTO payment schedule is somewhat hidden because the data are shown on a time basis (by year after application) that is different from the time basis used for collection of the fees (by year after patent grant).

[31] Once granted by the EPO, European patents require to be validated to come into force in the various member states designated.

PATENT PROCEDURES

Fig. 4.9 is a simplified view of 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 4.3. 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).

Fig. 4.9: PATENTS 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 page[32].

[32] See at www.fiveipoffices.org/statistics/statisticaldata.html under fees. These data are not guaranteed to be entirely accurate or up to date. Official fee schedule information and associated regulations from each IP5 Office take precedence.

STATISTICS ON PROCEDURES

Table 4.3 shows various statistics as average rates and numbers where applicable for 2014 and 2015. 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 give 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 EPO and the JPO increased from 2014 to 2015. At the KIPO and the USPTO, the grant rates decreased from 2014 to 2015. The grant rate from the SIPO is not currently reported.

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 4.3, about 2.32 million applications were pending (IE awaiting request for examination or pending examination) in the EPO, the JPO, the KIPO, and the USPTO at the end of 2015. This was a decrease of 7.0 percent compared to the number of applications pending at the end of 2014 (2.49 million, but note that SIPO is not included in this comparison). The pendency first action at USPTO and KIPO decreased from 18.1 months to 16.4 months and from 11 months to 10 months respectively while the pendency final action at USPTO and KIPO decreased from 27 months to 26.3 months and from 16.7 months to 16.1 months respectively. The SIPO does not report this information.

Table 4.3: STATISTICS ON PROCEDURES

Definitions of the various terms are given in Annex 2.

Progress in the procedure Rates in percentage	Year	EPO	JPO	SIPO	KIPO	USPTO
Examination[33]	2014	93.3	67.9	682,158	80.8	100
	2015	93.8	69.4	809,661	82.5	100
Grant[34]	2014	47.6	69.3	233,228	68.6	70.9
	2015	48.0	71.5	359, 316	63.0	70.6
Opposition	2014	4.7	-	-	-	n.a.
	2015	4.4	-	-	-	n.a.
Appeal on examination[35]	2014	22.1	26,174	-	11.4	3.7
	2015	20.0	22,263	-	11.5	2.7
Pendency in the procedure						
Awaiting request	2014	139,038	701,836	n.a.	286,270	-
for examination	2015	24,438	674,255	n.a	285,816	-
Pending examination[36]	2014	396,049	186,830	n.a.	171,178	610,227
	2015	411,632	193,390	n.a.	161,770	565,811
Pendency first action[37] (months)	2014	9.1	9.6	12.5	11.0	18.1
	2015	9.4	9.5	12.8	10.0	16.4
Pendency final action[38] (months)	2014	22.8	15.2	21.8	16.7	27.0
	2015	26.9	15.0	21.9	16.1	26.3
Pendency invalidation (months)	2014	-	-	6.4	-	-
	2015	-	-	5.4	-	-

- = not applicable n.a. = not available

[33] For the SIPO, only the numbers are available of patent applications entering into the substantial examination phase in the respective year.
[34] For the SIPO, only the numbers are available of grants in the respective year.
[35] For the JPO, only the numbers are available of appeal procedures in the respective year.
[36] 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. For the EPO, the slight increase reflects prioritisation of search work and subsequent reduction in search backlog.
[37] For the EPO, the first office action is the extended European search report that includes a written opinion on patentability.
[38] 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), the date on which the application enters the substantive examination phase (SIPO), and the filing date (USPTO). See Annex 2.
For the JPO, the pendency time is the number of months in FY2015 and excludes some cases where the JPO requests an applicant to respond to the second notification of reasons for refusal and where the applicant performs procedures they are allowed to use, such as requests for extension of the period of response and for an accelerated examination.

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.

Chapter 5

THE IP5 OFFICES AND THE PATENT COOPERATION TREATY (PCT)

This chapter presents first the impact of the PCT system on patenting activity. Then it describes the various activities of the IP5 Offices that relate to the PCT system. The graphs cover five-year periods that include the latest year for which reliable data are available.

Graphs are presented that display the shares, by origin, of those patent applications, grants and patent families that use the PCT filing route. Descriptions are given of additional activities of the IP5 Offices under the PCT, as Receiving Offices (RO) for applicants in their respective territories, as International Search Authorities (ISA) and as International Preliminary Examination Authorities (IPEA). PCT searches are a significant workload for the IP5 Offices in addition to those already described in Chapter 4.

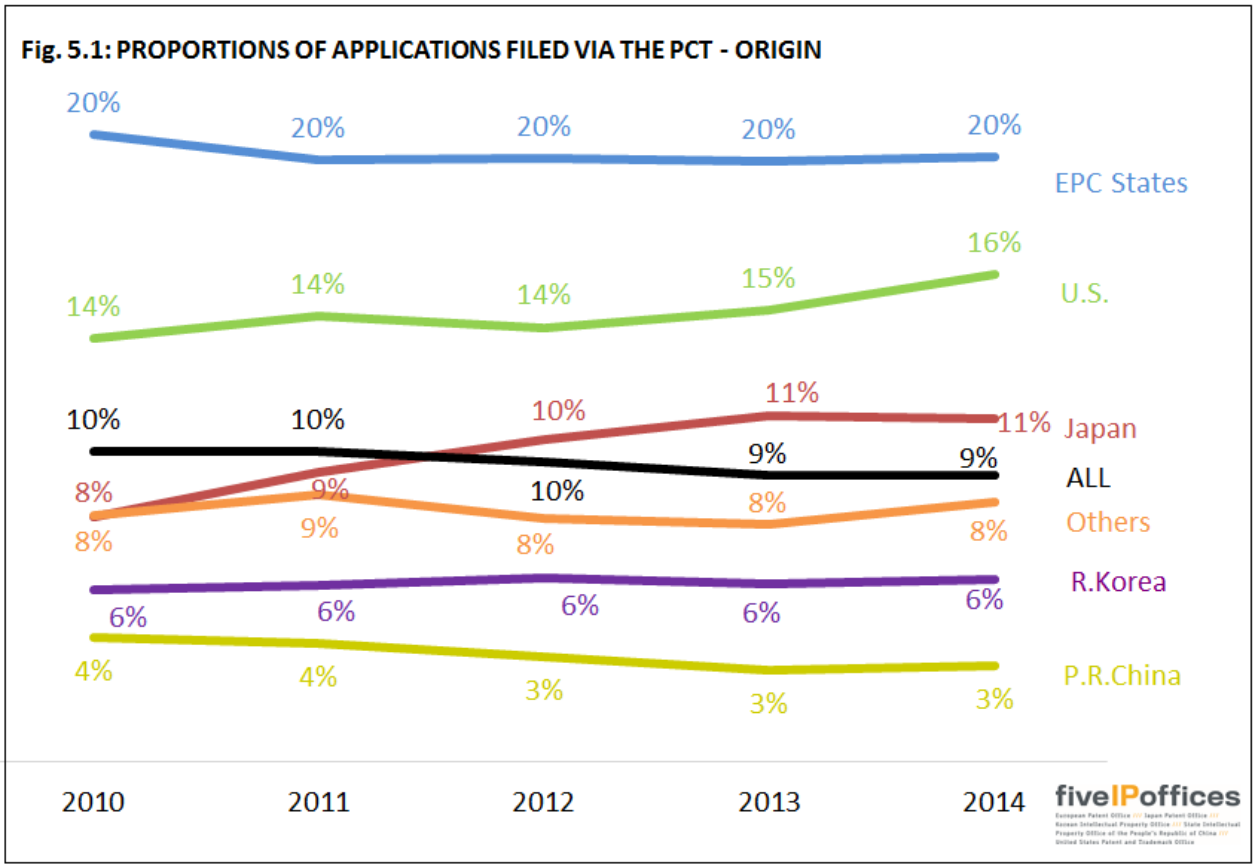
Statistics in this chapter have been derived from the WIPO Statistics Database[39] and the IP5 Offices.

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

PCT AS FILING ROUTE

PATENT FILINGS

Fig. 5.1 shows, for each bloc of origin (residence of first-named applicant or inventor), the proportions of all patent applications filed that are PCT international applications. Applications are counted in the year of filing.



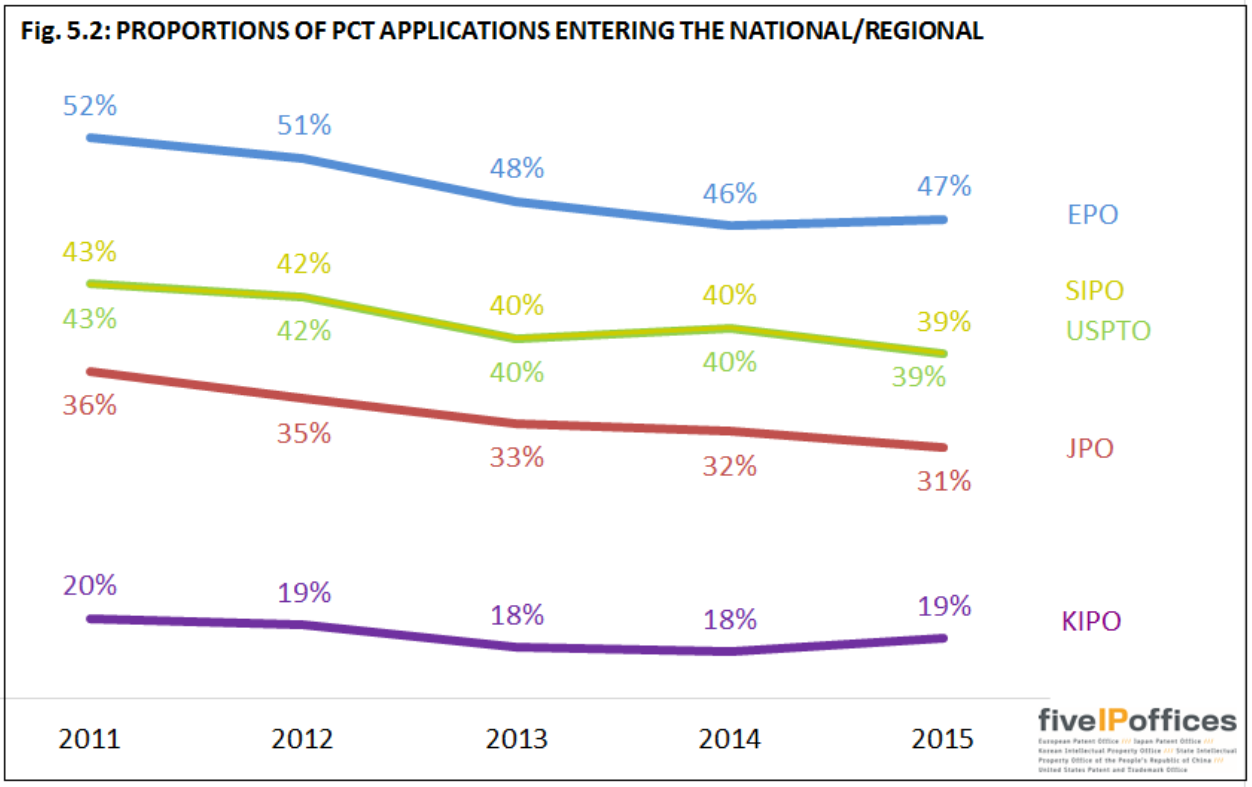
The proportion of PCT slightly declined between 2010 and 2014. This is partially due to the large increase in domestic first filings from P.R. China (see Fig.3.4) leading to a slight decline of the proportion of PCT among filings from P.R. China. Over the period, the share of PCT among filings increased for the other IP5 regions.

Compared to 2013, in 2014 the proportion of applications filed via the PCT remained stable for applications originating from the EPC states, Japan, R. Korea and P.R. China. For the U.S., the proportion increased by 1 percent. The proportions for the EPC states origin applications and for the U.S. origin applications continue to be higher than the proportions for applications from the remaining blocs.

NATIONAL / REGIONAL PHASE ENTRY

After the international phase of the PCT procedure, applicants decide whether they wish to continue further with their applications in the national or regional phase for each country or regional organization of interest. A decision has to be made for each jurisdiction. If the decision is made to proceed further, the applicant has to fulfil the various requirements of the selected PCT contracting states or organizations. The application then enters the national or regional phase in the selected areas.

Fig. 5.2 shows the proportions of PCT applications in the international phase that entered the national or regional phase at each of the IP5 Offices. Applications are counted in the year corresponding to the date when the delay to enter the national or regional phase has expired[40].



A higher proportion enters the regional phase at the EPO than enters the national phase at any of the other IP5 Offices. This is due to the multinational dimension of the EPO, which provides an opportunity to proceed further with a unique procedure for several countries. The proportion remained lowest at the KIPO.

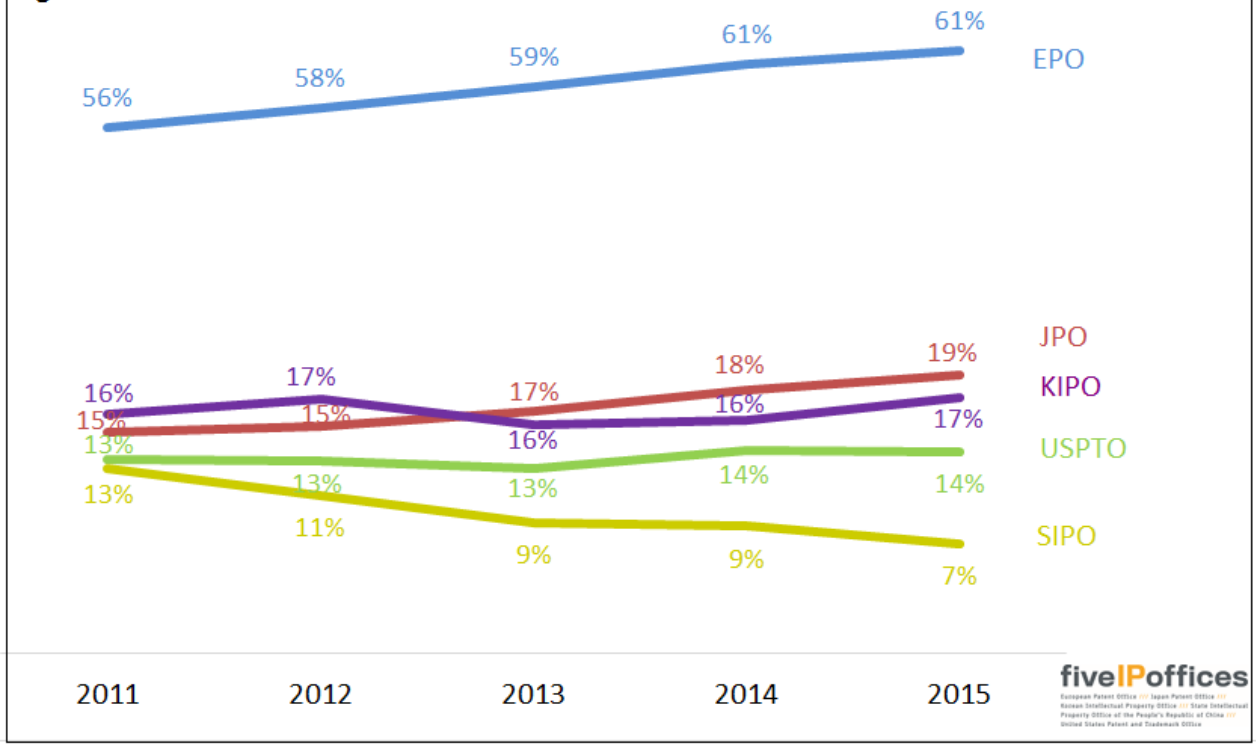
The proportions observed at all offices tended to decline since 2011. From 2013 to 2014 the proportions increased only at the EPO and the KIPO.

[40] It should be noted that counts from EPC contracting state national offices are not reported in Figs. 5.2, 5.3, and 5.4.

SHARE OF PCT APPLICATIONS

Fig. 5.3 shows the shares of PCT among all applications that entered the grant procedure at each office (as presented earlier in Fig. 4.1).

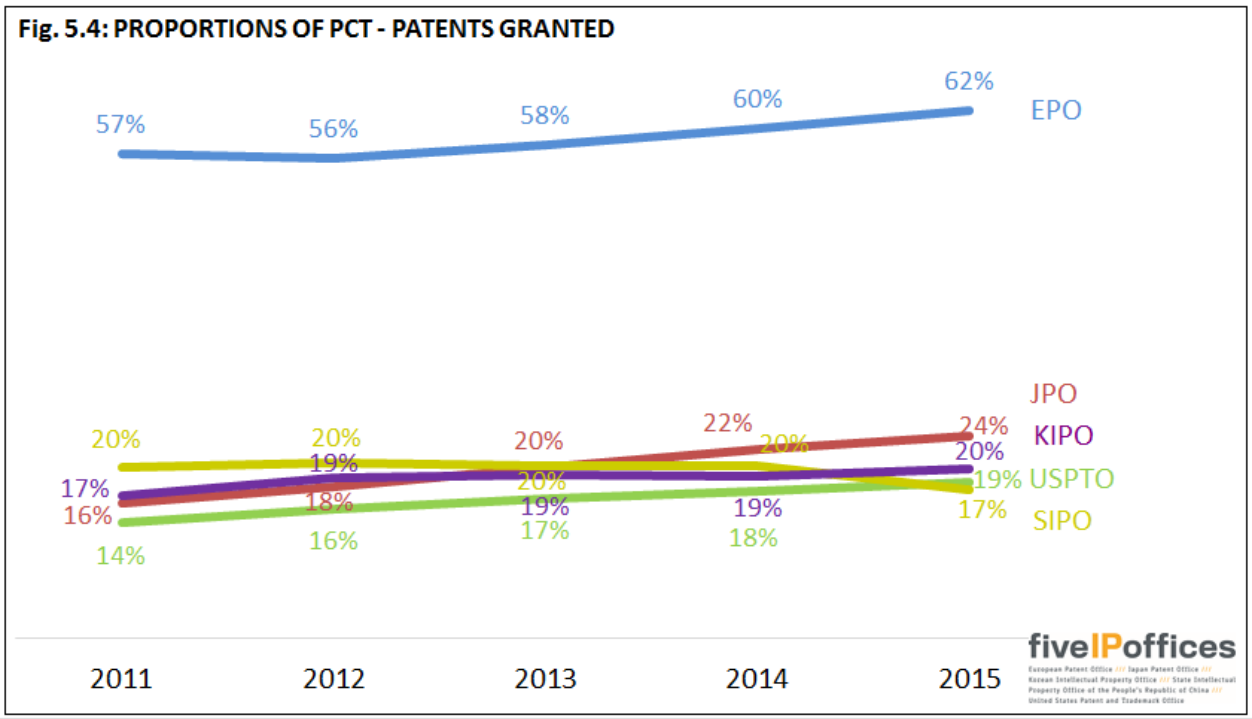
Fig. 5.3: PROPORTIONS OF PCT APPLICATIONS IN THE GRANT PROCEDURE



The proportions of PCT national/regional phase applications among all applications tended to increase from 2014 to 2015, except at SIPO. Since 2011, the SIPO had a decrease in the PCT share of all applications that entered the grant procedure, mainly due to the higher growth of direct national patent applications compared to the growth of PCT applications entering national phase. EPO continues to have much higher proportions of PCT among applications than at the other IP5 Offices.

PCT GRANTS

Fig. 5.4 shows the proportions of patents granted by each of the IP5 Offices that were based on PCT applications.



Granted patents generally relate to applications that were filed several years earlier.

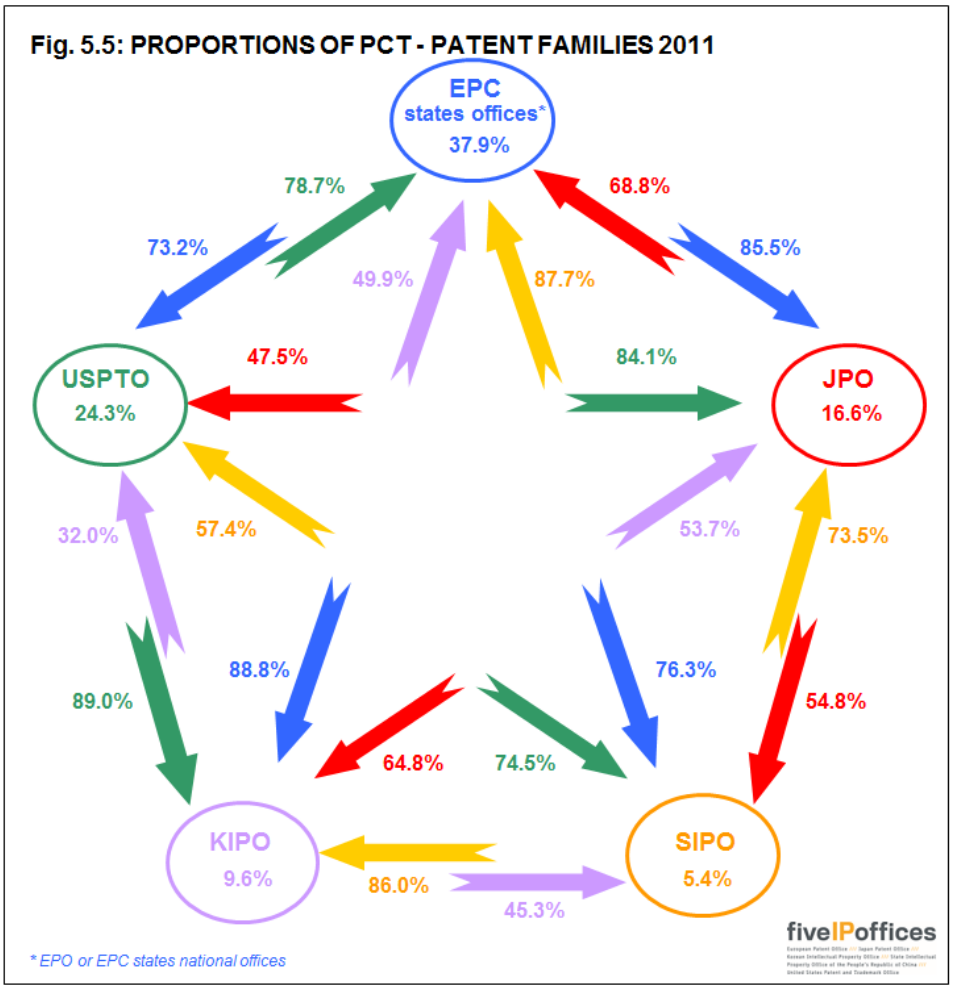
Over the period, the proportions for the JPO, KIPO, SIPO, and USPTO remain close to 20 percent, although in 2015 JPO moved up to 24 percent and SIPO decreased to 17 percent. The proportion of PCT granted patents at the EPO further increased.

PATENT FAMILIES AND PCT

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

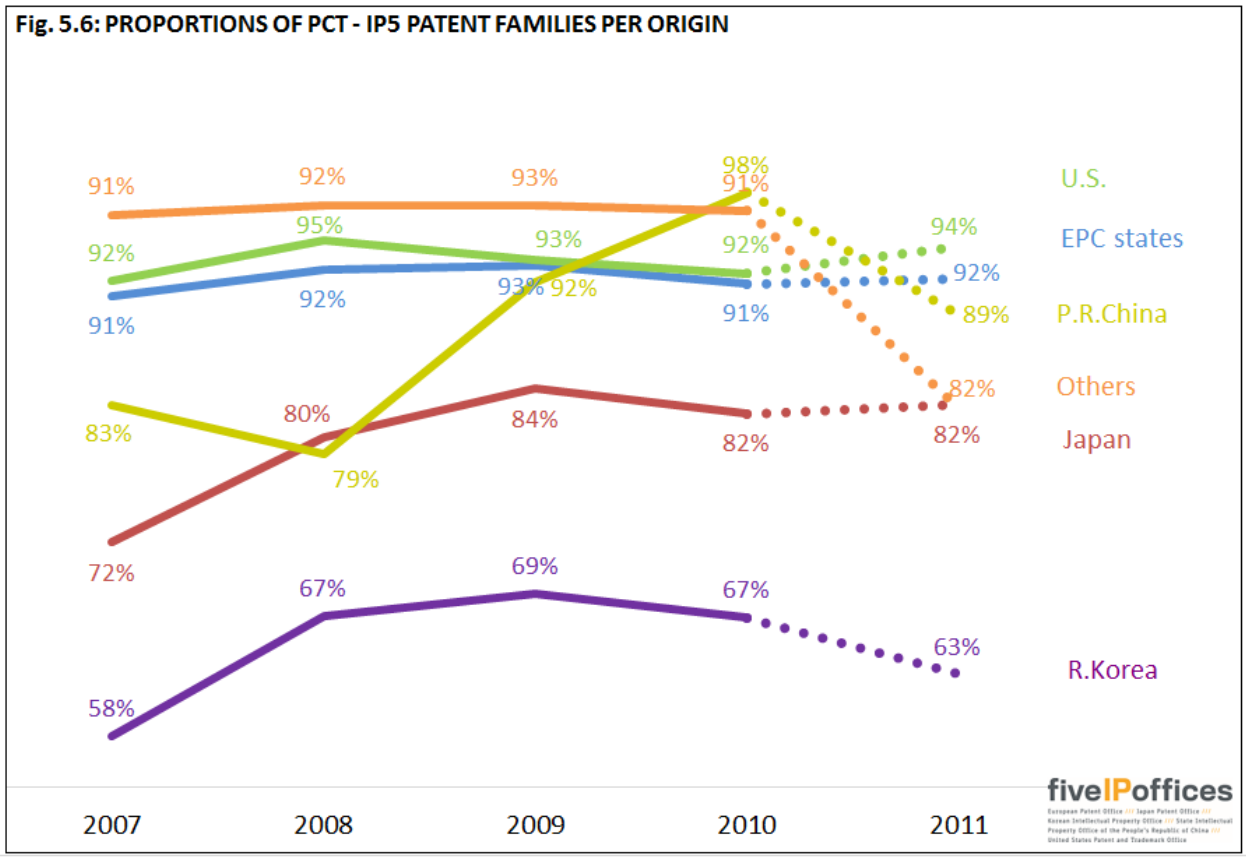
The PCT system provides a good way to make subsequent patent applications in a large number of countries. Therefore it can be expected that many patent families flowing between blocs will use the PCT route. In this section, the usage of the PCT system implies that at least one PCT application has been made within the family of filings for the same invention.

Fig. 5.5 shows the usage of the PCT among patent families in 2011. Two types of percentages are shown. The first, next to the name of each bloc, is the proportion of the overall number of first filings for the bloc that generated families using the PCT. The second, next to the arrows indicating flows between-blocs, shows the share of total patent family flows that used the PCT system. This figure can be compared with Fig. 3.14, which was also about first filings in 2011.



In general, the usage of the PCT route is far higher when making applications abroad rather than at home. Applicants from the U.S. and the EPC states prefer to use the PCT system to a greater extent than applicants from P.R. China, Japan and R. Korea.

Fig. 5.6 shows the proportions of IP5 patent families by bloc of origin (residence of first-named applicants or inventors), as given earlier in Fig. 3.15, that made some use of the PCT system. IP5 patent families correspond to filings where activities of the first and/or subsequent associated filings were made in all the IP5 Blocs.

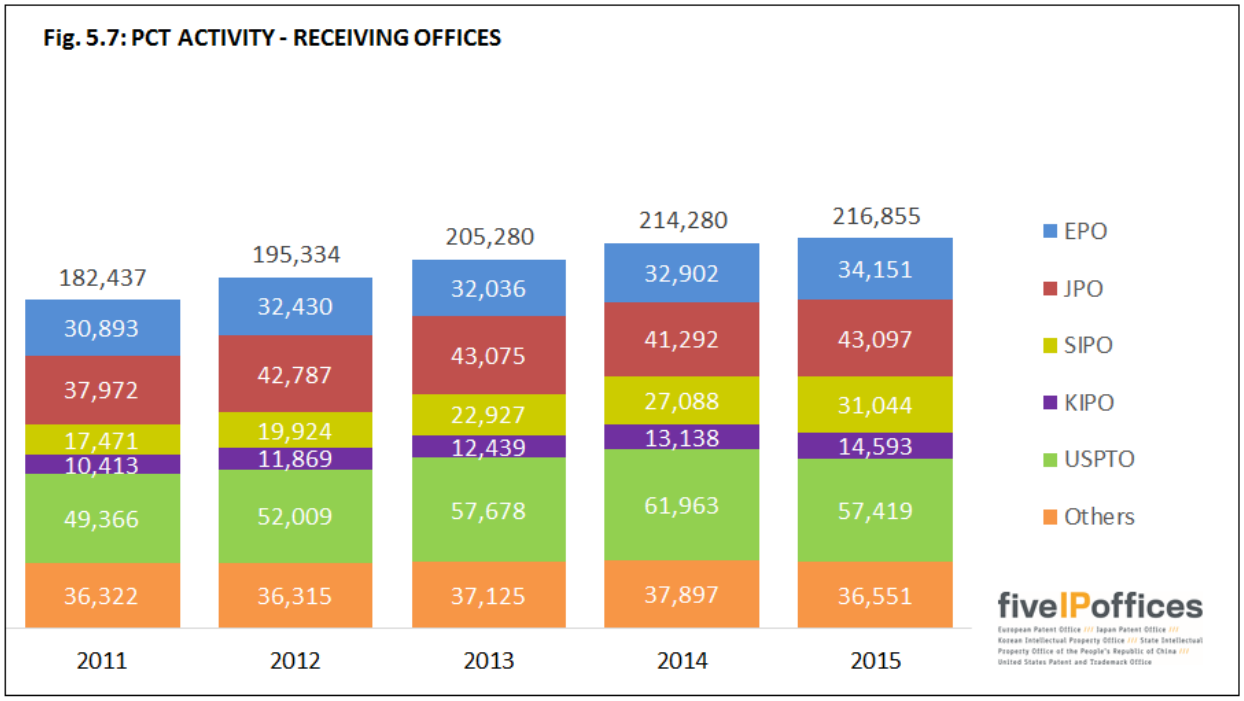


Since IP5 patent families represent highly internationalised applications, the average rate of PCT usage is high compared to the overall usage of PCT among applications in general, as was shown in Fig. 5.1. In 2011, the percentage of usage of the PCT system increased by the U.S. and the EPC states. For P.R. China and R. Korea, the proportion decreased by 9 percent and 4 percent respectively.

PCT AUTHORITIES

Under the PCT, each of the IP5 Offices acts as RO, mainly for applicants from its own geographical zone, and as ISA and IPEA for non-residents and residents. The following graphs show the trends from 2011 to 2015.

Fig. 5.7 shows the breakdown of PCT international filings by ROs over time.

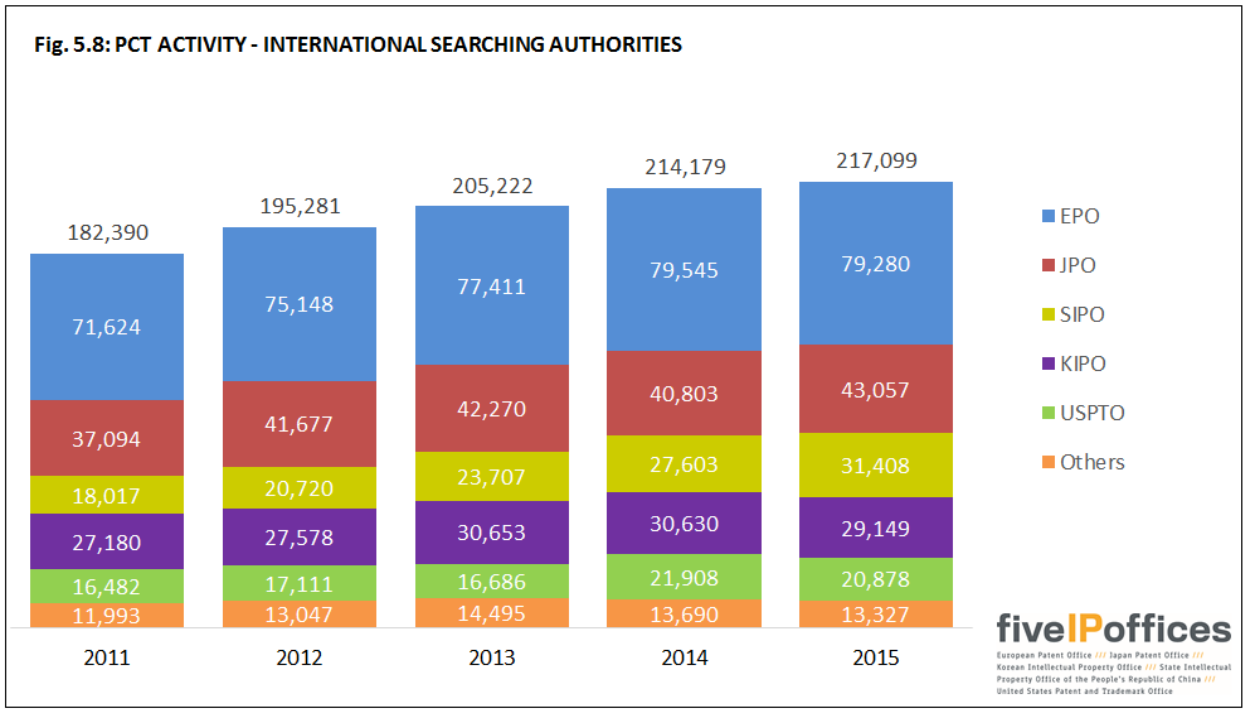


The totals for PCT international phase filings are also shown in Fig. 3.1. The total number of PCT international phase filings has recovered from 2011 and steadily increased by 2015. The compound annual growth rate from 2011 to 2015 was 4.4 percent.

In 2015, the IP5 Offices had an overall increase of PCT international filings of 1.2 percent compared with those in 2014, although decreases were seen for the USPTO (7 percent) and the Others (4 percent). The SIPO (16 percent) had the largest percentage increase. Together the IP5 Offices were RO for 83 percent of the PCT international filings in 2015 (80 percent in 2011).

Fig. 5.8 shows the breakdown over time of the numbers of international search requests to offices as ISA, for those applications for which information is known.

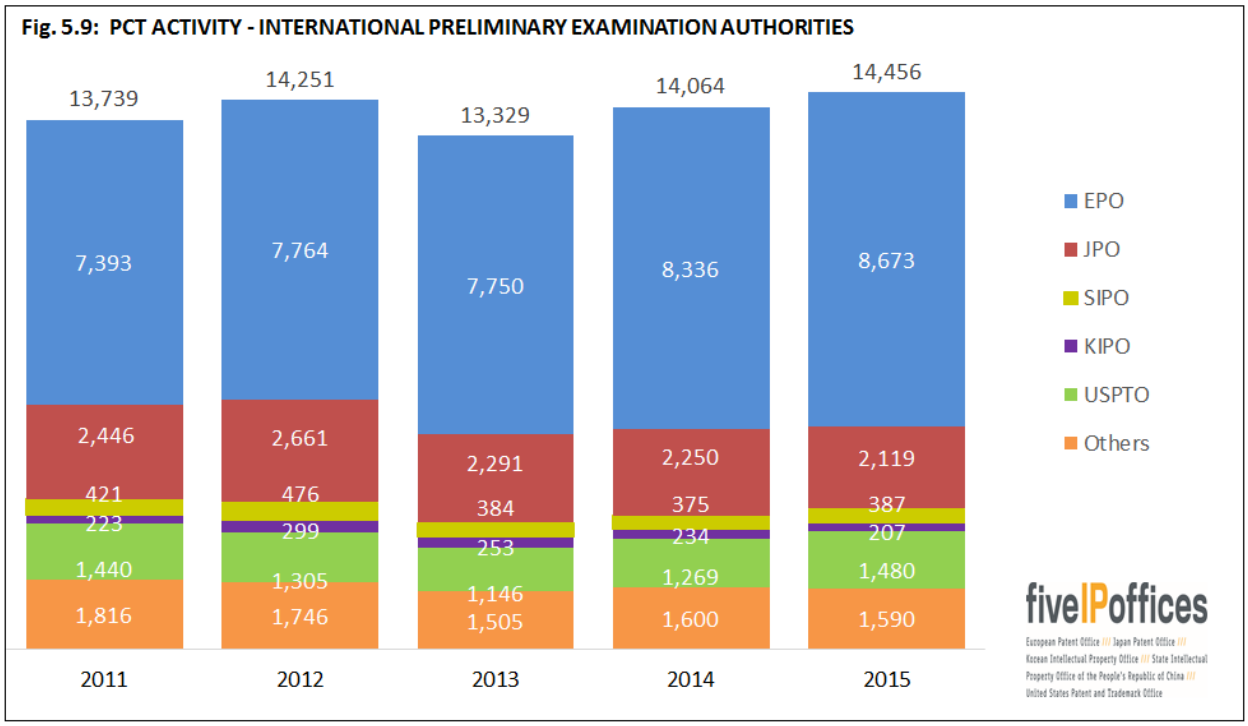
Since 2006, the KIPO has acted as an available ISA for international phase applications filed under the PCT with the U.S. as RO, or with International Bureau of the WIPO (IB) as RO where at least one of the applicants is a resident or national of the U.S.



The IP5 Offices together received 94 percent of the PCT international search requests in 2015. The EPO received consistently the largest number of requests (37 percent of all requests in 2015).

In 2015, strong growth was experienced by the SIPO (14 percent) and the JPO (6percent). For the KIPO and the USPTO, the proportion decreased by 5 percent.

Fig. 5.9 shows the breakdown over time of the numbers of international preliminary examination requests to Offices as IPEA.



From 2014 to 2015, the totals of requests for international preliminary examinations increased 3 percent.

Together, the IP5 Offices were in charge of 89 percent of the IPEA work in 2011. Annually, from 2011 to 2015, the EPO performed more than half of all the international preliminary examinations.

Chapter 6

OTHER WORK

This brief chapter contains further statistics of other work done on IP rights that is not common to all five offices. The data presented below supplement the information appearing in earlier chapters of this report.

This includes applications for plant patents (USPTO); reissue patents (USPTO); applications for patents other than those for inventions: utility models (JPO, SIPO, and KIPO), designs (JPO, SIPO, KIPO, and USPTO), trademarks (JPO, KIPO and USPTO) and search requests to be performed on behalf of national offices (EPO).

The utility model is different from the patent for invention, because it is used to protect a device in relation to the shape or construction of articles or combination of articles (JPO, SIPO), or to protect a creation of a technical idea using the rules of nature regarding the shape, structure or combination of subjects (KIPO). Contrary to most patent systems, a utility model is registered without a substantive examination as long as it meets basic requirements. The maximum period of protection for a utility model in Japan, R. Korea and P.R. China is 10 years which is shorter than for a patent for invention.

Neither the EPO nor the USPTO grants utility models. However, the USPTO's main type of patent is called a utility patent which is issued for the invention of a new and useful process, machine, manufacture, or composition of matter, or a new and useful improvement thereof. It is a patent for invention that is similar to the standard patents of the EPO, the JPO, the SIPO and the KIPO.

The numbers of requests received for these types of other work are shown for 2014 and 2015 in Table 6.

Table 6: STATISTICS ON OTHER WORK

Activity	Year	EPO	JPO	SIPO	KIPO	USPTO
Searches for national offices	2014	26,755				
	2015	24,367				
Design applications	2014		29,738	564,555	64,345	35,378
	2015		29,903	569,059	67,954	39,097
Utility model applications	2014		7,095	868,511	9,184	
	2015		6,860	1,127,577	8,711	
Plant patent applications	2014					1,063
	2015					1,140
Reissue applications	2014					1,265
	2015					1,049
Trademark applications	2014		124,442		150,226	463,316
	2015		147,283		185,443	518,315

The notable changes from 2014 to 2015 were an increase of about 30 percent for utility model applications at the SIPO, a 17 percent decrease for Reissue patent applications and a 7 percent increase for Plant patent applications at the USPTO.

Annex 1
DEFINITIONS FOR OFFICES EXPENDITURES

EPO EXPENSES UNDER IFRS (Fig. 2.2)

The full costs are distributed to eight types of EPO products (labelled A to H in Fig. 2.2). Of these, five types are directly related to processing of patent applications: filing, search, examination, opposition, and appeal. The other three types are related to different tasks performed by the EPO: patent information, technical cooperation and the European patent academy.

Direct costs immediately related to one product are entirely allocated to this product. The indirect costs are distributed to the products according to staff and usage keys, with information technology costs being distributed according to their catalogue of services.

A-E. Business support and other indirect

- Salaries and allowances of the concerned permanent staff as well as temporary staff, including the yearly variation of liabilities for pensions, long-term care, death, sickness ("current service costs"), and partial tax compensation
- Training, recruitment, transfer and leaving costs, medical care, welfare of these staff
- Their share of depreciation for buildings, IT equipment and other tangible and intangible assets, including the depreciation component of financial leases
- Their share of operating costs related to the maintenance of electronic data processing hardware and software, licenses, programming costs of self-developed systems as far as they do not qualify for capitalization
- Their share of operating costs related to the maintenance of buildings, technical installations, equipment, furniture and vehicles, such as rent, cleaning and repairs, electricity, gas, water
- The relevant business support shared costs that mostly include management, human resources, finance, legal advice and communication functions

F. Patent information

This covers the publication of patent documentation, raw data products, public information, customer services, website, conference, exhibitions and fairs. The product lines bear the full cost of operating such activities.

G. Technical cooperation

Cooperation with contracting states including support to national patent offices, assistance to third countries, Trilateral and IP5 activities, EPOQUE Net. The product lines bear the full cost of operating such activities.

H. European patent academy

The product lines bear the full cost of operating such activities including professional representatives and European qualifying examination support, conference costs.

JPO EXPENDITURES (Fig. 2.3)

Expenses for JPO's business

Expenses for business processing

A. General processing work

- Existing personnel (including increase and transfer)
- General administration
- Various councils
- Encouragement of guidance including patent management
- External rented offices
- Internationalization of industrial property administration
- Project for supporting medium and small company's applications

B. Examination and appeals/trials, etc.

- Infrastructure improvement for examination and appeals/trials
- Disposition of examination and appeals/trials
- Execution of PCT
- Patented micro-organisms deposition organization

C. Information management

Management of information for use in examination and appeals/trials

D. Publication of Patent Gazette, etc.

E. Computers for patent processing work

F. Facility improvement

G. Operating subsidies for INPIT[41]

H. Others

All other expenses not covered by the above.

[41] This term is explained in the glossary that is available with the web-based version of the report, www.fiveipoffices.org/statistics/statisticsreports.html.

SIPO EXPENDITURES (Fig. 2.4)

A. Administrative Operation

B. Patent Examination

C. Personnel Training

D. Social Security

Pension of staff in administrative agencies.

E.Housing Security

Infrastructure-related expense.

F. Patent Enforcement

G. Others

All other expenses not covered by the above.

KIPO EXPENDITURES (Fig. 2.5)

A. Personnel resources

Compensation for the services of employees or the inclusive expenditure of the services of employees: salaries, bonuses, and remuneration of temporary staff.

B. Internal business

Internal business includes Public-employee pension, balance, and transaction between the accounts.

C. Primary business expenses

Primary business expenses include expenditures on the development, operation, and private transfer which mainly related to the business of private organizations or affiliated organizations, including expenses on the business and task.

D. Other expenses

All other expenses not covered by the above.

USPTO EXPENDITURES (Fig. 2.6)

A. Salaries and Benefits

Compensation directly related to duties performed for the Government by Federal civilian employees. Also included are benefits for currently employed Federal civilian personnel.

B. Equipment

C. Rent and Utilities

Payments for the use of land, structures, or equipment owned by others and charges for communication and utility services.

D. Printing

Costs incurred for printing and reproduction services including related composition and binding operation.

E. Other expenses

All other expenses not covered by the above (heading for equipment and printing are above) including but not limited to:

- Equipment: Property of a durable nature, which is defined as property that normally may be expected to have a period of service of a year or more, after being put into use, without material impairment of its physical condition or functional capacity. Also included is the initial installation of equipment when performed under contract.
- Printing: Printing and reproduction obtained from the private sector, or from other Federal entities.
- Supplies and Materials: Commodities that are ordinarily consumed or expended within one year after they are put into use, converted in the process of construction or manufacture, used to form a minor part of equipment or fixed property, or other property of little monetary value that does not meet any of the three criteria listed above, at the option of the agency.

Annex 2

DEFINITIONS FOR TERMS AND FOR STATISTICS ON PROCEDURES

This annex contains firstly definitions of the main terms used in the report[42]. After that there is an explanation of the patent procedures relating to Fig. 4.9. Then finally there are definitions of the statistics on procedures that appear in Table 4.3.

DEFINITIONS OF TERMS

APPLICATIONS, COUNTING OF

Application counts are mainly determined by counting each national, regional or international application only once. However, alternative representations are also given in Chapter 3 after cumulating the number of designated countries over applications.

In this report, applications are counted in terms of patent filings; first filings; requests for patents entering a grant procedure; and demand for national patent rights.

- Counts of 'Patent filings' include direct national, direct regional, and initial PCT international phase applications;
- Counts of 'First filings' include initial patent applications filed prior to any later subsequent filings to extend the protection to other countries;
- Counts of 'Requests for patents entering a grant procedure' include direct national, direct regional, national phase PCT, and regional phase PCT applications;
- Counts of 'Demands for national patent rights' include direct national applications counted once each, designations in regional applications, national phase PCT applications, and designations in regional stage PCT applications.

These counting methods are used in various sections of the report, and particularly in Chapter 3. The methods are discussed in greater detail both at the beginning of Chapter 3 and at the beginning of the corresponding sections of Chapter 3.

BLOCS, GEOGRAPHIC

Six geographical blocs are defined in this report. The first five blocs, together, are referred to as the "*IP5 Blocs*". They are:

- The EPC contracting states (EPC states in this report) corresponding throughout the period covered in this report to the territory of the 38 states party to the EPC at the end of 2015;
- Japan (Japan in this report);
- People's Republic of China (P.R. China in this report);
- Republic of Korea (R. Korea in this report);
- United States of America (U.S. in this report).

[42] A more extensive glossary of terms is available with the web-based version of the report.

The remaining geographical areas are grouped together as:

- The rest of the world (Others in this report).

These blocs are referred to as blocs of origin on the basis of the residence of the first-named applicants or inventors (throughout the report) or as filing blocs on the basis of the place where the patents are sought (in Chapters 3 and 5).

DEMANDS FOR PATENT RIGHTS

Demands for patent rights refers to applications for patents for invention. The counts of patent filings (see above) are made principally by counting each national, regional or international application only once. However, alternative representations are also given in Chapter 3 in terms of the demands for national patent rights, after cumulating the number of designated countries over applications. This makes a difference only in regard to systems where multiple countries can be designated in an application (PCT and regional systems). Demands for 'national' patent rights effectively measures the number of national patent applications that would have been necessary to seek patent protection in the same number of countries if there were no PCT or regional systems. The counts include direct national filings, designations in regional systems, national stage PCT applications, and designations in regional stage PCT applications.

DIRECT APPLICATIONS

"*Direct*" applications are filed directly with the country or regional patent office where protection is sought and are counted in the year they are filed. They are distinguished from "*PCT*" applications in order to distinguish the two subsets of applications handled by patent offices.

DOMESTIC APPLICATIONS

These are defined as all demands for patents made by residents of the country where the application is filed[43]. For the purpose of reporting statistics for the EPC contracting states considered as a bloc, domestic applications are given with regard to the applications made by residents from anywhere inside the EPC bloc. For example, applications made by residents of France in one of the other EPC contracting states are counted as domestic demand in the EPC bloc.

FIRST FILINGS

These are applications filed without claiming the priority[44] of another previous filing and are counted in the year they are filed. They are usually made in the home country or region. All other applications are subsequent filings, usually made within one year of the first filings. In the absence of a complete set of available statistics on first filings, it is assumed in this report that domestic national filings are equivalent to first filings[45] and that PCT filings are subsequent filings. Currently

[43] For the USPTO, this is by the residence of the first-named inventor; For the EPO, the JPO, the KIPO, and the SIPO, this is by the residence of the first-named applicant.

[44] See the Article 4A to 4D of the Paris Convention at the WIPO web site; www.wipo.int/treaties/en/ip/paris/.

[45] The data source used for patent families allows a precise count of first filings. Except in the sections on patent families, an approximation of the number of first filings in the EPC Bloc is made by adding first filings at the EPO to aggregated domestic national applications in the EPC contracting states.

USPTO first filing data, unless otherwise noted, also include a substantial proportion of applications that are continuations of applications previously filed at the USPTO. See also *APPLICATIONS, COUNTING OF*.

FOREIGN APPLICATIONS

These are defined as all demands for patents made by residents of a location outside of the country or region where the application is filed[46]. See the term definition for Domestic Applications for additional details.

GRANTS, COUNTING OF

Grant counts in Chapter 3 are based on the WIPO Statistics Database[47]. They are counted in the year that the grants are issued or published. As with the demand for patent rights, the demand for rights granted in each bloc are considered after cumulating the number of designated countries for which national patent rights have been granted via regional procedures. The counts in Chapter 4 and proportions of PCT grants in Chapter 5 are based on IP5 Offices data.

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. Groups containing only utility model applications are excluded. Provisional patent filings are allowed. The patent family counts are made using the reference DOCDB database at EPO, which is fed with data from patent publications from patent offices worldwide. But, only 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 in Table 3 conform with those in Fig. 3.4. This has been implemented since the previous edition of this report. The proportions of the overall numbers of first filings that generated families using the PCT in Fig. 5.5 make use only of patent families data, as in previous reports. For the purposes of this report[48], IP5 patent families are a filtered subset of patent families for which there is evidence of patenting activity in all IP5 Blocs.

PATENTS IN FORCE

Patents in force are patents that have not yet expired. Patents may expire for several reasons, two of the most common being the completion of their patent term and the failure to pay a required maintenance fee.

[46] For the USPTO, this is by the residence of the first-named inventor; For the EPO, the JPO, the SIPO, and the KIPO, this is by the residence of the first-named applicant.

[47] www.wipo.int/ipstats/en/statistics/pct/index.html.

[48] The statistical annex of this report, that is available at the web site, and previous editions of this report, also give statistics on Trilateral Patent families and Four blocs families. These are a filtered subset of patent families for which there is evidence of patenting activity in all the Trilateral blocs (EPC, Japan, and U.S.), or all the Trilateral blocs and R. Korea, respectively.

PCT APPLICATIONS

Applications that are filed under the PCT are first handled by appointed offices during the international phase. About 30 months after the first filing, they enter the national/regional phase to be treated as national or regional applications according to the regulations of each designated office where protection is sought. "*PCT*" applications are distinguished from "*direct*" applications in order to distinguish the two subsets of applications handled by patent offices. PCT applications are usually counted in the year that they enter the national (or regional) phase, although in some parts of this report they are counted in the year of filing in the earlier international phase[49].

REQUESTS FOR PATENTS ENTERING A GRANT PROCEDURE

These are filings that entered a grant procedure and include direct national, direct regional, national phase PCT, and regional phase PCT applications. 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.

SUBSEQUENT FILINGS

Subsequent filings are applications filed that claim the priority[50] of a previous filing and usually are made within one year of the first filings. See also FIRST FILINGS. Currently, USPTO subsequent filings data also include a substantial proportion of applications that are continuations of applications previously filed at the USPTO.

[49] An international phase PCT application can in theory be a first filing but is usually a subsequent filing made up to twelve months after a first filing. A national (or regional) phase PCT entry can follow on from the corresponding international phase PCT filing and is made up to 30 months after the first filing.

[50] See the Article 4A to 4D of the Paris Convention at the WIPO web site, www.wipo.int/treaties/en/ip/paris/.

EXPLANATIONS OF THE PATENT PROCEDURES

The following section contains additional explanations of the IP5 Offices patent procedures as shown in Fig. 4.9.

EXAMINATION: SEARCH AND SUBSTANTIVE EXAMINATION

Each of the IP5 Offices examines a filed patent application based upon novelty, inventive step, and industrial applicability. At the EPO, the process involves two phases: a search to establish the state of the art with respect to the invention and a substantive examination to evaluate the inventive step and industrial applicability. For the second phase, a separate request has to be filed no later than six months after publication of the search report.

In the national procedures before the JPO, the SIPO, the KIPO, or the USPTO, the search and substantive examination are undertaken in one phase.

Filing of a national application with the USPTO is taken to imply an immediate request for examination. At the JPO, the SIPO, and the KIPO, deferred examination systems exist and filing of a national application does not imply a request for examination; which 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.

The international searches and international preliminary examinations carried out by the IP5 Offices as PCT authorities are not included in the flow chart.

PUBLICATION

In the IP5 Offices, the application is to be published no later than 18 months after the earliest priority date, or otherwise the date of filing (in case of a first filing). The application can be published earlier at the applicant's request. In each of the IP5 Offices, the publication process is independent of other office processes such as examination. Also, at the USPTO, an application that has not and will not be the subject of an application filed in foreign countries does not need to be published if an applicant so requests.

GRANT, REFUSAL / REJECTION, WITHDRAWAL

When an examiner intends to grant a patent, this information is communicated to the applicant - Announcement of grant (EPO); Decision to grant (JPO); Decision to grant (SIPO); Decision to grant (KIPO); Notice of allowance (USPTO). If a patent cannot be granted in the form as filed before the office, the intention to reject the application is communicated to the applicant: (unfavourable) Examination Report (EPO); Notification of reason for refusal (JPO); Notification of reason for refusal (SIPO); Notification of reason for refusal (KIPO); Office action of rejection (USPTO). The applicant may then make amendments to the application, generally in the claims, after which examination is resumed. This procedural step is iterated as long as the applicant continues to make appropriate amendments. Then, either the patent is granted or the application is finally rejected - Intention to refuse (EPO); Decision of rejection (JPO); Decision of rejection (SIPO); Decision of rejection (KIPO); Final rejection (USPTO) - or withdrawn by the applicant - Withdrawal (EPO); Withdrawal or Abandonment (JPO); Withdrawal or Abandonment (SIPO); Withdrawal or Abandonment (KIPO); Abandonment (USPTO). In addition, if no request for examination for an application is filed to the EPO, the JPO, the SIPO, or the KIPO within a prescribed period (six months after publication of the search report for the EPO, three years from the date of filing for the JPO and the SIPO, and five

years from the date of filing for the KIPO), the application will be deemed to have been withdrawn. In all five procedures, an applicant may withdraw or abandon the application at any time before the application is granted or finally refused.

After the decision to grant the patent, the patent specifications are published if certain administrative conditions are fulfilled, known as Publication of patent (EPO, JPO, SIPO, KIPO, and USPTO). At the USPTO, this action also is referred to as "*Patent issuance*". Patents granted by the EPO are also then subject to validation in the designated member states where the applicant is seeking patent protection.

OPPOSITION

The opposition procedures allow third parties to challenge a patent granted before the granting office.

There is no opposition system at the SIPO, and the KIPO.

At the EPO, the period for filing opposition(s) begins after granting of the patents and lasts nine months. If successful, the opposition can lead to a revocation of the patent or to its maintenance in amended form. Furthermore, the patentee may request a limitation or a revocation of his own patents.

At the JPO, only within six months from the date of publication of the Gazette containing the patent, any person may file an opposition to the grant of the patent. The examination of the opposition shall be conducted by documentary examination.

At the USPTO, prior to the implementation of the AIA on September 16, 2012, there were two types of third party opposition procedures: interference and re-examination. The AIA revised these and introduced some additional procedures. Under the AIA there are now six distinct procedures for third party opposition including post grant review, inter parte review, business method review, ex parte re-examination, interference, and derivation.

TRIAL AND APPEAL

An appeal can be filed by any of the parties concerned against a decision taken by the IP5 Offices. In practice, applicants can appeal decisions to reject an application or revoke a patent, while opponents can appeal decisions to maintain a patent. The procedure is in principle similar for the IP5 Offices. The examining department first studies the argument brought forward by the appellant and decides whether the decision should be revised. If not, the case is forwarded to a Board of Appeal, which may take the final decision or refer the case back to the examining department.

The JPO deals with ex parte appeals (e.g. appeals against examiner's decision of refusal) and inter partes trials (e.g. trials for invalidation). If applicants have an objection to examiner's decision of refusal, they can file an appeal against the examiner's decision of refusal with the JPO. In case the applicants have made an amendment at the time of requesting the appeal against the examiner's decision of refusal, the examination department that has issued the said decision will examine the case again. During this examination, only those which are not eligible for patent grant are transferred to the board of trial and appeal where the proceedings of appeals shall be executed. In addition, any interested party can demand a trial for invalidation upon registration of the establishment of rights. At the trial for invalidation, oral proceedings shall be executed in principle.

The SIPO has re-examination and invalidation procedures. Where an applicant for a patent is not satisfied with the decision of the SIPO rejecting the application, the applicant may, within three months from the date of receipt of the notification, request the Patent Re-examination Board to make a re-examination. Where any entity or individual considers the grant of a patent right is not in conformity with the relevant provisions of the Patent Law, a request can be made to the Patent Re-examination Board to declare the patent right invalid.

DEFINITIONS FOR STATISTICS ON PROCEDURES

The following section contains additional definitions for terminology appearing in Table 4.3 follow.

EXAMINATION RATE

This rate shows the proportion of those applications, for which the period to file a request for examination expired in the reporting year, that resulted in a request for examination up to and including the reporting year.

For the EPO, the request for examination has to be filed no later than six months after publication of the search. For example the rate for 2012 relates to applications mainly filed in the years 2011 and 2012.

For the JPO, the period to file a request for examination is three years from filing date. The rate for 2012 relates mainly to applications filed in the year 2009.

For the SIPO, the period to file a request for examination is three years from filing date.

For the KIPO, the period to file a request for examination is five years. The rate for 2012 relates mainly to applications filed in the year 2007.

At the USPTO, as filing an application implies a request for examination, such a request is made for all applications.

GRANT RATE

For the EPO, this is the number of applications that were granted during the reporting period, divided by the number of disposals in the reporting period (applications granted plus those abandoned or refused).

For the JPO, the grant rate is the number of decisions to grant a patent divided by the number of disposals in the reporting year (decisions to grant or to refuse and withdrawals or abandonment after first office action).

For the SIPO, only the number of granted patents is currently available.

For the KIPO, the grant rate is the number of patent approvals divided by the number of disposals in the reporting year (sum of the numbers of patent approvals, rejections, and withdrawals after first office action).

The USPTO has revised its calculation to present a grant rate that is more consistent with the other IP5 Offices. In reports prior to the 2011 edition, a USPTO allowance rate was reported rather than a grant rate. In this report, the displayed USPTO grant rate is the total number of issued patents divided by the total number of applications disposed of in the reporting year. Requests for continued examination (RCEs) are not included in the disposals. This grant rate differs from the allowance rate usually reported by the USPTO, which counts the total number of applications determined to be eligible by USPTO patent examiners for a patent divided by the total number of applications disposed of in a reporting year. For the allowance rate, RCEs are included in the disposals. Both the rates include plant and reissue patent applications in addition to utility patent

applications. However, since utility applications comprise over 99 percent of these applications, the rates are almost identical to rates based strictly on utility applications.

OPPOSITION RATE

This term applies only to the EPO. The USPTO has opposition procedures but does not currently produce an opposition rate.

The opposition rate for the EPO is the number of granted patents for which the opposition period (which is nine months after the date of grant) ended in the reporting year and against which one or more oppositions were filed, divided by the total number of patents for which the opposition period ended in the reporting year.

APPEAL ON EXAMINATION RATE

For the EPO, the rate is the number of decisions to refuse in the examination procedure against which an appeal was lodged in the reporting year, divided by the number of all decisions to refuse for which the time limit for appeal ended in the reporting year.

For the KIPO, the rate is the number of appeals filed during the year after the examiner's decision to issue a final rejection against a patent application divided by the number of final rejections issued against a patent application during the year.

The USPTO rate, which includes utility, plant, and reissue categories, captures the number of appeals filed after an examiner's decision to issue a final rejection against a patent application. The rate is the number of examiner answers written during the year in response to appeal briefs divided by the number of final rejections issued that year. This rate includes plant patents and reissue patents in addition to utility patents (see above GRANT RATE).

For all five offices, any subsequent litigation proceedings in national courts are not included.

PENDENCY / EXAMINATION / NUMBER OF APPLICATIONS AWAITING REQUEST FOR EXAMINATION

This does not apply to the USPTO.

This figure indicates the number of filed applications awaiting a request for examination by the applicant.

For the EPO, this indicates the number of applications for which the search report has not been published (pending in search) by the end of the reporting year, added to the number of applications for which the search report has been published but the prescribed period for the request has not expired (six months after publication of the search report).

For the JPO, SIPO and the KIPO, the numbers of applications awaiting request for examination indicate the numbers of applications for which no request for examination has been filed by the end of the reporting year, and for which the prescribed period for the request (three years after filing for the JPO and the SIPO, five years for the KIPO) has not expired.

For the JPO, numbers include the number of abandoned/withdrawn applications.

PENDENCY / EXAMINATION / NUMBER OF PENDING APPLICATIONS

For the EPO, this is the number of applications filed for which the search was completed and the request for examination was filed, yet they have not received a final decision by the examining division (announcement to grant, to refuse or abandonment) by the end of the reporting year.
For the JPO and the KIPO, pending applications in examination are applications for which the requests for examination were filed and which have been waiting for a first action and have not been subject to a final action such as withdrawal or abandonment by the end of the reporting year.

For the JPO, the applications for which the applicants wished to make deferred payment of examination request fee and have been still deferring the payment are not counted in the number of pending examinations.

For the USPTO, pending applications in examination are applications that are waiting for a first action and have not been subject to a final action such as withdrawal or abandonment by the end of the reporting year. These figures do not include other pending applications that have been subject to a first action.

PENDENCY / EXAMINATION / PENDENCY FIRST OFFICE ACTION

This is measuring the delay until the first action on patentability.

For the EPO, the pendency to first office action is the median time period, in months, measured from the date of filing the application to the date of issue of the European search report which is extended to include an opinion on the patentability.

For the JPO, pendency first office action is the average time period, in months, from the request for examination to first office action in examination.

For the SIPO, pendency first office action is the average time period, in months, from when applications entered the substantive examination phase following the request for examination to first office action in examination.

For the KIPO, pendency first office action is the average time period, in months, from the request for examination to first office action in examination.

For the USPTO, pendency first office action is the average amount of time, in months, from filing to First office Action On Merits (FAOM). A FAOM is generally defined as the first time an examiner either formally rejects or allows the claims in a patent application.

PENDENCY / EXAMINATION / PENDENCY FINAL ACTION

For the EPO, the counts relate to pendency until a final decision by the examining division (decisions to grant or refuse) during the reporting year. This is the median time elapsed from the date on which the application enters the substantive examination, once the request for examination has been completed, to the date of the decision by the examining division.

For the JPO and the KIPO, pendency for examination in months is the total number of months taken for disposing applications as final actions (decisions to grant or to refuse, withdrawals or

abandonments) in the reporting year, divided by the number of final actions during the reporting year.

For the SIPO, pendency for examination refers to the average time period taken, in months, for disposing applications, calculated from the date on which the application enters the substantive examination phase to the date on which the final action (decisions to grant or of rejection, withdrawals, or abandonments) is issued.

For the USPTO, pendency examination in months is calculated by measuring the time from filing to abandonment or issue for all applications that are abandoned or issued during a three month period. The average of these times is the pendency in months. This number includes plant patents and reissue patents in addition to utility patents (see above GRANT RATE).

PENDENCY INVALIDATION

This is only reported for the SIPO.

"*Pendency time in invalidation*" refers to the duration from the date on which the notification of acceptance of request for invalidation is issued to the date on which the examination decision on request for invalidation is issued.

ACRONYMS

AIA	Leahy-Smith America Invents Act [USPTO]
ARIPO	African Regional Intellectual Property Office
CCD	Common Citation Document [EPO]
CEPCT	China Electronic PCT [SIPO]
CPC	Cooperative Patent Classification
DOCDB	DOCument DataBase [EPO]
EAPO	Eurasian Patent Organization
ECfS	Early Certainty from Search [EPO]
ECLA	European Classification [EPO]
EPC	European Patent Convention [EPO]
EPN	European Patent Network [EPO]
EPO	European Patent Office
ESAB	Economic and Scientific Advisory Board [EPO]
E-System	Chinese Electronic Examination System [SIPO]
EU	European Union
FA	First Action
FAOM	First Office Action on the Merits [USPTO]
FI	File Index
F-term	File Forming Term
FOSR	Four Office Statistics Report
FY	Fiscal Year
GCCPO	Gulf Cooperation Council Patent Office
GDP	Gross Domestic Product
GIPA	Global IP Academy [USPTO]

IAM	Intellectual Assets Magazine
IB	International Bureau of WIPO
IFRS	International Financial Reporting Standards [EPO]
IMF	International Monetary Fund
INPIT	National Center for Industrial Property Information and Training [JPO]
IP	Intellectual Property
IP5	Five IP Offices (EPO, JPO, SIPO, KIPO, USPTO)
IP5 PPH	IP5 Patent Prosecution Highway
IP5 SR	IP5 Statistics Report
IPC	International Patent Classification
IPEA	International Preliminary Examination Authority
IPR	Intellectual Property Rights
IPRP	International Preliminary Reports on Patentability
ISA	International Searching Authority
ISR	International Search Reports
IT	Information Technology
JP-FIRST	JP-Fast Information Release Strategy [JPO]
JPO	Japan Patent Office
KIPO	Korean Intellectual Property Office
K-brands	Korean Brands
OAPI	Organization Africaine de la Propriété Intellectuelle
OEE	Office of Earlier Examination [JPO]
OFF	Office of First Filing [JPO]
OHIM	Office for Harmonization in the Internal Market [EPO]
OLE	Office of Later Examination [JPO]

OPD	One Portal Dossier
OSF	Office of Second Filing [JPO]
PACE	Program for Accelerated Prosecution of European Patent Applications [EPO]
PCT	Patent Cooperation Treaty
PPH	Patent Prosecution Highway
P.R. China	People's Republic of China
RCE	Request for Continued Examination [USPTO]
RIPC	Regional IP Centers
R. Korea	Republic of Korea
RO	Receiving Office
SBC	Server-Based Cloud [KIPO]
SIPO	State Intellectual Property Office of the People's Republic of China
SME	Small and Medium-Sized Enterprise
S-System	Chinese Patent Search and Service System [SIPO]
TSR	Trilateral Statistical Report
U.S.	United States of America
USPC	United States Patent Classification System
USPTO	United States Patent and Trademark Office
WIPO	World Intellectual Property Organization
WO-ISA	PCT written opinion on patentability in the international phase

European Patent Office (EPO)
Bob-van-Benthem-Platz 1
80469 Munich
Germany
www.epo.org

Japan Patent Office (JPO)
3-4-3 Kasumigaseki, Chiyoda-ku
Tokyo 100-8915
Japan
www.jpo.go.jp

State Intellectual Property Office of the People's Republic of China (SIPO)
No. 6, Xitucheng Lu, Jimenqiao,
Haidian District
Beijing 100088
People's Republic of China
www.sipo.gov.cn

Korean Intellectual Property Office (KIPO)
Government Complex Daejeon Building 4
189, Cheongsa-ro, Seo-gu, Daejeon, 35208
Republic of Korea
www.kipo.go.kr

United States Patent and Trademark Office (USPTO)
P.O. Box 1450
Alexandria, VA 22313
United States
www.uspto.gov

This report contains statistical information from the five major Patent offices in the world (IP5 Offices). It gives a description of worldwide patenting activities, and provides details and comparison about the business processes taking place at each office.

Edited by the JPO, 2016
Jointly produced by the EPO, JPO, SIPO, KIPO, and USPTO.