

IP5 Statistics Report 2018 Edition



IP5 Statistics Report 2018 Edition

European Patent Office,
Japan Patent Office,
Korean Intellectual Property Office,
China National Intellectual Property Administration,
United States Patent and Trademark Office

Edited by
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Executive Summary

The IP5 Statistics Report (IP5 SR) is an annual compilation of patent statistics for the five largest intellectual property offices – the IP5 Offices – namely the European patent Office (EPO), the Japan patent Office (JPO), the Korean Intellectual Property Office (KIPO), the China National Intellectual Property Administration (CNIPA) and the United States Patent and Trademark Office (USPTO).

- At the end of 2017, 13.6 million patents were in force in the world (+15.9 percent). 91 percent of these patents were in force in one of the IP5 Office jurisdictions.
- In 2017, 2.8 million patent applications were filed worldwide, either as direct national, direct regional or international phase PCT applications, of which 94 percent originated from the IP5 Blocs.
- In 2017, 89 percent of the worldwide patent applications were filed as direct national applications. The proportion of applications filed via the PCT remained stable.
- In 2018, 2.8 million patent applications were filed at the IP5 Offices (+6.0 percent).
- Together the IP5 Offices granted 1.2 million patents in 2018 (+1.4 percent).
- In 2018, the main developments at the IP5 Offices were:
 - IP5: In June, the 11th meeting of the IP5 Heads of Office was held in New Orleans, U.S.. Together with representatives of industry groups from the five regions, the IP5 Heads of Office celebrated ten years of IP5 cooperation. First the first time the IP5 Statistics Report is published online only.
 - EPO: On 1 July 2018, António Campinos took up duty as President of the EPO. In 2018 there was an increase in applications by nearly 5%, while the number of granted patents increased by 21%. The backlogs diminished further. A validation agreement with Cambodia entered into force.
 - JPO: With a growing need to shorten the average length of time it takes for the JPO to make decisions to grant or not grant patent rights, i.e. the total pendency, the JPO has been working on initiatives to speed up its examination process. In 2018, the total pendency and the first action (FA) pendency at the JPO are 14.1 and 9.3 months on average, respectively, while the JPO has been maintaining its efficient and prompt examinations, just as it did in 2017. Meanwhile, the number of international search reports the JPO prepared under the PCT has been increasing in recent years and reached a record high of 47,934.
 - KIPO: Prior art searches were expanded, examination quality was enhanced and customized examination services were provided. The annual average first office action pendency period was 10.3 months for patents and utility models. KIPO received a preliminary total of 465,015 applications for IPRs, including patents, utility models in 2018. The number of PCT applications filed from Korea increased by 7.6 percent from 15,790 in 2017 to 16,991 in 2018, which is the 5th largest amount by country of origin.

- CNIPA: In 2018, the reorganization of CNIPA has been smoothly completed. With unified administration of trademark, patent, geological indication and integrated circuit layout design, the management efficiency has been greatly enhanced. Due to these changes, in August 2018 the English name SIPO was changed to China National Intellectual Property Administration (abbreviated as CNIPA). The number of invention patent applications filed for which relevant fees were paid increased by 11.6 percent and grants for inventions by 2.9 percent, while the average pendency period for grants was approximately 22.5 months

- USPTO: In 2018, Mr. Andrei Iancu was appointed as the Under Secretary of Commerce for Intellectual Property and Director of the USPTO on February 8. In the same year, the USPTO issued its 10 millionth patent on June 19 and unveiled a new U.S. patent cover design to commemorate the event.. For patent applications at the USPTO, the final action pendency decreased from 24.2 months to 23.8 months (for FY 2018). The overall patent grant rate increased from 71.9 percent to 74.5 percent.

Preface

The IP5 Statistics Report (IP5 SR) is jointly produced by the “IP5 Offices,” hereafter referred to as the Group, which consist of the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the China National Intellectual Property Administration (CNIPA), 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 Key IP5 statistical indicators 2018 data report that was made earlier in 2019. The latest reports, along with other data exchanges and information about the Group, can be found at the IP5 Offices homepage www.fiveipoffices.org.

In June 2018, the USPTO hosted the IP5 Heads of Office meeting held in New Orleans, LA. The IP5 consists of the EPO, the JPO, the KIPO, the CNIPA, and the USPTO. Together, these offices account for more than 80 percent of patent applications filed worldwide, as well as about 95 percent of all PCT work. In 2018, the IP5 continued the tradition of cooperation to strengthen work sharing, patent examination efficiency and quality, and the stability of patent rights for innovators around the world. To assist with these efforts, the USPTO helped lead to completion a comprehensive project evaluation by the IP5. This evaluation was undertaken in order to enhance procedural efficiencies for applicants who apply for patents in multiple IP5 offices. Throughout this evaluation, the IP5 focused on identifying and prioritizing initiatives that would most efficiently achieve the IP5's goals and objectives, including providing further enhancements to Global Dossier and improving work sharing amongst the IP5 offices through programs such as the Collaborative Search Pilot and PCT Collaborative Search and Examination program.

The IP5 Heads of Office meeting also addressed topics that are deemed to play an increasingly important role in the future of IP5 co-operation and which could have a significant impact on the global patent system, such as the further development of the Global Dossier and the increasing use of Artificial Intelligence (AI).

In a meeting with IP5 Industry, appreciation was expressed for the EPO's leadership and the continuous progress that it has made in the area of quality. In particular, industry representatives underlined the value of exchanges with the users of the IP5 regions under the framework of the Partnership for Quality. They also highlighted the value of the EPO's comprehensive annual Quality Report and the Praktika intern/extern programme, which encourages greater dialogue between EPO examiners and industry.

The Heads of Office meeting also assessed the evolution of IP5 co-operation since its launch in 2007. The five largest offices account for 80 percent of the global patent market and share the responsibility of optimising the international patent system. Speaking on the future of IP5 co-operation, EPO President underlined that its success will depend on the rigorous prioritisation of projects, and the allocation of the necessary financial, human and IT resources that are required for their efficient and timely implementation. On the basis of a proposal from the EPO, the IP5 offices reaffirmed the impact of AI on the patent system as one of the IP5's main strategic priorities. The subject of AI will now be explored further in conjunction with the other IP5 offices, led by the EPO. Also on the initiative of the EPO, the offices agreed to continue discussions at IP5 level on the interplay of patents and standards, with a view to establishing a uniform, international approach.

According to the World Economic Outlook¹ of the International Monetary Fund (IMF), the global economy is projected to grow at 3.5 percent in 2019 and 3.6 percent in 2020, but the expansion is becoming less even and risks to the outlook are mounting. Financial market conditions remain accommodative for advanced economies, which is where many patent applications are made. It seems likely that the drivers for patent applications will remain positive unless there is a major disruption to world economies. At the IP5 Offices in 2018, the applications increased 11.6 percent at the CNIPA, 4.6 percent at the EPO, 2.5 percent at the KIPO, while they decreased by 1.6 percent at the USPTO and 1.5 percent at the JPO. The data showed annual growth 6.0 percent for overall applications at the IP5 Offices (See Chapters 2 and 4 of this report).

Political and technological factors also influence the levels of patent filings. Globalization 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. Common vehicles for applying across different jurisdictions have also appeared, such as the PCT system, the validation agreements with the EPO and the Patent Prosecution Highway (PPH). These factors have had a positive impact on worldwide patent growth over recent years.

While applications are user driven, grants show the production capacity of the offices on those applications after some delay.

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 Annexes 1 and 2 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 especially 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). Please also note the links to statistics at each Office (www.fiveipoffices.org/resources/annualreports.html).

Together with this report, there is a separate glossary of patent-related terms and a set of statistical tables that show extended time series and graphs for most of the data found in this report.

EPO, JPO, KIPO, CNIPA, and USPTO
With cooperation of WIPO
Oct 2019

¹ World Economic Outlook October 2019: www.imf.org

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Chapter 1

INTRODUCTION

Intellectual Property (IP) refers to a variety of mechanisms that have been established for protecting “creations of the mind”², including:

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

to protect industrial innovations, and

- Copyrights

for literary and artistic creations.

This report focuses on industrial property rights and almost exclusively on patents for Invention³. 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 African, Eurasian, European and Gulf regional organizations)
- The Patent Cooperation Treaty (PCT) procedure

Each country and region maintains its own patent procedures in order to encourage innovative activities and to optimise the regional benefits of innovation. Enhanced international cooperation led to the establishment of different regional and international patenting procedures. But the patent laws vary 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 the IP5 Offices are all based on the first-to-file principle and follow the Paris Convention. To a large extent, this drives the usage of the patent systems worldwide. A first patent application is usually filed to the local national authority to protect the invention, followed within a 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

² See also, World Intellectual Property Organization, “What is Intellectual Property?” www.wipo.int/about-ip/en/ and World Intellectual Property Indicators – 2018, <https://www.wipo.int/publications/en/details.jsp?id=4369&plang=EN>

³ 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.

subsets of applications handled by the patent offices. While applications filed under national procedures are handled by national authorities, regional applications are subject to a centralised procedure and usually only after grant do they fall under national (post grant) regulations. PCT applications are handled at first by the appointed offices during the international phase. Up to 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 2018
- Japan (Japan in this report)
- Republic of Korea (R. Korea in this report)
- People's Republic of China (P.R. China 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." Throughout the report, the blocs are referred to as blocs of origin on the basis of the residence of the applicant 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 described below. With the exception of some items presented in Chapter 6, the statistics relate to patents for invention.

Please refer to Annex 2 for explanations of the statistical and procedural terms that are used.

Together with this report, there is an annex including a glossary of patent-related terms and a statistical table file that includes extended time series and graphs of much of the data found in this report⁴.

Chapter 2 - The IP5 Offices

A summary of the recent developments in each of the IP5 Offices is presented in Chapter 2. The terminologies for the budget items that appear are provided in Annex 1.

Chapter 3 - Worldwide Patenting Activity

An assessment of worldwide patent activity is presented in Chapter 3. This covers not only patenting activity at the IP5 Offices, but in the rest of the world as well.

The numbers of applications filed are presented in separate sections that use different definitions for counting. This provides a description 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 families⁵.

⁴ www.fiveipoffices.org/statistics/statisticsreports.html

⁵ For a further discussion of patent families, see Chapter 3 and the term definitions in Annex 2.

The statistics are mainly derived from the WIPO Statistics Database⁶, that includes data from each country and region.

Chapter 4 – Patent Activity at the IP5 Offices

The substantive activities of the IP5 Offices are presented in Chapter 4. This gives statistics on patent application filings and grants at the offices, as well as some comparative data on operations. The statistics are derived from IP5 Offices' internal databases.

Firstly, 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)⁷.

Then, 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.

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

In Chapter 5, 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, that includes data 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.

Annex 1 – Definitions for IP5 Offices' expenditures

This explains some terms that appear in Chapter 2.

⁶ This edition refers to general patent data as of March 2019, and to PCT international phase application data as of April 2019, www.wipo.int/ipstats/en/index.html

⁷ www.wipo.int/classifications/ipc/en/

Annex 2 – Definitions of terms and statistics on procedures

This gives more detailed information on the statistics that appear in the report, particularly for Table 4.3 in Chapter 4.

Annex 3 – Acronyms

This writes acronyms in full and in each case refers to the page of first occurrence of the acronym.

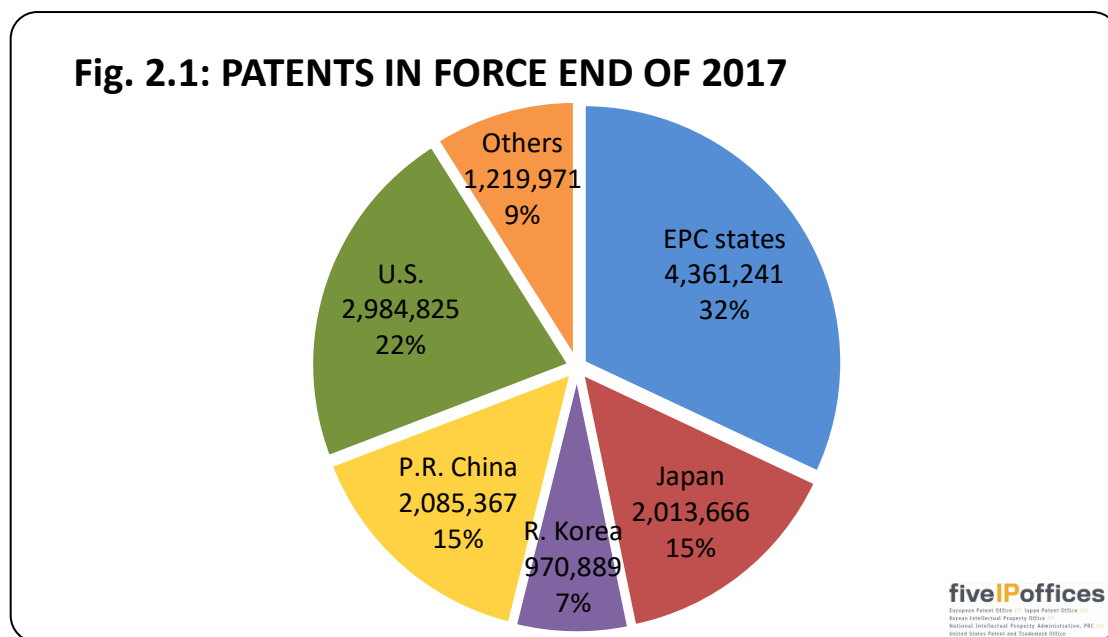
Chapter 2

THE IP5 OFFICES

This chapter details developments at each of the IP5 offices⁸.

International trade and markets continue to be of great importance, so innovators want their intellectual creations to be protected concurrently in multiple major markets. It is estimated that each year more than 250,000 first filings from the IP5 Offices result in subsequent patent applications to at least one other IP5 Office, accounting for over 500,000 applications including the resulting duplicates for the same inventions. To address the issue of the backlogs that can build up as a result of this, the IP5 Offices are working together to try to reduce the amount of repetition of similar 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 2017. The data are based on worldwide patent information available from the WIPO Statistics Database⁹.

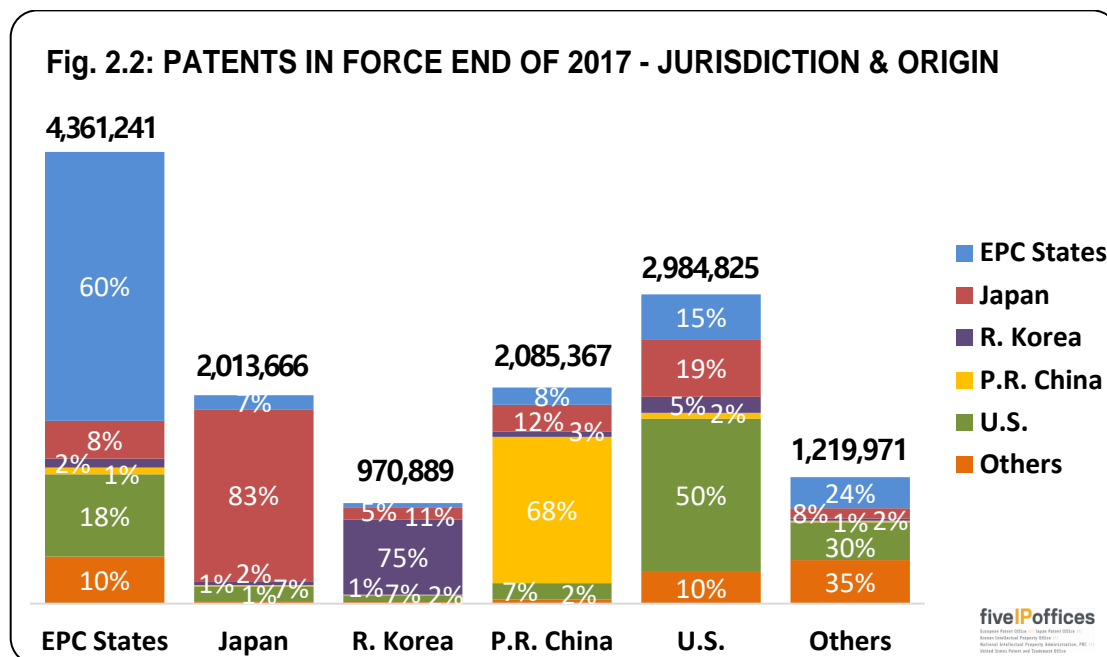


The number of patents in force worldwide increased from 11.8 million at end of 2016 to 13.6 million at the end of 2017. This demonstrates the prominent role that is played by the IP5 Offices.

⁸ The statistical tables file found in the web version of this report includes extended time series for some of the data included in this chapter. <http://www.fiveipoffices.org/statistics/statisticsreports.html>

⁹ www.wipo.int/ipstats/en/index.html Data for patents in force for 2017 are missing for some countries in the WIPO data. Where available, the most recent previous year's data were substituted for missing 2017 data. Data for 2018 are not yet available from WIPO. JPO's Data from JPO was used to complement some of the missing details.

Fig. 2.2 shows the residence of the holders of the patents in force at the end of 2017 in the regions of the IP5 Offices.



At the end of 2017, of the 13.6 million patents in force, 32% were valid in at the EPC states, 22% in the U.S. 15% in Japan, 7% in R. Korea and 9% in P.R. China.

In 2017, 61% of the patent rights in force were owned by residents of the blocs. This share varied between blocs. While 83% of the patents valid in Japan were held by Japanese patentees, only 50% of the U.S. patents were held by U.S. resident patentees. For EPC States, the corresponding shares was 60%, it was 75% for R. Korea and 68% for P.R. China. Around 70% of the patents in force in the bloc Others were held by IP5 residents.

EUROPEAN PATENT OFFICE

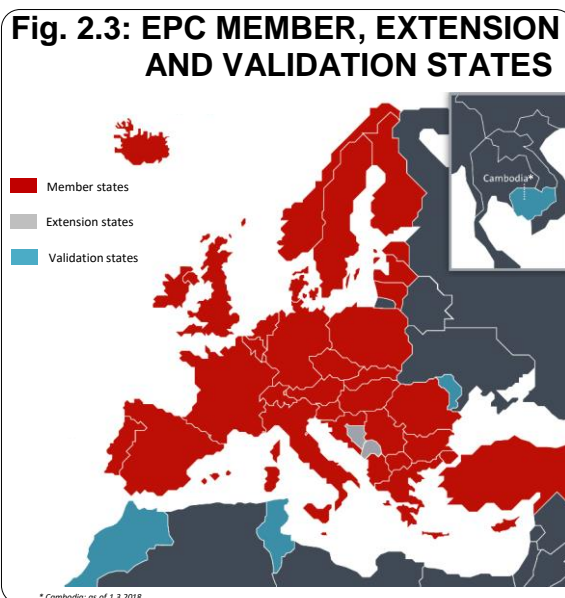
The mission of the EPO is to deliver high-quality patents and efficient services that foster innovation, competitiveness and economic growth. Its main task is to grant European patents according to the EPC. Moreover, under the PCT, the EPO acts as a receiving office as well as a searching and examining 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 and San Marino), 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 44 countries on the basis of a single patent application and a unitary grant procedure.

At the end of 2018, the 38 members of the underlying European Patent Organization were:

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



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

Cambodia, Moldova, Morocco and Tunisia had agreements to validate European patents in their territories.

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 44 countries for which European patents provide protection represent a population of around 700 million people.

Highlights of 2018

The number of patent applications filed with the European Patent Office (EPO) grew by 4.6%, reaching a new high of 174,317. In 2017 applications grew almost 4 percent. The internal reforms implemented as part of the Quality and Efficiency strategy that prioritized examination work and increased productivity led to a further reduction of volume of pending applications leading to further increase of the number of granted patents.

In 2018, the EPO production increased further by almost 4 percent, in particular the number of final actions in examination increased by more than 18 percent.

In response to users' need for timely delivery of services, the EPO undertook an initiative, known as Early Certainty, to speed up the patent granting process. Launched in 2014, Early Certainty from Search aimed at increasing legal certainty for applicants by providing a search report with written opinion within 6 months from filing. The programme led to some significant improvements in terms of timeliness. In 2018, the EPO kept focusing on the timeliness of examination and opposition (22.3 months¹⁰ and 18.6 months respectively in 2018). The percentage of EPO PCT international search reports published along with the application (i.e. A1 publications) remains high above 96 percent in 2017.

Every year the EPO carries out user satisfaction surveys on its search, examination and opposition services including patent administration. 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 the EPO internal processes in these areas. The result for 2018 shows 81 percent markings of good or very good for search and examination and 87 percent in markings of good or very good for patent administration. The Intellectual Assets Magazine (IAM) ranked the EPO at number 1 for the quality of its products and services in its seventh consecutive survey.

EPO had already fulfilled the new European Union (EU) General Data Protection Regulations as they came into force in May 2018.

EPO Production information

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 2017 and 2018. There was a further increase in demand in 2018 as represented by the number of patent applications.

¹⁰ In the case of decision to grant a patent.

Table 2.1: EPO PRODUCTION INFORMATION

EPO PRODUCTION FIGURES	2017	2018	Change	% Change
Patent applications (Euro-direct & Euro-PCT regional phase)	166,594	174,317	+ 7,723	+ 4.6%
Searches carried out				
European (including PCT supplementary)	137,348	122,403	- 14,945	- 10.9%
PCT international	83,752	84,224	+ 472	+ 0.6%
On behalf of national offices	26,403	26,499	+ 96	+ 0.4%
Total production search	247,503	233,126	- 14,377	- 5.8%
Examination-Opposition (final actions)				
European	153,858	185,364	+ 31,506	+ 20.5%
PCT Chapter II	8,836	7,867	- 969	- 11.0%
Oppositions	4,072	4,061	- 11	- 0.3%
Total final actions examination- opposition	166,766	197,292	+ 30,526	+ 18.3%
European granted patents	105,635	127,625	+ 21,990	+ 20.8%

The EPO fast track procedure, Programme for Accelerated Prosecution of European Patent Applications (PACE), can be requested without an additional fee and is open for any field of technology. However, with the introduction of Early Certainty initiative, the normal procedure has been accelerated. As a consequence, the number of such requests decreased markedly. In 2018, PACE was requested for 5 percent of the European examinations.

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. The total number of records in the EPO worldwide bibliographic database recently passed the 100 million mark. EPO databases are accessible through services such as Espacenet and also via numerous commercial providers. For users interested in performing statistical analyses of patent data, the EPO's PATSTAT database and the PATSTAT online services are the most relevant. They form a unique basis for conducting sophisticated analyses of bibliographic and legal status data for patent intelligence and analytics.

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. Patent Translate is the EPO's free online machine translation service that is built specifically in order to handle complex, technical patent vocabulary. Integrated into the EPO's Espacenet worldwide patent database and European publication server, it provides translations for a total of 32 different languages. In March 2017, Patent Translate for

the first time made use of "neural machine translation" (NMT) technology. Since the end of August 2017, all the 32 languages are supported by NMT. There are currently approximately 20,000 translation requests per working day on Patent Translate from around the globe.

International and European Cooperation

The EPO engaged in different types of co-operation programmes both inside and outside Europe. In Europe, the EPO continued to build on its close relations with national patent offices, for example by renewing bilateral agreements to support projects in office automation and expert training to better serve the needs of local businesses. Outside Europe, the EPO focused on three areas: firstly, work within the Trilateral (EPO, JPO and USPTO) and the IP5 frameworks; secondly, bilateral co-operation with countries in Asia, Africa and Latin America; and thirdly the mounting interest of countries outside the European Patent Organisation to recognise European patents on their territory by concluding validation agreements with the EPO. In 2018, the EPO signed bilateral cooperation agreements with Canada, Moldova and South Africa. After Morocco, the Republic of Moldova and Tunisia, a validation agreement with Cambodia became effective as of 1st March 2018.

In 2018, the EPO continued to promote the use of the Cooperative Patent Classification (CPC) by other patent offices to classify their own publications. Dedicated CPC Memoranda of Understanding were signed with the national offices of Argentina, Australia and Canada thereby bringing to 29 the total number of offices classifying in the CPC.

The EPO has been practising work-sharing with the IP5 Offices on the basis of concrete initiatives such as the Patent Prosecution Highway (PPH) programme which leverages fast-track patent examination procedures already available at the offices to allow applicants to obtain corresponding patents faster and more efficiently. The EPO is continuously working on the expansion of its PPH partner offices' network which is expected to include further offices in the near term. In the area of the IP5 PPH, the Offices have made significant progress as regards the development of common, harmonised PPH metrics which will optimise the monitoring and reporting of PPH procedural data. Once finalised, these metrics will be submitted for endorsement to the IP5 Heads of Office.

The EPO hosts the Common Citation Document (CCD), which in 2018 contained over 320 million citations from 35 patent offices world-wide. The CCD currently contains enriched citation data, i.e. data indicating the claims to which the citation is relevant in the patent application for which the search was done and the pertinent passage in the cited document, from 17 patent offices, including the EPO, CNIPA, JPO and WIPO

Economic studies

In 2018, the EPO Chief Economist Unit published a new study on Patents and self-driving vehicles, conducted in cooperation with the European Council for Automotive R&D (EUCAR), providing a comprehensive picture of current trends and emerging leaders in self-driving vehicle technologies (www.epo.org/SDV).

A public conference on patents and artificial intelligence was held in May, which is believed to have been the first of its kind by patent offices.

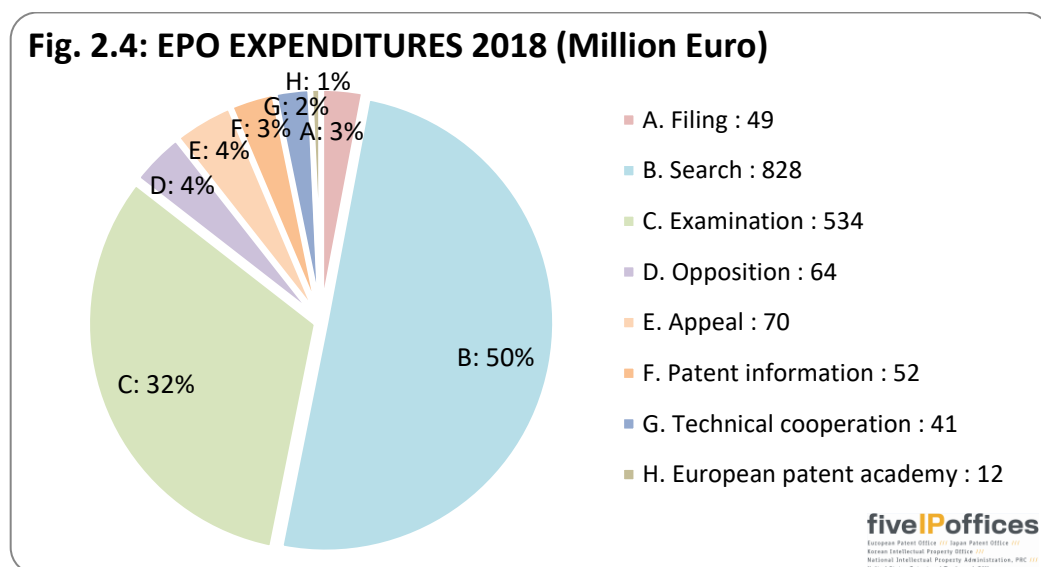
EPO budget

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 2018, the EPO budget amounted to 2.4 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 23,000 persons (active staff, pensioners, and their respective family members).

Fig. 2.4 shows EPO expenses¹¹, based on the International Finance Reporting Standards (IFRS) by category in 2018.



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

EPO Staff

At the end of 2018, the EPO staff totalled about 6,696 employees (-2.2%) from 35 different European countries¹². This comprises 4,276 search, examination, and opposition examiners and 166 Boards of appeal members.

¹¹ The EPO uses the word “expenses” in accordance with the IFRS reporting approach. Percentages may not total 100 due to rounding.

¹² For more details, see the 2017 EPO social report at www.epo.org/about-us/annual-reports-statistics.html

Following their recruitment, examiners are included in a training programme for three years. The staff works 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

JAPAN PATENT OFFICE

The JPO has been aiming to achieve the “world’s fastest and utmost quality patent examinations” so that once applicants obtain patents in Japan, they may also be able to obtain patents abroad, even smoothly on the ground that the JPO’s examination results are used as trustworthy judgements when foreign IP offices conduct examinations. To this end, the JPO has been implementing various measures focused on “maintaining speed”, “granting high quality rights”, and “cooperating and collaborating with foreign IP offices”.

1) Initiatives to Speed up Examinations

a) Securing the Necessary Number of Examiners

In order to maintain and strengthen the patent examination system, the JPO is working to secure the necessary number of patent examiners and to rehire some of the fixed-term examiners whose term of employment had expired. For FY2018, the JPO secured a capacity of 1,690 examiners (including fixed-term examiners).

b) Outsourcing Preliminary Prior Art Searches

By outsourcing prior art searches to registered search organizations, the JPO promotes the speeding up of examinations through utilization of the private sector. As of December 2018, there were 10 registered search organizations.

In FY2018, the number of searches outsourced was approximately 152,000(of which approximately 116,000 involved searches for foreign patent documents).

2) Further Improvement of Examination Quality

a) Quality Management Initiatives

Under the “Quality Policy on Patent Examination”, which constitutes the JPO’s fundamental principles of quality management, and the “Quality Management Manual for Patent Examination” (Quality Management Manual), the JPO has been engaging in the initiatives in terms of “Quality Assurance” and “Quality Verification” in order to realize the utmost quality of patent examinations in the world. For more details, please visit the JPO website¹³.

b) Improving an environment for Prior Art Search

Prior art searches are one of the important pillars for maintaining and improving examination quality, and a constant improvement of the foundation for prior art searches for both patent documents and non-patent literature is therefore crucial. As part of the improvement of the foundation for prior art searches, the JPO actively proposes to revise the International Patent Classification (IPC) so as to incorporate the useful classification entries of FI¹⁴ and F-Terms¹⁵ into the IPCs. In FY2018, discussions covered 20 JPO proposals in broad technical fields in mechanical,

¹³ See <https://www.jpo.go.jp/e/introduction/hinshitu/shinsa/index.html>

¹⁴ An FI (File Index) means an original classification by the JPO that is a further development of the IPC.

¹⁵ An F-Term (File Forming Term) means an original classification by the JPO expanded to various technical aspects (e.g., purpose, use, structure, material, manufacturing method, processing and operational method, and means of control) by technical area (theme).

chemical, and electrical areas. In addition, the JPO is in the process of further improving search index, under the principle that FI must be compliant with the latest International Patent Classifications (IPC), in order to search efficiently for domestic and foreign patent documents. In FY2018, the JPO amended the FI scheme for the 431 main groups, and conducted F-Term maintenance for 8 themes.

3) Association and Cooperation with Overseas Offices

a) Patent Prosecution Highway (PPH)

The PPH is a framework that allows an application that is determined to be patentable by the Office of First Filing (OFF) to undergo, at the request of the applicant, an accelerated examination with simplified procedures at the Office of Second Filing (OSF) that participates in the PPH with the OFF.

The world's first PPH, advocated by the JPO, was launched between Japan and the U.S. in July 2006 as a pilot program. As of December 2018, the number of IP offices participating in the PPH has increased to 48 and the JPO has been implementing the PPH with 42 IP offices, including new PPH collaboration with the Visegrad Patent Institute (VPI) in January 2018, and the Turkish Patent and Trademark Office (TURKPATENT) in April 2018.

The PPH Portal Site¹⁶ allows one-stop access to the PPH implementation status and statistical information for participating IP offices. In addition, the JPO serves as the secretariat of the "Global Patent Prosecution Highway" (GPPH), a multinational framework launched in January 2014. In the GPPH, all types of PPH, including PPH-MOTTAINAI and PCT-PPH¹⁷ are available among the participating IP offices. In January 2018, the Visegrad Patent Institute (VPI) joined the GPPH framework, bringing the number of IP offices participating in GPPH to 25.

b) International Cooperation Initiatives on Examination

Patent Prosecution Highway Plus (PPH Plus)

The PPH Plus is a framework that accelerates acquisition of right for an application of the same invention which is already granted a patent in Japan, by utilizing the examination results by the JPO. The JPO is currently implementing this framework with the Brunei Intellectual Property Office.

Cooperation for facilitating Patent Grant (CPG)

CPG is a framework that accelerates patent grant without conducting substantial examination, for an application of the same invention which is already granted a patent in Japan. The JPO is currently implementing this framework with the Ministry of Industry and Handicraft of Cambodia, and the Department of Intellectual Property, Ministry of Science and Technology of Lao PDR.

¹⁶ See <https://www.jpo.go.jp/e/toppage/pph-portal/index.html>

¹⁷ PPH-MOTTAINAI is a framework that enables an applicant to request for PPH based on a judgment that an application is patentable, made by any IP office that first conducts an examination, regardless of which IP office first received the patent application. The PCT-PPH is a framework that enables an applicant to request an accelerated examination based on a judgment that an application is patentable in a written opinion or opinion of international preliminary examination report at the PCT international phase.

c) International Examiner Exchange Program

The international examiner exchange program is an initiative through which the JPO examiners directly discuss with or provide training on examination practices with examiners of foreign IP offices, primarily for the following purposes:

- Promotion of work-sharing of patent examinations among the IP offices based on a mutual understanding of prior art searches and examination practices.
- Propagation of the JPO's examination practices and examination results to other IP offices.
- Harmonization of examinations at a higher level of quality.
- Harmonization of patent classifications.
- Advancement of JPO policies.

In recent years, the JPO has also been striving to contribute to the establishment of proper IP systems and the development of human resources in emerging countries such as India and the ASEAN countries by dispatching JPO examiners and providing training on examination practices as described in Part 2, Chapter 2, 2.10) International Training Instructors. Cumulatively, from April 2000 to December 2018, the JPO has executed the international examiner exchange program, either on a short-term or mid-to-long term basis, with 29 IP offices. In 2018, the JPO dispatched 24 JPO examiners to foreign IP offices and received 12 examiners from foreign IP offices.

JPO Production information

Table 2.2 shows production figures for applications, examinations, grants, appeals or trials and PCT activities in the Japanese procedure in 2017 and 2018.

Table 2.2: JPO PRODUCTION INFORMATION

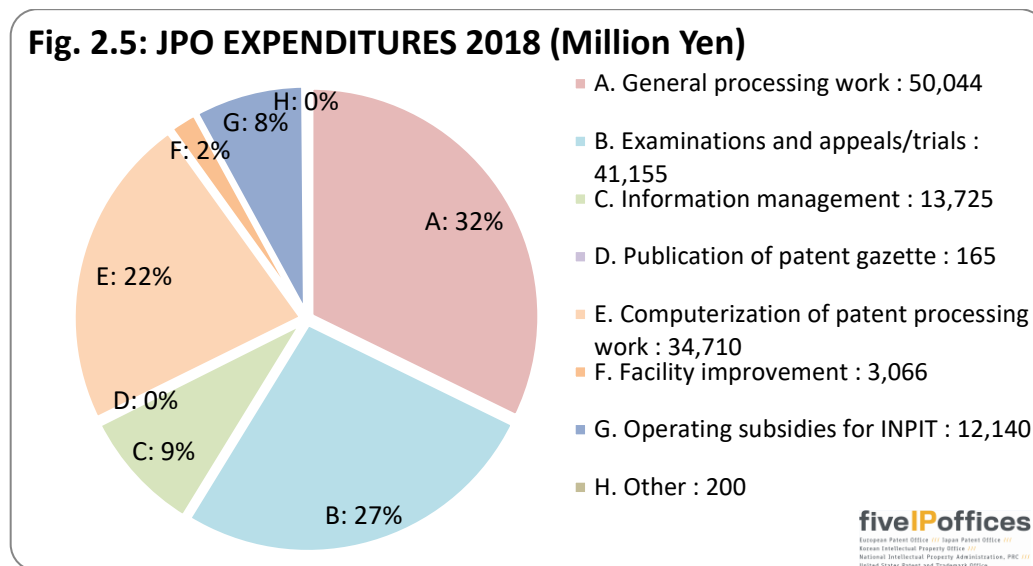
JPO PRODUCTION FIGURES	2017	2018	Change	% Change
Applications filed (by Origin of Application)				
Domestic	260,292	253,630	- 6,662	- 2.6%
Foreign	58,189	59,937	+ 1,748	+ 3.0%
Total	318,481	313,567	- 4,914	- 1.5%
Applications filed (by Type of Application)				
Divisional ¹⁸	27,535	27,267	- 268	- 1.0%
Converted ¹⁹	105	93	- 12	- 11.4%
Regular	290,841	286,207	- 4,634	- 1.6%
Total	318,481	313,567	- 4,914	- 1.5%
Examination				
Requests	240,118	234,309	- 5,809	- 2.4%
First Actions	239,236	232,701	- 6,535	- 2.7%
Final Actions	246,500	236,279	- 10,221	- 4.1%
Grants				
Domestic	156,844	152,440	- 4,404	- 2.8%
Foreign	42,733	42,085	- 648	- 1.5%
Total	199,577	194,525	- 5,052	- 2.5%
Appeals/Trials				
Demand for Appeal against refusal	18,591	16,536	- 2,055	- 11.1%
Demand for Trial for invalidation	161	159	- 2	- 1.2%
PCT Activities				
International searches	45,948	47,934	+ 1,986	+ 4.3%
International preliminary examinations	1,903	2,131	+ 228	+ 12.0%

¹⁸ 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.

¹⁹ 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. 2.5 shows JPO expenditures by category in 2018.



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

JPO Staff Composition

As of the end of FY 2018, the total number of staff at the JPO was 2,780.

Examiners		
Patent / Utility model		1,690
Design		48
Trademark		136
Appeal examiners		383
General staff		523
Total		2,780

More information

Further information can be found on the JPO's Homepage:

<https://www.jpo.go.jp/>

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, utilization, and protection. On the international front, KIPO strengthened our cooperative ties with foreign IP offices and other international organizations.

Examination Service

In 2018, the first office action pendency period of the Korean Intellectual Property Office (KIPO) recorded 10.3 months for patent and utility model applications, 5.5 months for trademark applications and 4.9 months for design applications. While maintaining one of the world's fastest rate of first office action pendency, KIPO continued to focus its policy initiatives on providing high quality examination services.

1. Examination Policies Focused on Quality

To maintain the promptness of first office action pendency, KIPO contracts independent agencies to search the prior art of patent, utility model, trademark and design applications. To alleviate the increasing workload of examiners, we expanded the outsourcing of the prior art search tasks. In 2018, independent agencies handled 62.7 percent (105,589 cases) of all patent and utility model applications, 43.5 percent (200,341 cases) of all trademark applications and 43.5 percent (29,208 cases) of all design applications.

2. Enhancing Examination Quality

Every year, KIPO's International Intellectual Property Training Institute (IIPTI) organizes specialized training to improve the professionalism and ability of examiners and administrative judges. In 2018, there were five mandatory courses, 19 law courses, 20 examination practice courses, 14 empowerment courses and 66 new technology training courses, totaling 124 courses administered by KIPO.

3. Customized Examination Services

In accordance with our client's intellectual property right (IPR) strategies, we offer different examination services for their preferred schedule. In the case of patents and utility models, applicants can choose the most appropriate examination track among accelerated, regular and customer deferred examinations. Accelerated examinations are initiated between 2 to 4 months after approval, whereas, customer-deferred examinations are started within 3 months of the desired postponed examination date. To quickly respond to rapid technological advancements, in 2018, the accelerated examination track was established for seven new technology fields related to the 4th Industrial Revolution (4IR).

Promoting the Creation and Utilization of IP

1. Linking R&D with IPRs

In 2005, we first conducted a patent trend analysis for government R&D projects as a pilot project. We have since conducted 39,333 patent trend analyses and prior art searches for government R&D projects by 2016. R&D departments began performing their own prior art searches in 2017, but have still relied on KIPO to provide patent trend analyses. 623 patent trend analyses were supported in 2017 and 275 patent trend analyses in 2018.

The patent trend analyses results are published and made available on the Patent Map website (<http://biz.kista.re.kr>). They are easily accessible by researchers to utilize for their research and development of technology.

2. Enhancing the IP Capacities of SMEs and Promising Enterprises

1) Expanding Financial Services Based on IP

To help SMEs obtain financing, KIPO has been working to offer financial services that capitalize on IP as intangible intellectual assets. Through a value assessment of the IPRs owned by SMEs, IP-based financing can be secured which allows patents and technologies to be used for loans and investment.

In December 2018, we held a joint press conference with the Financial Services Commission (FSC) to announce the establishment of comprehensive actions which becomes a foundation to spread the scope of IP financing.

2) Fostering Global IP Star Companies

To assist SMEs reach their export potential, we concentrated effort on organizing a program which helps foster them into “Global IP Star Companies” through strengthening SMEs IP creation and utilization.

Since the beginning of the program in 2010, KIPO has assisted 1,659 SMEs. In 2018 alone, 205 companies have been identified and many have succeeded in entering the global market even with no prior international exporting experience. Key corporate management indicators recorded an increase reaching 16.4 percent in revenue, 7.4 percent in employment and 13.8 percent in exports as of 2018.

3. Fostering the Development of an IP Workforce

As another way to boost activities of innovation and nurture creative inventors who are competent in IPR at universities, we have held the “University Invention Contests” since 2012. Leading up to each contest, summer camps are hosted where IP experts train university students to conduct prior art searches and prepare patent applications. Furthermore, exceptionally innovative ideas and IPRs receive additional support towards commercialization such assistance for the patent application fee, prototypes manufacturing, etc.

In 2018, the contest had a total of 4,959 invention submissions from 125 universities. Of these, 54 outstanding ideas received support for IPR registration. Their inventions are made available on the IP-Market—a website for transaction of technology.

Global IP Cooperation

Harnessing our experiences, KIPO has been doing its part to lead the global advancement of the IP system which requires active engagement in multilateral and bilateral cooperation. Last year, the heads of the world's five largest patent offices (IP5) gathered for the 2018 IP5 Heads Meeting held in the US. The five patent offices (EPO, JPO, KIPO, CNIPA and USPTO) agreed to collaborate towards enhancing the IP5 cooperation especially in the field of examination.

In addition to the participation in international forums, bilateral activities were also continued for strengthening cooperative relationships regarding IP. We worked with ASEAN and other countries such as China, United Arab Emirates (UAE), Saudi Arabia and Brazil in the areas of IP system establishment, examination quality improvement and international IP protection.

Lastly, various contributions were made to assist developing countries in advancing their IP capacity. We accomplished several projects for appropriate technology and brand development to support the sustainability of local communities. Also through the WIPO Korea Funds-in-Trust, educational programs were conducted to enhance the awareness of IPRs, ultimately, fulfilling our international responsibilities as one of the leading countries in IP.

KIPO Production information

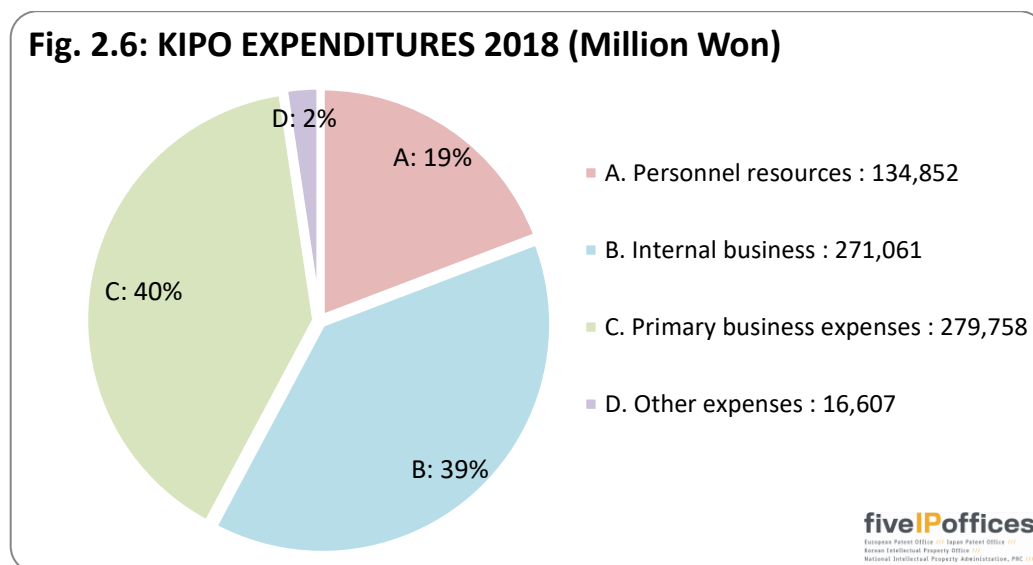
Table 2.3 shows production figures for applications, examinations, grants, appeals or trials and PCT activities for 2017 and 2018.

Table 2.3: KIPO PRODUCTION INFORMATION

KIPO PRODUCTION FIGURES	2017	2018	Change	% Change
Applications filed (by Origin of Application)				
Domestic	159,031	162,561	+ 3,530	+ 2.2%
Foreign	45,744	47,431	+ 1,687	+ 3.7%
Total	204,775	209,992	+ 5,217	+ 2.5%
Examination				
Requests	172,635	180,680	+ 8,045	+ 4.7%
First Actions	171,112	162,689	- 8,423	- 4.9%
Final Actions	177,118	165,902	- 11,216	- 6.3%
Grants				
Domestic	90,847	89,227	- 1,620	- 1.8%
Foreign	29,815	29,785	- 30	- 0.1%
Total	120,662	119,012	- 1,650	- 1.4%
Appeals/Trials				
Demand for Appeal against refusal	4,351	3,624	- 727	- 16.7%
Demand for Trial for invalidation	529	460	- 69	- 13.0%
PCT Activities				
International searches	25,920	24,104	- 1,816	- 7.0%
International preliminary examinations	169	131	- 38	- 22.5%

KIPO budget

Fig. 2.6 shows KIPO expenditures by category in 2018.



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

KIPO Staff Composition

At the end of 2017, the KIPO had a total staff 1,661. The breakdown is as follows.

Examiners		
Patents and Utility Model	875	
Designs and Trademarks	172	
Appeal examiners	107	
Other staff	507	
Total	1,661	

More information

Further information can be found on KIPO's Homepage:

www.kipo.go.kr

China National Intellectual Property Administration

The reorganization of CNIPA has been smoothly completed. With unified administration of trademark, patent, geographical indication and integrated circuit layout design, the management efficiency has been greatly enhanced. Bearing in mind the general principle of pursuing progress while ensuring stability and the aim of pursuing high-quality development, CNIPA will apply the New Development Ideology to promoting the quality of IP creation, effectiveness of IP protection and utilization, capacity of IP creation, and international influence in the IP field.

Statistical Overview of 2018

1) Patent Examination Status

In accordance with the Patent Law of the People's Republic of China, the CNIPA 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 utility models and designs is 10 years, counted from the date of filing.

2) Patent Applications in 2018

In 2018, the number of applications for the three kinds of patents in P.R. China was nearly 4.32 million. Among these applications, there were 1.54 million applications for invention patents, an increase of 11.6 percent compared to the previous year, 2.07 million applications for utility model patents and 0.71 million applications for design patents.

3) Patents Granted in 2018

In 2018, the CNIPA granted 0.43 million patents for invention, with an increase of 2.9 percent compared to the previous year, 1.48 million patents for utility model and 0.54 million patents for industrial design.

CNIPA production information

Table 2.4 shows production figures for applications, examination, grants, re-examination and invalidation, PCT activities are given for the years 2017 and 2018. The data in table 2.4 concentrate only on patents for invention.

Table 2.4: CNIPA PRODUCTION INFORMATION

CNIPA PRODUCTION FIGURES	2017	2018	Change	% Change
Applications filed				
Domestic	1,245,709	1,393,815	+ 148,106	+ 11.9%
Foreign	135,885	148,187	+ 12,302	+ 9.1%
Total	1,381,594	1,542,002	+ 160,408	+ 11.6%
Examination				
First actions	827,217	838,869	+ 11,652	+ 1.4%
Final actions	744,490	808,474	+ 63,984	+ 8.6%
Grants				
Domestic	326,970	345,959	+ 18,989	+ 5.8%
Foreign	93,174	86,188	- 6,986	- 7.5%
Total	420,144	432,147	+ 12,003	+ 2.9%
Re-examination and invalidation				
Re-examination requests	28,472	28,695	+ 223	+ 0.8%
Invalidation request	1,126	1,387	+ 261	+ 23.2%
PCT activities				
International searches	44,651	52,497	+ 7,846	+ 17.6%
International preliminary examinations	330	451	+121	+36.7%

4) Examination Period

The CNIPA adopted time-sliced segment management (where the whole procedure was monitored and managed by divided time point and period) in the whole examination procedure for examination period management by objectives to ensure well-distributed and reasonable examination period. In 2018, the pendency period for the granting of invention patents was approximately 22.5 months.

Information and Documentation

In order to support the national technological innovation, the national economic growth and the patent examination, the CNIPA has always highly valued the construction of its patent documentation and information system. Its unremitting efforts for years have resulted in the current various patent information resources, and automatic search and management system.

1) Patent Information Public Service System

In 2018, CNIPA added 11 pilot local offices into the New Version of Search and Analysis System for Regional Patent Information Service Center with pilot scope further extended to 24 offices and over 8,000 newly registered enterprise users in order to facilitate the upgrading of service capacity of the national patent information public

service system. The patent search and analysis system was operated smoothly as a whole and the accumulated number of registered users rose to 1.058 million with 420,000 newly registered users. The system was continuously optimized to provide a much more convenient and user-friendly search and analysis function for the public with continuously improved user experience. The systems related to IP protection centers were upgraded to achieve the decency period requirements for full process of invention, utility model, evaluation report, reexamination and invalidation, and provide efficient IT construction and operation support for 23 approved protection centers and 20 fast-track rights assertion centers.

CNIPA further improved data service management of the National Patent Data Center and continuously provided patent data update and download services for regional centers, local centers and cooperators. The patent data service testing system was operated stably since its launch in 2014, and it consistently provided free update and download services of patent data from China, America, Europe, Japan and South Korea for the public. In 2018, registered users of the system reached 13, 700 with a year-on-year growth of 9 percent and the total amount of downloaded data exceeded 300TB with a year-on-year growth of over 57 percent.

2) Documentation Resources and Services

Throughout 2018, the CNIPA allocated 149 types of documentation resources, including 6 types of patent resources and 143 types of non-patent resources, providing solid support for patent examination, information public service, macro-management and research. The CNIPA continued to exchange patent documentations with 31 countries (regions) or organizations and provided Chinese patent documentation to 6 PCT international search and preliminary examination authorities.

By the end of 2018, the CNIPA had 540 types of patent documentation resources, including 191 types of bibliographic data, 167 types of full-image data, 83 types of full-text data, etc. The bibliographic data covered 104 countries (regions) or organizations; the full-image data covered 103 countries (regions) or organizations; the full-text data covered 36 countries (regions) or organizations.

Based on the examination processing demands, the CNIPA continued to offer quality and efficient services on documentation extraction and consultation, carried out technology dynamic tracking and information pushing services for patent examination, undertook Publicity Month on Documentation Resources and Services 2018, and strengthened management and training on database utilization by organizing 16 training courses on various types of non-patent databases throughout the year and training over 4,900 people ac cumulatively.

Based on the principle of “fostering a culture of innovation, and strengthening the creation, protection, and application of intellectual property”, the CNIPA served as a window of service and culture promotion to boost the construction of an IP powerhouse. The CNIPA provides relevant knowledge and information on patent documentation and provided services such as online consultation and documentation transmission via its official website, the “Patent Documentation Sharing” Hatcheck public platform, Hatcheck groups and emails. The CNIPA energetically promoted IP culture and development of the Chinese IP undertaking.

International Cooperation

In 2018, the CNIPA continued to develop broader and deeper cooperation with international communities, made steady progress in intellectual property (IP) exchanges and cooperation with countries along the Belt and Road, and positively build a new IP international cooperation framework, featuring the coordinated progress in multilateral, neighboring, equilateral and bilateral IP cooperation.

The CNIPA continued to enhance cooperation with countries along the Belt and Road in such fields as IP capacity building, information connectivity, and discussions and exchanges on policies and systems. In August, the CNIPA organized the 2018 High-level Conference on IP for Countries along the Belt and Road. The conference adopted *the Joint Statement on Pragmatic Cooperation in the Field of Intellectual Property among Countries along the Belt and Road*, established 8 pragmatic projects, and officially launched the website of Belt and Road IP cooperation. The CNIPA continuously conducted personnel exchanges and training, promoting the use of Cloud Patent Examination System (CPES) and data exchange, and co-organizing seminars and exchange events.

The CNIPA actively involved in the negotiations on the IP chapters of the Regional Comprehensive Economic Partnership (RCEP), China-Norway Free Trade Agreement and China-Moldova Free Trade Agreement, and completed the negotiation on the IP chapters of China-Panama Free Trade Agreement. The CNIPA also actively participated in other bilateral dialogues and negotiations including among others the China-EU High-Level Economic and Trade Dialogue, China-France High Level Economic and Financial Dialogue, China-Canada Strategic Economic and Financial Dialogue, and China-Israel Joint Committee on Innovation Cooperation.

In 2018, the CNIPA played a more active role in IP5 cooperation. At the 11th IP5 Heads of Office Meeting, the CNIPA promoted the adoption of the project evaluation outcomes and the next-stage work plans of its projects, aiming at further optimizing the structure and resource allocation of IP5 cooperation framework, and improving the cooperation efficiency.

The CNIPA further deepened cooperation with EPO, European Union Intellectual Property Office (EUIPO), EAPO, United States, EU and European Countries, Neighboring and Asian Countries, African Countries, Latin American Countries, North American and Ocean countries.

In 2018, the CNIPA continued to expand the PPH international collaboration. It has launched PPH pilot program respectively with IP authorities of Czech Republic, Chile, Brazil and Malaysia, as well as EAPO. It also signed a PPH cooperation agreement with the IP authority of Argentina. The total number of the Parsnips PPH partners has increased to 28. The Administration has been steadily promoting the examination cooperation within the framework of WIPO, IP5, BRICS and bilateral cooperation, and participated in the IP5 pilot program of PCT collaborative search and examination (CS&E), published *the Patent Life cycle in IP5 Offices*.

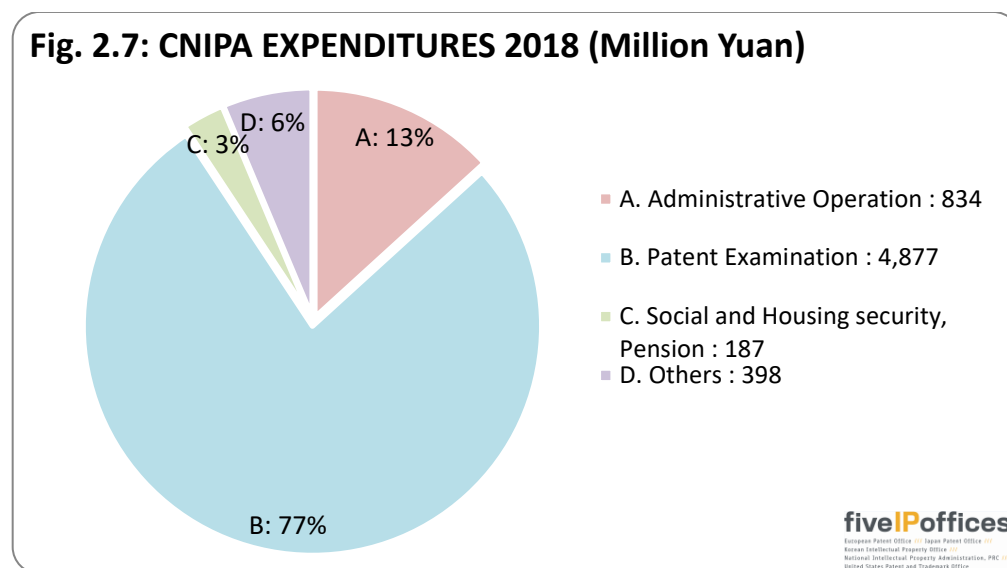
The CNIPA carried out cooperation on data exchanges with 26 countries, regions and organizations. Under the framework of BRICS, it has reached consensus with other relevant offices on common data list, which could facilitate data sharing and utilization. The use of the Cloud Patent Examination System (CPES) has been expanded to Acosta Erica, Egypt and Ukraine, with a total number of 49 users. The Administration has completed the migration of the infrastructure of the WIPO multilateral priority

cooperation and China-Korea bilateral priority cooperation to the bilateral proprietary network.

In 2018, the CNIPA provided short-term training courses to 155 IP officials and examiners from neighboring countries and countries along the Belt and Road. During the courses, the trainers and trainees shared information and experiences on multiple aspects including among others, IP system, policies, IP strategy implementation and examination.

The CNIPA budget

Fig 2.7 shows CNIPA expenditures by category in 2018.²⁰



A description of the items in Fig. 2.7 can be found in Annex 1.

The CNIPA Staff Composition

By the end of 2018, the CNIPA has 8 functional departments (vice bureau level). In total, the CNIPA has 12,000 patent examiners.

More information

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

²⁰ Percentages may not total 100 due to rounding.

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 2018-2022 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 strategic goals collectively focuses future efforts on issuing predictable, reliable, and high-quality IP rights, aligning patent and trademark examination capacity with current and projected workloads, modernizing information technology, enhancing the customer experience, promoting IP rights abroad, monitoring and helping address dynamic IP issues in Congress and the Courts, maintaining a sustainable funding model, and developing IP policy. 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, Enforcement, and Protection Worldwide.
- Management Goal: Deliver Organization Excellence.

Agency News

In FY 2018, USPTO patent examiners continued to reduce total patent application pendency by an additional 0.4 month, to 23.8 months. Progress was also made in reducing the unexamined backlog to 522,149, 1.0 percent lower than last year.

In early FY 2018, the USPTO fee setting authority signed into law in 2011 by the Leahy-Smith America Invents Act, was amended by the Study of Underrepresented Classes Chasing Engineering and Sciences Success Act of 2018 (SUCCESS Act), which extends fee setting authority an additional eight years. The SUCCESS Act also requires the USPTO to study and report on patenting trends of women, minorities, and veterans and small businesses owned by these under-represented groups.

Additionally, the USPTO will provide recommendations for promoting both patenting and entrepreneurship among these under-represented groups.

In FY 2018 the USPTO expanded its outreach to provide pro bono services to assist patent and trademark applicants with the expansion of the Law School Clinic Certification Program to include 56 actively participating colleges and universities. The program benefits both law school programs and the business owners they represent in filing applications and obtaining trademark protection. The selection committees choose schools based on their solid IP curricula, pro bono services to the public, as well as community networking and outreach. The program enables law students enrolled in participating law schools to process patent and trademark applications before the USPTO under the close guidance of an approved faculty supervisor.

There are many efforts underway at the USPTO to better understand and utilize opportunities presented by artificial intelligence (AI). One of these include partnering with academia and industry experts to identify ways to use AI to improve patent search tools. The USPTO is investigating leveraging AI and machine learning in a way that augments existing next-generation patent tools. Additionally, the agency is testing new AI tools and techniques such as robotic process automation that could generate smart office action templates, which are automatically populated based on the interactions between examiner and attorney, saving examiners time from some of the more tedious clerical aspects of generating office actions.

At the end of FY 2018, 11,093 employees agency-wide were working from home at least one day per week, translating to 88 percent of the USPTO workforce. A structured telework program provides cost savings by reducing the need for additional office space, enhances recruitment and retention, fosters greater efficiency in production and management and provides opportunities for expanded work flexibility and better work-life balance for participating employees. USPTO's teleworkers help to minimize the USPTO's impact on the environment in the Washington, D.C., metropolitan area, and in FY 2018, they spared the environment more than 51,000 tons in estimated CO2 emissions.

International Cooperation and Work Sharing

The USPTO provides IP educational and training programming both to improve IP laws and their administration around the world and to enhance IP awareness and technical capacity. The USPTO's IP educational programming for U.S. stakeholders complements international capacity-building programming by raising awareness of the importance of IP in an innovation economy and by providing education about navigating foreign IP systems. In FY 2018, the Office of Policy and International Affairs conducted a total of 151 such training activities through its Global Intellectual Property Academy (GIPA), serving over 7,240 individuals. Approximately 38 percent of all individuals served were domestic IP rights owners and users, and approximately 55 percent were patent, trademark, and copyright officials; prosecutors; police; customs officials; and IP policymakers. GIPA also presented programs for U.S. officials and policymakers to provide updates on domestic IP law and policy. In FY 2018, six programs addressed such topics as trademark and copyright law and policy, IP at international trade shows, and IP in China.

In FY 2018, Patents also made several improvements for users of Global Dossier, which consolidates in a single website information in patent applications filed with the world's largest patent offices. One critical improvement included the addition of an indicator on how relevant specific parts of the application were to the examiner in evaluating the patentability of the innovation. This improvement reduces the amount of information users need to review and understand the processing of the application.

In FY 2018, the USPTO sought to advance U.S. interests as they relate to GI protection systems at the international level. It also worked to revive a discussion of GIs at WIPO and to mitigate the effects of recent revisions to the Lisbon System for the International Registration of Appellations of Origin that could harm U.S. producers, for example, by further restricting exports of dairy products. The United States has been pursuing trade agreements that would require GI applications, or requests for protection via international agreements, to be subject to examination, publication, preregistration opposition, and post-registration invalidation.

The USPTO served as a technical expert on the International Treaty for Plant Genetic Resources for Food and Agriculture (ITPGRFA). The USPTO currently serves on several of the treaty's working groups to ensure that IP rights are accorded appropriate respect relative to the ITPGRFA's aim of, among other things, providing the fair and equitable sharing of plant genetic resources for food and agriculture.

USPTO production information

Table 2.5 includes production figures for application filings, PCT searches and examination, first actions, grants, applications in appeal and interference, and patent cases in litigation for the years 2017 and 2018.

Table 2.5: USPTO PRODUCTION INFORMATION

USPTO PRODUCTION FIGURES	2017	2018	Change	% Change
Applications filed				
Utility (patents for invention) ²¹	606,956	597,141	- 9,815	- 1.6%
Domestic	293,904	285,095	- 8,809	- 3.0%
Foreign	313,052	312,046	- 1,006	- 0.3%
Plant	1,059	1,079	20	+ 1.9%
Reissue	1,012	1,013	1	+ 0.1%
Total utility, plant & reissue	609,027	599,233	- 9,794	- 1.6%
Design	43,340	45,083	1,743	+ 4.0%
Provisional	167,642	169,340	1,698	+ 1.0%
Total	820,009	813,656	- 6,353	- 0.8%
Request for continued examination (RCE) ²²	183,446	170,366	- 13,080	- 7.1%
PCT Chapter I searches	21,663	22,210	547	+ 2.5%
PCT Chapter II examinations	1,309	991	- 318	- 24.3%
First actions (utility, plant, reissue)	607,928	592,895	- 15,033	- 2.5%
Grants (total)	318,829	307,759	- 11,070	- 3.5%
U.S. residents	150,949	144,413	- 6,536	- 4.3%
Foreign	167,880	163,346	- 4,534	- 2.7%
Japan	49,677	47,566	- 2,111	- 4.2%
EPC states	50,660	48,963	- 1,697	- 3.3%
R. Korea	20,717	19,780	- 937	- 4.5%
P.R. China	13,243	14,488	+ 1,245	+ 9.4%
Others	33,583	32,549	- 1,034	- 3.1%
Applications in appeal and interference proceedings				
Ex-parte cases received	11,347	8,684	- 2,663	- 23.5%
Ex-parte cases disposed	13,171	10,989	- 2,182	- 16.6%
Inter-partes cases received	46	26	- 20	- 43.5%
Inter-partes cases disposed	70	38	- 32	- 45.7%
Patent cases in litigation				
Cases filed	515	669	+ 154	+ 29.9%
Cases disposed	471	645	+ 174	+ 36.9%
Pending cases (end of calendar year)	606	639	+ 33	+ 5.4%

²¹ Unless otherwise noted, the USPTO statistics presented elsewhere in this report are limited to utility patent applications and grants, and include Requests for Continued Examination (RCEs). While RCE filings were down, serialized filings (not including RCEs) were higher than the previous year.

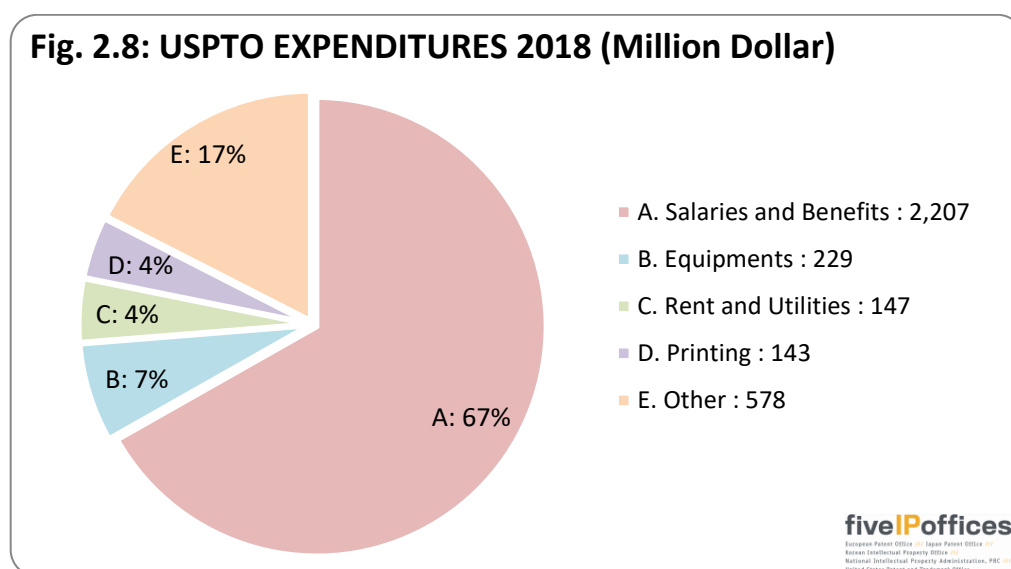
²² A Request for Continued Examination is a USPTO procedure under which an applicant may obtain continued examination of an application by filing a submission and paying a specified fee, even if the application is under a final rejection, appeal, or a notice of allowance.

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 2018, USPTO expenditures totalled \$3,304.5 million. Agency-wide, 20.2 percent of expenditures were allocated to IT security and associated IT costs.

Goal 1 – Optimize Patent Quality and Timeliness	\$ 2,956.8 million
Goal 2 – Optimize Trademark Quality an Timeliness	\$ 303.8 million
Goal 3 – Provide Domestic and Global Leadership to Improve IP Policy, Protection and Enforcement Worldwide	\$ 43.9 million

Fig. 2.8 shows USPTO expenditures by category in 2018²³



A description of the items in Fig. 2.8 can be found in Annex 1

USPTO Staff Composition

At the end of FY 2018, the USPTO work force was composed of 12,579 federal employees. Included in this number are 8,007 Utility, Plant, and Reissue patent examination staff and 178 Design examination staff; 579 Trademark examiner attorney staff, and 3,815 managerial, administrative and technical support staff.

More information

Further information can be found on the USPTO's website:

www.uspto.gov

²³ Percentages may not total 100 due to rounding.

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 2013 to 2017²⁴.

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 Database²⁵, 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 to the WIPO 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 for an invention that is made in one office is often followed by applications to some other offices, with each such application claiming the priority of the earlier first filing. First filings can be seen as an indicator of innovative activity, while foreign filings are an indicator of an intention to utilise such activity for international trade and globalisation.

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.

²⁴ The statistical tables file found in the web version of this report includes extended time series for much of the data included in this chapter, www.fiveipoffices.org/statistics/statisticsreports.html

²⁵ This edition refers to general patent data as of March 2019, and to PCT international phase application data as of April 2019, www.wipo.int/ipstats/en/index.html. For some statistics on 2018, see Chapter 4.

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

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

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

Patent grants 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 highly 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 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. The counts include: direct national, direct regional filings (filed with the ARIPO, EAPO, EPO, GCCPO, OAPI²⁶), and PCT international filings.
- **Figs. 3.5, 3.6, 3.7 and 3.14** 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. While direct national and direct regional filings are counted 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 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. This cumulates the demands for distinct national legal rights over the countries concerned. 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.
- **Fig. 3.11 and 3.12** show the numbers of *granted patents*. All grants are counted only once (in an analogous way to Figs. 3.5, 3.6, 3.7, and 3.14 for applications).
- **Fig. 3.13** shows the numbers of *national patent rights granted*. 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).
- **Figs. 3.15, 3.16, 3.17 and Table 3** show the numbers of *patent families* that are generated by the set of first filings. They 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.

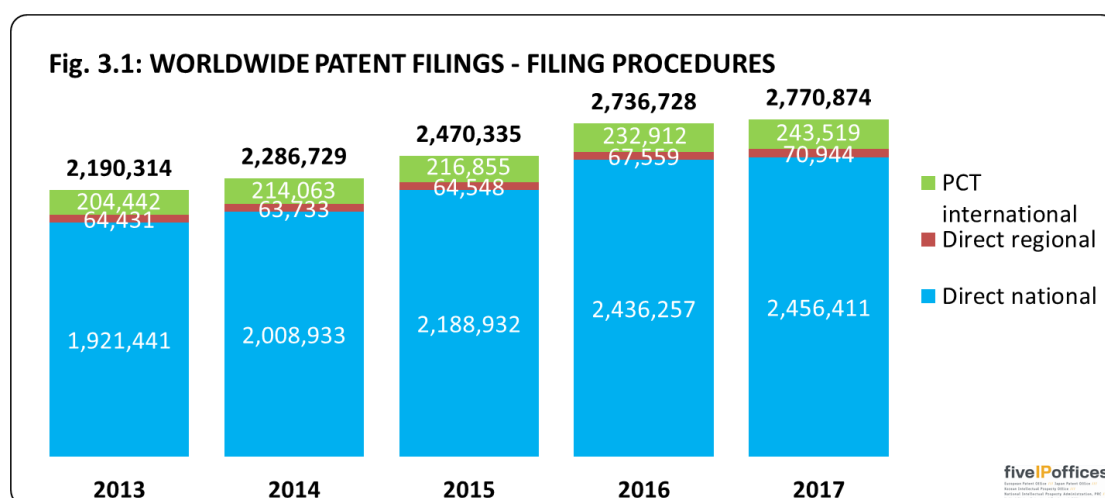
²⁶ The ARIPO is the African Regional Intellectual Property Office. The EAPO is the Eurasian Patent Organization. The EPO is the Eurasian Patent Office. The GCCPO is the Gulf Cooperation Council Patent Office. The OAPI is the Organisation African Intellectual Property.

PATENT FILINGS

The patent filings that are counted in this section include direct national, direct regional and PCT filings in the international phase.

Figs. 3.1, 3.2, and 3.3 show the numbers of patent filings that were made throughout the world. Here, the filings are counted only once, which means that the number of countries designated in regional filings and in PCT international filings are not used in determining these counts. The total number represents a measure of the overall numbers of actions taken to assert IP rights around the world, although some inventions lead to filings in more than one office.

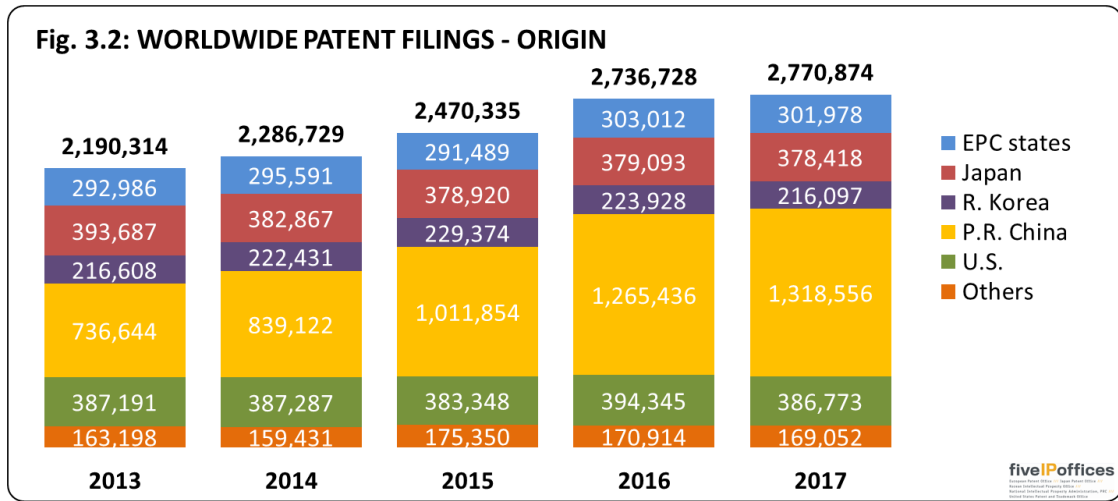
Fig. 3.1 shows a breakdown of patent filings according to the three types of filing procedures.



In 2017, the number of patent filings increased by 1 percent, to nearly 2.8 million. The number of direct national filings increased by 1 percent, while both the numbers of direct regional and PCT international phase filings increased by 5 percent. Overall, 89 percent of the filings were made according to direct national procedures.

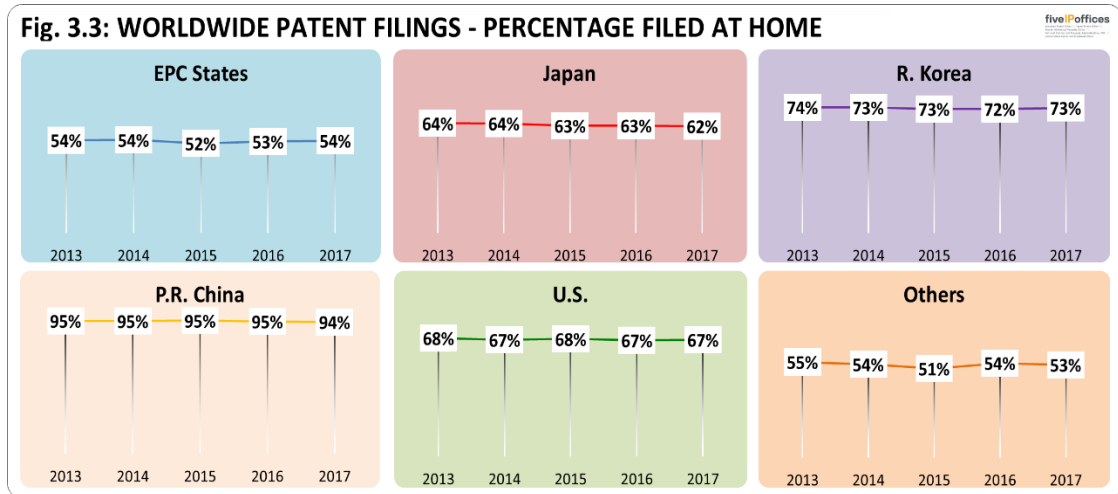
The contribution of the PCT system to filings will be discussed later in this chapter and in Chapter 5.

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



From 2013 to 2017, the IP5 Bloc's annual share increased slightly from 93 percent to 94 percent. In 2017, the number of patent filings increased by 1 percent. The number of patent filings that originated from P.R. China increased by 4 percent. It remained almost unchanged in EPC states and Japan, while those originating from R. Korea and U.S. decreased by 4 percent and 2 percent respectively.

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



For the IP5 Blocs, P.R. China had the largest proportion of filings made at home in 2017 with 94 percent. Among the IP5 blocs, the EPC states had²⁷ the lowest proportion with 54 percent in 2017.

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

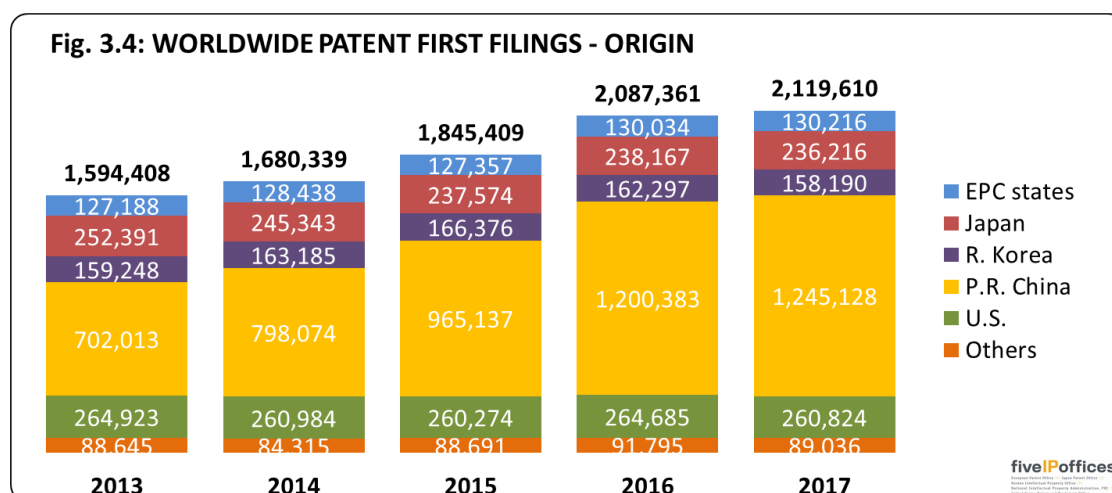
²⁷ For the purpose of reporting statistics for the EPC states considered as a bloc, a filing by a resident in an EPC state to another EPC state or to the EPO is considered to be filed within the bloc of origin. See the EPO section of Chapter 2 for a listing of the EPC states.

FIRST FILINGS

For the first filings counted in this section, all of the following appear only once: direct national, direct regional filings and PCT international phase filings.

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

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



The number of worldwide first filings increased by 2 percent from 2016 to 2017. P.R. China recorded 1,245,128 first filings in 2017, the highest number of first filings by any bloc within the IP5 area up to this point. This was an increase of 4 percent compared to 2016. The number remained stable in EPC, while there were decreases from the remaining blocs, with the largest decrease of 3 percent from Others.

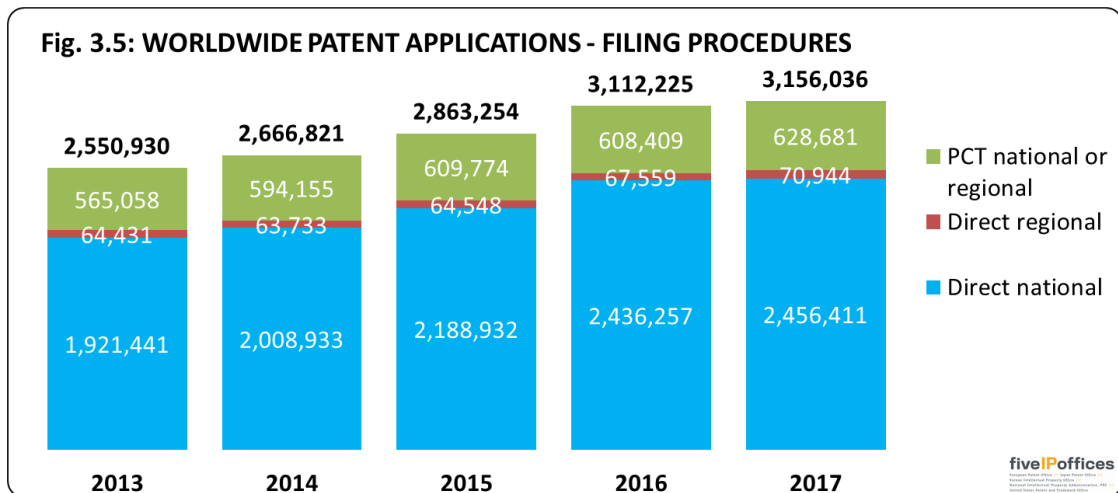
Comparison of Fig. 3.2 and 3.4 enables an evaluation of the numbers of subsequent filings, where the first filing for an invention at one office leads on to further filings, either elsewhere or at the same office. From the difference in the total for 2017 between Fig. 3.2 and Fig. 3.4, it can be estimated that there are 651,264 subsequent filings, meaning that on average there were 0.31 subsequent filings per first filing made in 2016, assuming a one year delay ($651,264 / 2,087,361 = 0.31$).

PATENT APPLICATIONS

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

Figs. 3.5, 3.6 and 3.7 describe the development of the numbers of patent applications in terms of requests for patents that entered a grant procedure. Note that direct national and direct regional applications enter a grant procedure when filed while, in the case of PCT applications, the grant procedure is delayed to the end of the international phase²⁸. In the following figures, the number of PCT applications consists of a count of the applications that entered a national or regional stage in the corresponding year. This leads to higher numbers than in the previous section, because one PCT international filing usually enters into several national or regional procedures. For example, one PCT application (as reported in Fig. 3.1) may result in an EPO PCT regional phase entry, a U.S. PCT national phase entry, and an Australian PCT national phase entry, thus producing three PCT national/regional phase entry applications.

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

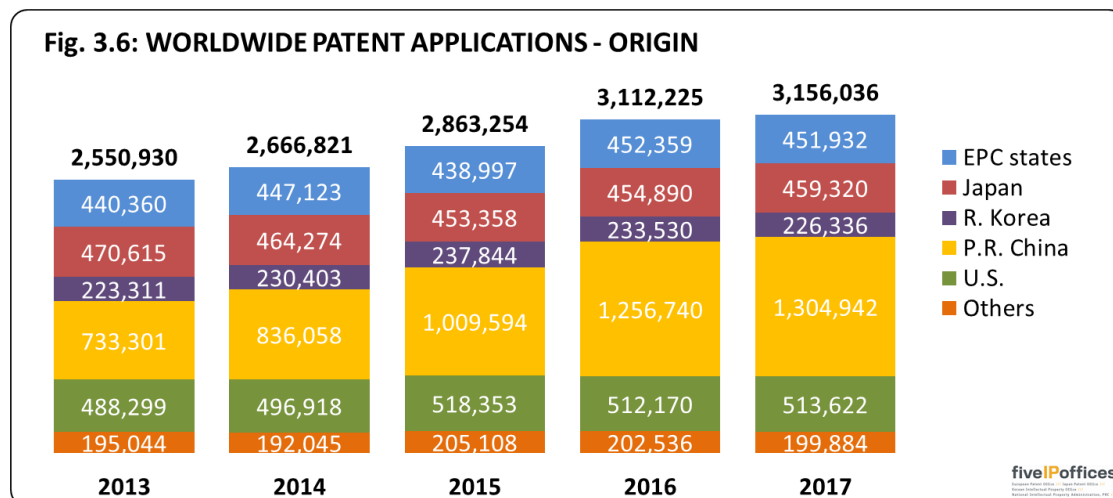


In 2017, 3.2 million patent applications were filed worldwide. This represents a 1 percent increase compared to 2016.

The number of direct national applications increased by 1 percent and the number of PCT national/regional applications increased by 3 percent.

²⁸ The national or regional phase under the PCT is entered up to 30 months or 31 months after the priority date of the first filing.

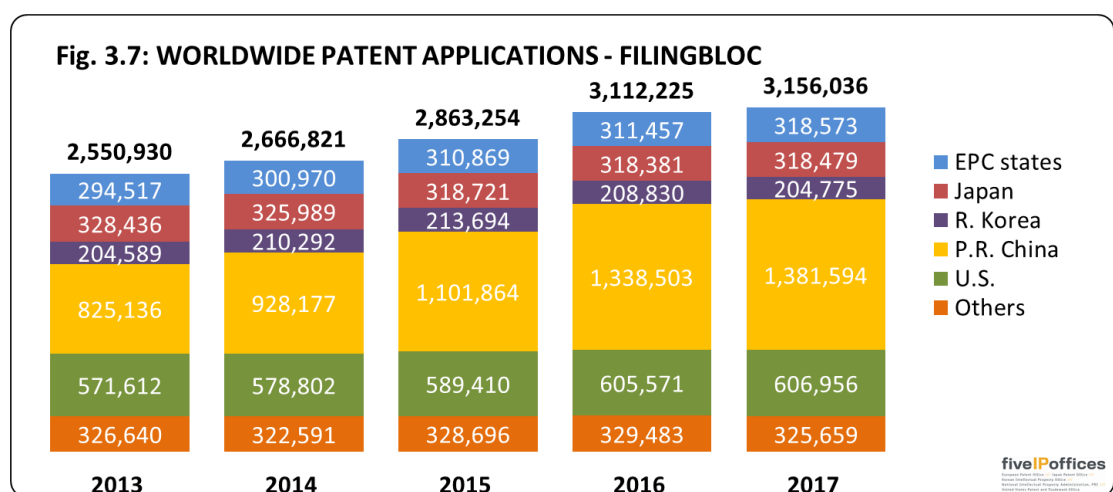
Fig. 3.6 shows the origins (residence of first-named applicants or inventors) of the worldwide patent applications of Fig. 3.5 entering a national or regional grant procedure.



In 2017, the largest share of applications in the IP5 Bloc originated from P.R. China. P.R. China also had the largest percentage increase in applications by origin in 2017 (4 percent). The numbers of applications from Japan increased by 1 percent, while the numbers from R. Korea decreased by 3 percent. The numbers of applications originating from the EPC states and from the U.S. remained stable compared to 2016.

The data for the Others can only be compared between years with care. The changes from year-to-year 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 worldwide patent applications according to the filing blocs and is based on the same data as in Fig. 3.5 and Fig. 3.6.



In 2017, applications increased by 3 percent in P.R. China and by 2 percent in the EPC states. In the U.S. and Japan the number of patent applications remained stable, while the number of patent applications in R. Korea decreased by 2 percent.

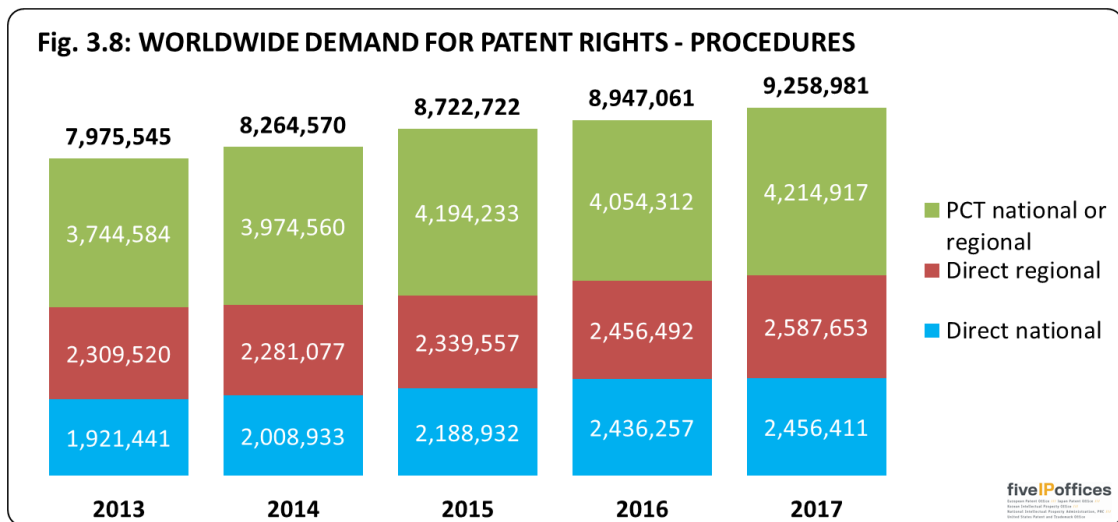
DEMAND FOR NATIONAL PATENT RIGHTS

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

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

The direct national applications have effect in one country only, as does any PCT application entering one national phase procedure. But direct regional applications and PCT applications entering a regional system are demands for almost each and every individual member country. So, demand counts for regional offices are expanded to the numbers of countries covered by regional systems²⁹.

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

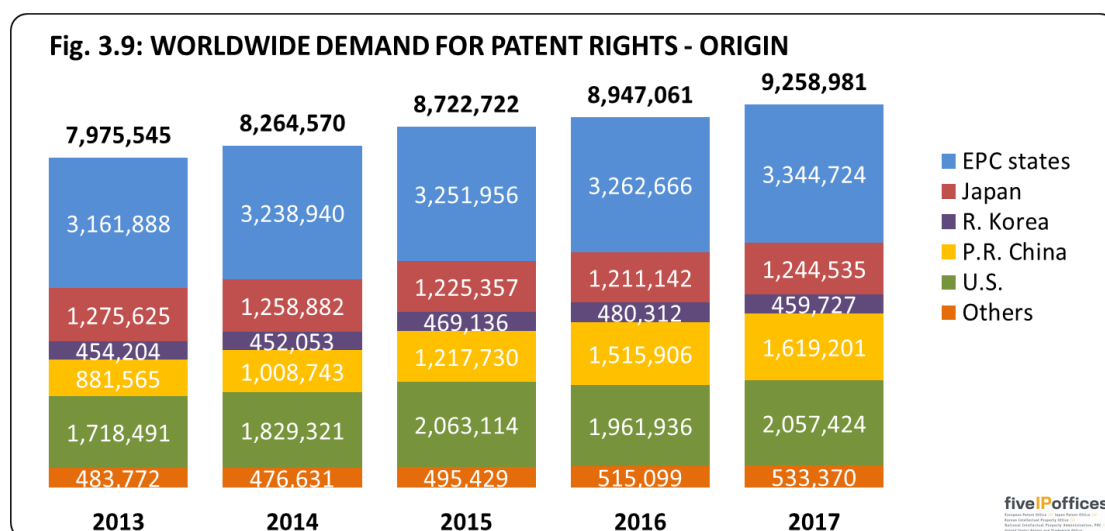


From 2016 to 2017, the worldwide demand for patent rights increased by 3 percent. In 2017, there was an increase in the use of all three filing procedures noted in Figure 3.8. The use of the direct national and direct regional procedures continued their upward trends of the past few years with increases of 1 percent and 5 percent, respectively. The use of the PCT procedure increased 4 percent in 2017.

Centralized filing procedures (PCT and direct regional) made up about 73 percent of the total demand in 2017. This illustrates the importance of these procedures to help users to expand their patent protection without needing to make separate applications to every country of interest.

²⁹ At the end of 2017, 88 states were party to a regional patent system, ARIPO 19, EAPC 8, EPC 38, GCCPO 6 and OAPI 17. This compares to 87 states at the beginning of 2013. Also at the end of 2017, 152 states were party to the PCT, compared to 148 states at the end of 2013. In addition, national patents can also be created in other states that have extension or validation agreements with the EPO (see Chapter 2).

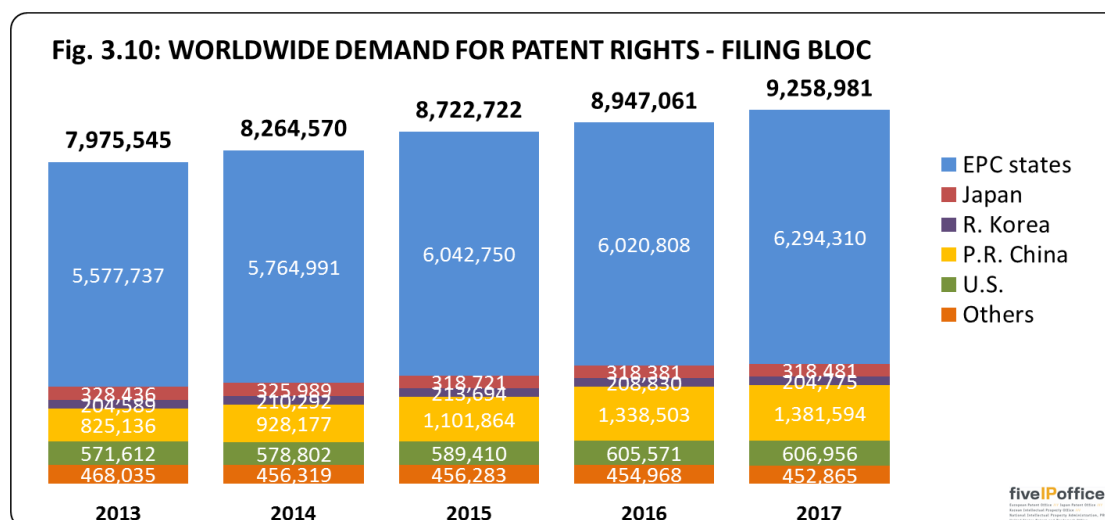
Fig. 3.9 shows the demand for national patent rights by blocs of origin (residence of first-named applicants or inventors) and is based on the same data as Fig. 3.8.



Demand from P.R. China and U.S. increased by 7 percent and 5 percent respectively. The Japan and EPC states increased by 3 percent each, while the R. Korea decreased by 4 percent.

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 for the distribution of the patent rights.

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

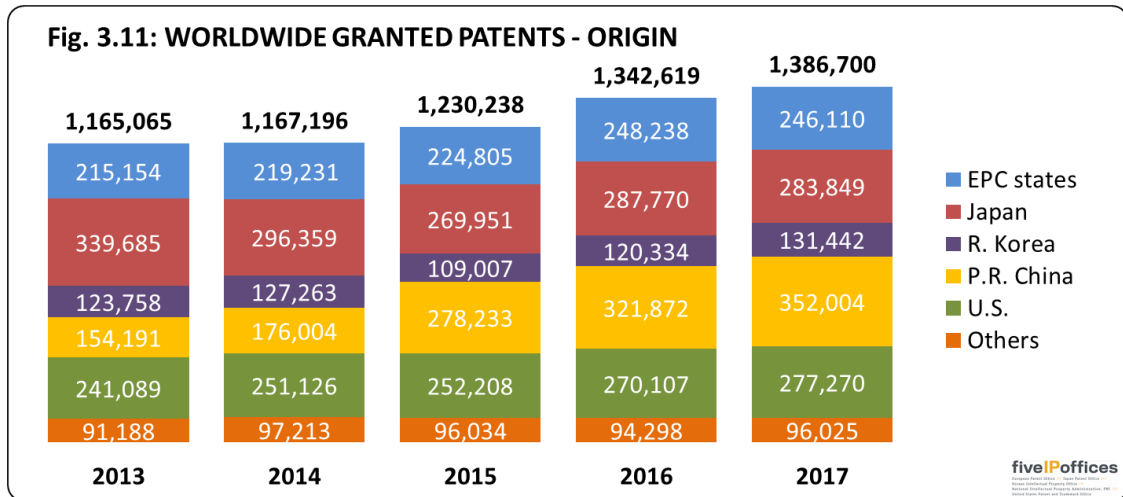


This chart illustrates the influence of regional patent systems. In 2017, the demand for national patent rights increased in EPC states and P.R. China increased by 5 percent and 3 percent respectively, while it decreased in the R. Korea by 2 percent.

GRANTED PATENTS

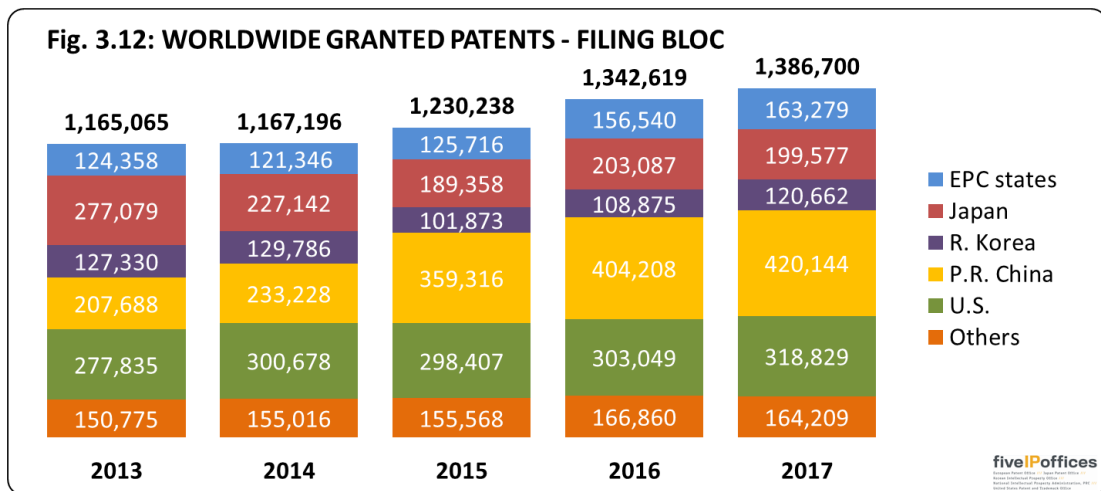
The development of the use of patents is shown in this section in terms of grants.

Fig. 3.11 shows the granted patent by blocs of origin (residence of first-named applicants or inventors).



The total number of worldwide granted patents increased by 3 percent in 2017. Granted patent from EPC states and P.R. China increased by 5 percent and 3 percent respectively. In the U.S. and Japan the number of patent applications remained stable, while the R. Korea decreased by 2 percent.

Fig. 3.12 displays the breakdowns of the numbers of granted patents in each of the blocs.

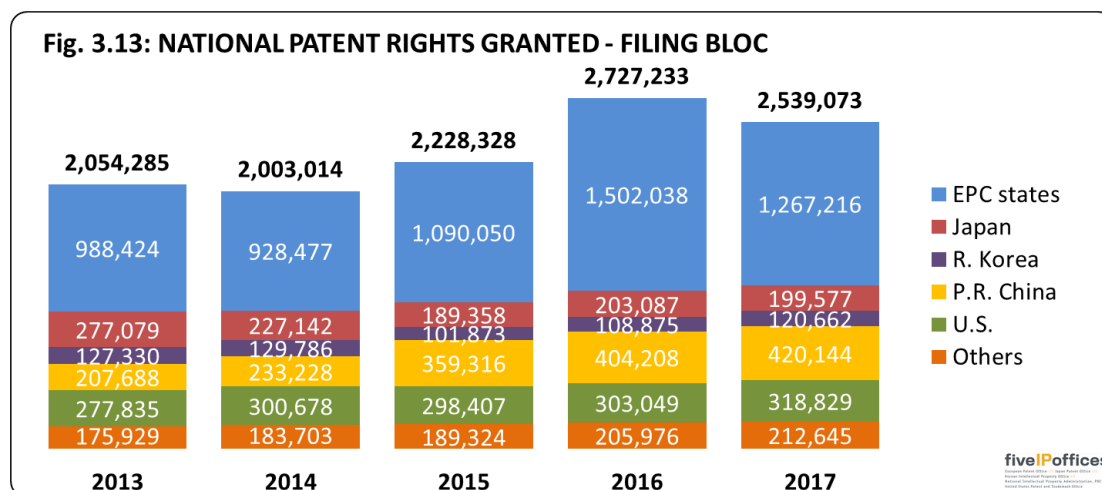


The numbers of granted patents increased in all blocs, except for Japan. The R. Korea had the largest percentage increase at 11 percent, followed by U.S. at 5 percent. The numbers of granted patents in EPC States and P.R. China increased by 4 percent each, while in the Japan it decreased by 2 percent.

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

Granted patents 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. 3.13 shows validated national grants resulting from the decisions reported in Fig. 3.12. 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.



In 2017, more than 2.5 million patent rights were granted, which represents a 7 percent decrease compared to 2016. This was due mainly to an exceptionally high count for year 2016 only in EPC states.

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. 3.13 is much larger than the number of grant actions shown in Fig. 3.12.

The number of national patent rights granted by the EPC states decreased by 16 percent. Information for the Japan, P.R. China, R. Korea, and U.S. blocs is the same as in Fig 3.12 as on the previous page.

The data for Others should be compared between years with caution. The changes from year to year may reflect different numbers of countries reporting their count of grants as well as changes in the numbers of grants and countries covered there by regional patents.

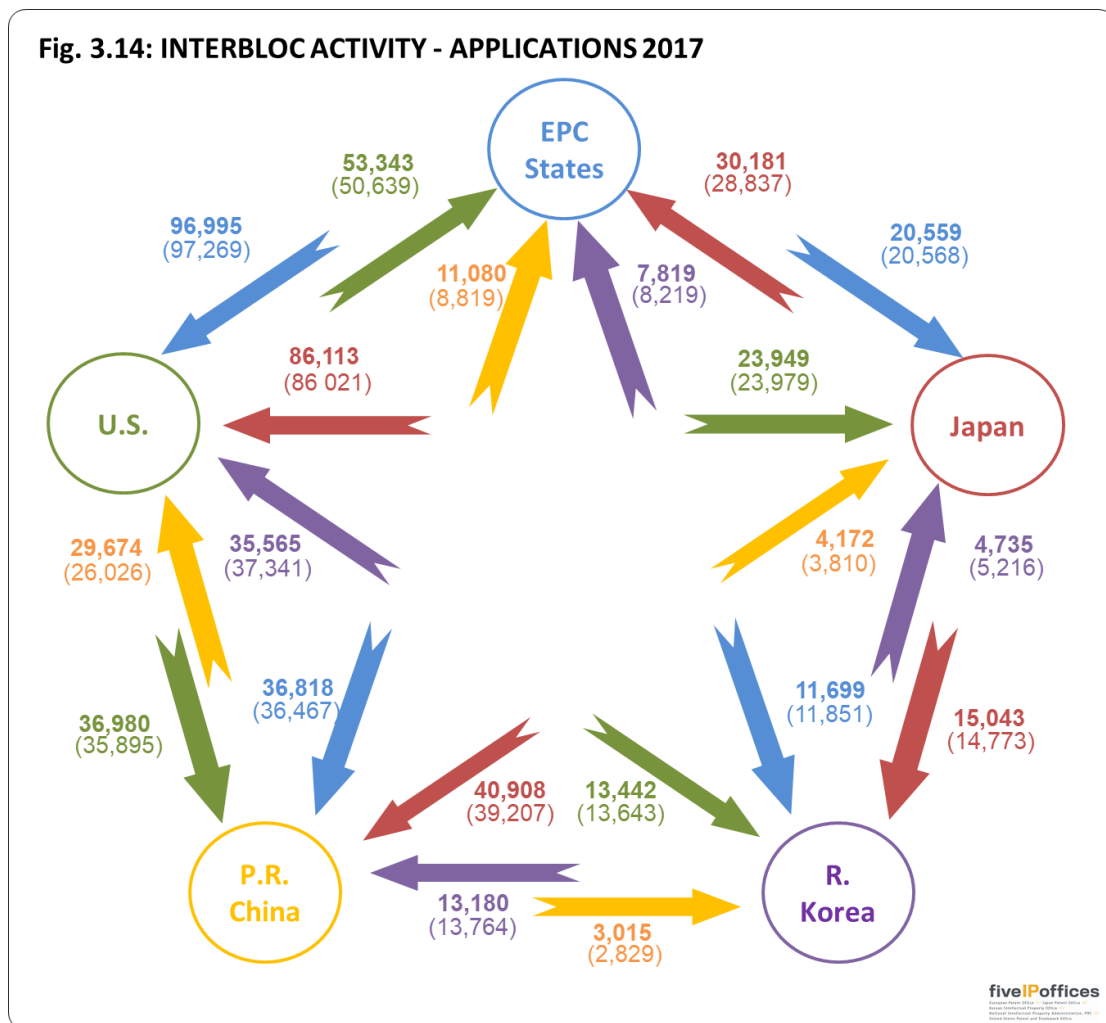
INTER-BLOC ACTIVITY

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. 3.14 shows the flows of patent applications between IP5 Blocs (residence of first-named applicants or inventors, as in Fig. 3.5) in 2017, with 2016 figures given in parentheses.

Direct applications to the offices are counted at the date of filing. PCT applications are counted at the moment they enter the national or regional phase. Direct national and direct regional applications are counted only once. PCT applications are replicated over the numbers of national or regional procedures that are started.



As a general pattern, when applying abroad there were more applications in the U.S. than in any of the other IP5 Blocs. When filing abroad, U.S. applicants applied more in the EPC states than in any of the other IP5 Blocs.

In 2017, nine of the twenty inter-bloc flows decreased to some extent. The flows from R. Korea to each of the other blocs decreased (and to Japan this decrease was as

much as 9 percent). Also the flows from the EPC states to Japan, to R. Korea and to U.S. decreased as well as the flows from U.S. to Japan and to R. Korea.

The other eleven of the twenty inter-bloc flows increased. In particular all flows starting from P.R. China increased markedly. The largest percentage increase of flow is from P.R. China to EPC States (26 percent, compared to 2016).

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)³⁰ of worldwide patent publications. The statistics are based on the references to priorities that were given in published applications and grants. For counts of first filings in this section, the numbers of domestic national filings are taken, as in Fig. 3.4. Due to the delay in publication (relative to the time of filing), patent families counts can only be reported with 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 2013 and 2014. 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.

Table 3: NUMBERS OF PATENT FAMILIES

Year of priority: 2013

Bloc of origin from which priority is claimed	First Filings in Bloc of Origin	Flows to Subsequent Filings								IP5 Patent Families from bloc of origin
		First filings in Bloc of Origin leading to priority claims in filings in:								
		Any other Blocs	Any other IP5 Bloc	EPC States	Japan	R. Korea	P.R.China	U.S.	Other countries	
EPC States	127,188	53,772 (42.3%)	51,849 (40.8%)	-	16,779 (13.2%)	10,042 (7.9%)	31,996 (25.2%)	46,148 (36.3%)	20,083 (15.8%)	6,791 (5.3%)
Japan	252,391	74,632 (29.6%)	72,394 (28.7%)	29,193 (11.6%)	-	16,669 (6.6%)	43,821 (17.4%)	60,097 (23.8%)	18,270 (7.2%)	7,498 (3.0%)
R.Korea	159,248	29,484 (18.5%)	29,171 (18.3%)	8,381 (5.3%)	5,661 (3.6%)	-	13,153 (8.3%)	26,660 (16.7%)	3,748 (2.4%)	2,891 (1.8%)
P.R.China	702,013	21,089 (3.0%)	19,706 (2.8%)	8,350 (1.2%)	3,892 (0.6%)	2,541 (0.4%)	-	17,775 (2.5%)	5,805 (0.8%)	1,548 (0.2%)
U.S.	264,923	100,769 (38.0%)	87,721 (33.1%)	73,717 (27.8%)	33,980 (12.8%)	24,202 (9.1%)	56,755 (21.4%)	-	55,480 (20.9%)	15,104 (5.7%)
Five blocs subtotal	1,505,763	279,746 (17.8%)	260,841 (16.6%)	119,641 (7.6%)	60,312 (3.8%)	53,454 (3.4%)	145,725 (9.3%)	150,680 (9.6%)	103,386 (6.4%)	33,832 (2.2%)
Others	88,645	19,531 (22.0%)	19,531 (22.0%)	4,643 (5.2%)	2,359 (2.7%)	1,176 (1.3%)	6,421 (7.2%)	16,692 (18.8%)	-	471 (0.5%)
Global total	1,594,408	299,277 (18.8%)	280,372 (17.6%)	124,284 (7.8%)	62,671 (3.9%)	54,630 (3.4%)	152,146 (9.5%)	167,372 (10.5%)	103,386 (6.5%)	34,303 (2.2%)

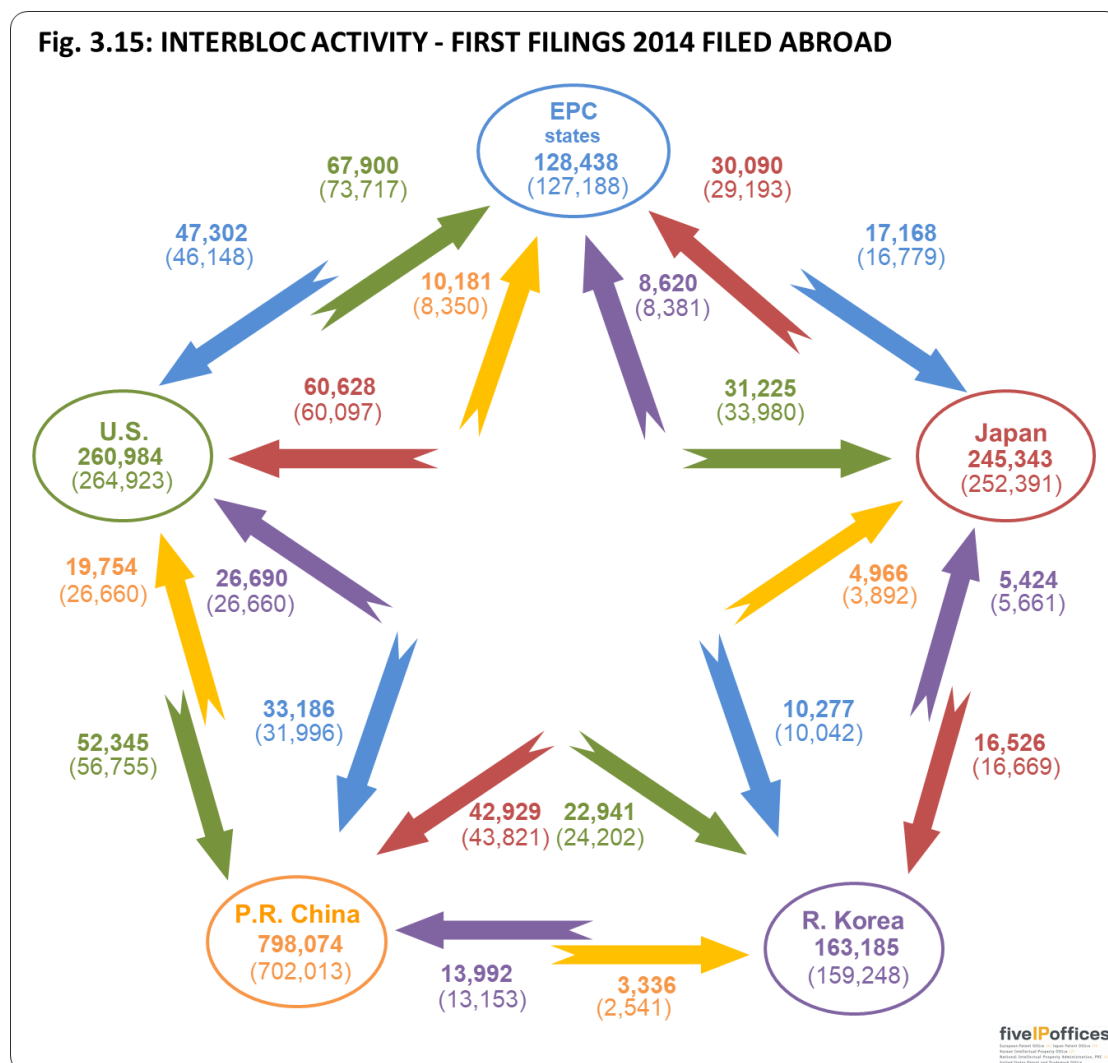
Year of priority: 2014

Bloc of origin from which priority is claimed	First Filings in Bloc of Origin	Flows to Subsequent Filings								IP5 Patent Families from bloc of origin
		First filings in Bloc of Origin leading to priority claims in filings in:								
		Any other Blocs	Any other IP5 Bloc	EPC States	Japan	R. Korea	P.R.China	U.S.	Other countries	
EPC States	128,438	54,952 (42.8%)	53,253 (41.5%)	-	17,168 (13.4%)	10,277 (8.0%)	33,186 (25.8%)	47,302 (36.8%)	19,529 (15.2%)	7,051 (5.5%)
Japan	245,343	74,823 (30.5%)	72,651 (29.6%)	30,090 (12.3%)	-	16,526 (6.7%)	42,929 (17.5%)	60,628 (24.7%)	17,810 (7.3%)	7,547 (3.1%)
R.Korea	163,185	29,828 (18.3%)	29,522 (18.1%)	8,620 (5.3%)	5,424 (3.3%)	-	13,992 (8.6%)	26,690 (16.4%)	3,042 (1.9%)	2,743 (1.7%)
P.R.China	798,074	23,054 (2.9%)	22,003 (2.8%)	10,181 (1.3%)	4,966 (0.6%)	3,336 (0.4%)	-	19,754 (2.5%)	5,600 (0.7%)	1,977 (0.2%)
U.S.	260,984	93,209 (35.7%)	81,678 (31.3%)	67,900 (26.0%)	31,225 (12.0%)	22,941 (8.8%)	52,345 (20.1%)	-	50,163 (19.2%)	13,830 (5.3%)
Five blocs subtotal	1,596,024	275,866 (17.8%)	259,107 (16.6%)	116,791 (7.6%)	58,783 (3.8%)	53,080 (3.4%)	142,452 (9.3%)	154,374 (9.6%)	96,144 (6.4%)	33,148 (2.2%)
Others	84,315	19,369 (23.0%)	19,369 (23.0%)	4,925 (5.8%)	3,321 (3.9%)	1,246 (1.5%)	6,472 (7.7%)	16,144 (19.1%)	-	566 (0.7%)
Global total	1,680,339	295,235 (17.6%)	278,476 (16.6%)	121,716 (7.2%)	62,104 (3.7%)	54,326 (3.2%)	148,924 (8.9%)	170,518 (10.1%)	96,144 (5.7%)	33,714 (2.0%)

Source: EPO DOCDB Database

³⁰ DOCDB is the EPO master documentation database of patent publications, with worldwide coverage containing bibliographic data, abstracts and citations (but not the full text of the applications).

Fig. 3.15 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 2014. The flow figures between blocs of origin and target blocs indicate the numbers of 2014 first filings from the bloc of origin that led to subsequent filings in the target bloc. The comparable figures for 2013 are given in parentheses.



From information in Table 3, out of all first filings in the IP5 Blocs in 2014 (1,596,024), 17 percent formed patent families that included at least one of the remaining IP5 Blocs (259,107). Proceeding to a higher degree of selectivity, only 2 percent of all first filings in the IP5 Blocs in 2014 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 2014 differed considerably according to the bloc of origin of the first filings, as can be seen in Table 3 (EPC states 5.5 percent, U.S. 5.3 percent, Japan 3.1 percent, R. Korea 1.7 percent, P.R. China 0.2 percent and for Others 0.7 percent). The proportion for U.S. showed the biggest change since 2013, when it was 5.7 percent.

Fig. 3.16 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 2014 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 that resulted 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 2014. 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 lower 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 10.0 percent, as shown next to the pair of yellow and green dots that appear lower down in the figure. The non-overlapping areas of the graphical displays are representative of the percentage or number of patent families that were not subsequently filed in any of the other IP5 Blocs. For instance, for first filings in EPC states, the small non-overlapping area of the Japan circle indicates that only a small percentage and number of the patent families from EPC states were filed in Japan without also being filed in at least one of the other IP5 Blocs, as well.

The last row of the table in Fig. 3.16 shows the proportions of IP5 patent families, as also appear in the last column of the lower part of Table 3.

Fig. 3.16: 2014 PATENT FAMILIES - PERCENTAGES OF FIRST FILINGS WITH SUBSEQUENT FILINGS IN OTHER IP5 BLOCS

fiveIPoffices
European Patent Office (EPO) · Japan Patent Office (JPO) · Korean Intellectual Property Office (KIPO) · National Intellectual Property Administration (CNIPA) · United States Patent and Trademark Office (USPTO)

First filings in	EPC states offices* 128,438	Japan (JPO) 245,343	R.Korea (KIPO) 163,185	P.R.China (CNIPA) 798,074	U.S. (USPTO) 260,984
Bilateral families with subsequent filings in					
EPC states	-	12.3%	5.3%	1.3%	26.0%
Japan	13.4%	-	3.3%	0.6%	12.0%
R. Korea	8.0%	6.7%	-	0.4%	8.8%
P.R. China	25.8%	17.5%	8.6%	-	20.1%
U.S.	36.8%	24.7%	16.4%	2.5%	-
Three bloc families with subsequent filings in					
EPC states & Japan	-	-	1.8%	0.5%	10.4%
EPC states & R. Korea	-	3.4%	-	0.3%	7.1%
EPC states & P.R. China	-	9.2%	4.3%	-	16.5%
EPC states & U.S.	-	11.1%	5.1%	1.1%	-
Japan & R. Korea	6.0%	-	-	0.3%	6.1%
Japan & P.R. China	11.0%	-	2.5%	-	9.3%
Japan & U.S.	12.6%	-	2.8%	0.5%	-
R. Korea & U.S.	7.3%	5.0%	-	0.4%	-
P.R. China & R. Korea	7.2%	5.7%	-	-	7.3%
P.R. China & U.S.	21.7%	13.5%	7.2%	-	-
Four bloc families with subsequent filings in					
EPC states & Japan & R. Korea	-	-	-	0.3%	5.6%
EPC states & Japan & P.R. China	-	-	1.7%	-	8.8%
EPC states & Japan & U.S.	-	-	1.8%	0.4%	-
EPC states & R. Korea & P.R. China	-	3.2%	-	-	6.5%
EPC states & R. Korea & U.S.	-	3.2%	-	0.3%	-
EPC states & P.R. China & U.S.	-	8.6%	4.2%	-	-
Japan & R. Korea & P.R. China	5.7%	-	-	-	5.7%
Japan & R. Korea & U.S.	5.8%	-	-	0.3%	-
Japan & P.R. China & U.S.	10.6%	-	2.2%	-	-
P.R. China & R. Korea & U.S.	6.7%	4.3%	-	-	-
IP5 families	5.5%	3.1%	1.7%	0.2%	5.3%

* EPO or EPC states national offices

From Fig. 3.16 and Table 3, the 2014 data indicate that the U.S. market may be considered as the most important foreign market for the other IP5 Blocs since, for each of those blocs, subsequent applications in the U.S. represent the highest percentages among target blocs. The second most important market for the other IP5 Blocs is P.R. China. From U.S., the most important foreign market is the EPC States, followed by P.R. China. From P.R. China, the most important foreign market is U.S., followed by the EPC States.

For the first filings in the EPC member states, the largest percentage of subsequent filings is directed to the U.S. (36.8 percent). First filings in the EPC member states tend to result in a higher percentage of subsequent filings overseas, as compared to the first filings in other IP5 Blocs, except for the case of first filings from U.S. going to Korea.

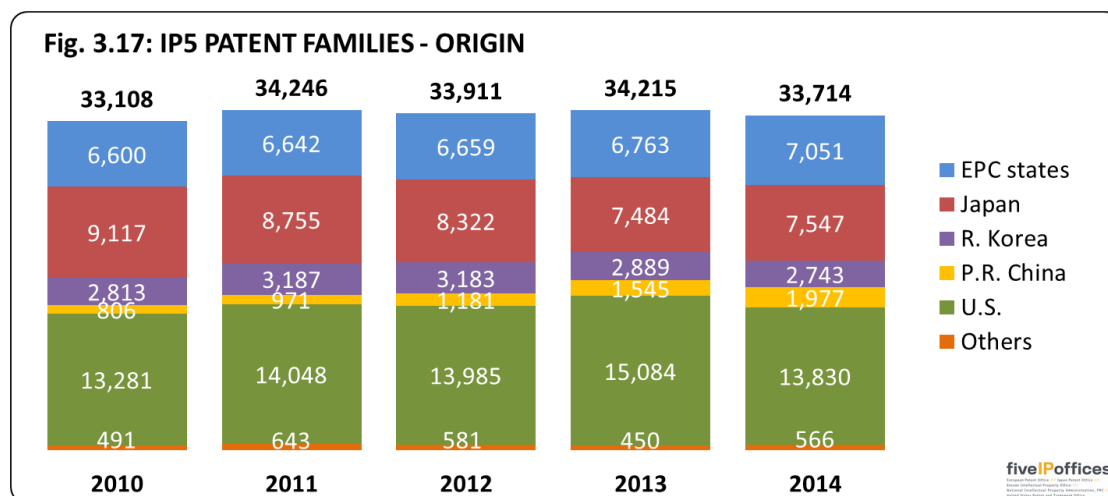
For the first filings in Japan, the largest percentage of subsequent applications is directed to the U.S. (24.7 percent) and P.R. China is the next largest (17.5 percent), while the EPC states is 12.3 percent.

For the first filings in R. Korea, as with the other blocs, the percentage of subsequent applications filed in the U.S. (16.4 percent) is the largest, followed by P.R. China (8.6 percent). The percentage of subsequent applications filed in the EPC member states is 5.3 percent. This last percentage is close to the percentage of subsequent applications filed in both the EPC member states and the U.S. together (5.1 percent), indicating that most of the subsequent applications filed in the EPC member states have been also filed in the U.S.

For the first filings in P.R. China, the percentage of subsequent applications filed in the U.S. (2.5 percent) is the largest. The percentage filed in both the EPC member states and Japan is 0.5 percent. The percentage of subsequent applications that were filed in the EPC member states, Japan, and the U.S. is close at 0.4 percent, indicating that often 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 2013 and the 2014 data in Table 3 (19,706 compared to 22,003, respectively).

Among the first filings in the U.S., the highest percentage flows to the EPC member states (26.0 percent). The percentage filed in the P.R. China (20.1 percent) is the next highest, while filings in Japan and R. Korea are at 12.0 percent and 8.8 percent, respectively.

Fig. 3.17 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.



The total number of IP5 patent families in 2014 was 33,714, of which 41 percent were from the U.S., 22 percent were from Japan, 21 percent were from the EPC states, 8 percent were from R. Korea, 6 percent were from P.R. China, and 2 percent were from Others.

Chapter 4

PATENT ACTIVITY AT THE IP5 OFFICES

This chapter presents trends in patent application filings and grants at the IP5 Offices only, including also some breakdowns by technologies. While in Chapter 3 the latest data were for 2017, most of the information that appears here includes data for 2018³¹. The patent office statistics for Europe in this chapter are for the EPO only and do not include statistics from 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 3.14) which show the numbers of requests for patents as patent applications³². 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. 3.11, 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.

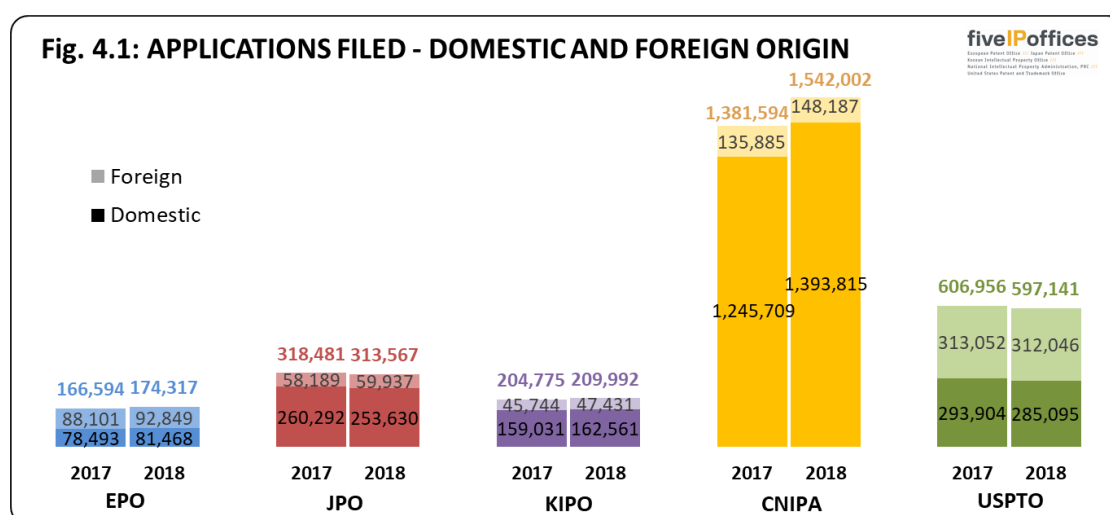
³¹ The statistical tables file found in the web version of this report includes extended time series for much of the data included in this chapter. <http://www.fiveipoffices.org/statistics/statisticsreports.html>

³² See the section "Guide to figures in Chapter 3" at the beginning of Chapter 3.

PATENT APPLICATIONS

ORIGIN

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 2018, a total of 2,837,019 patent applications were filed at the IP5 Offices, an increase of 6 percent from 2017 (2,678,400).

Patent applications increased by 12 percent at the CNIPA, by 5 percent at the EPO and by 3 percent at the KIPO. They decreased by 2 percent at the JPO and at the USPTO.

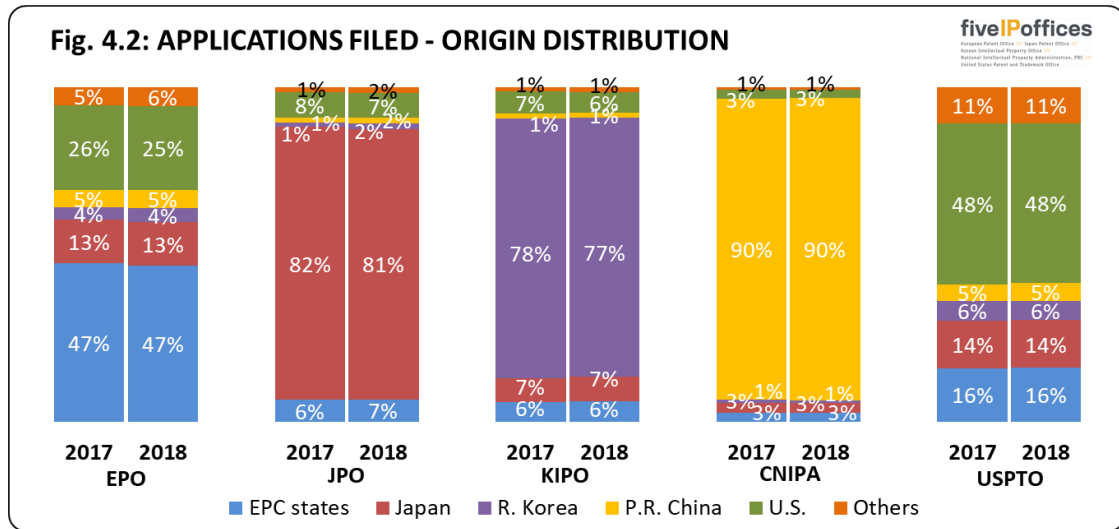
Domestic and foreign applications both increased at the EPO, at the CNIPA and at the KIPO. At the JPO, domestic applications decreased by 3 percent and foreign applications increased by 3 percent. At the USPTO, domestic applications remained stable and foreign applications decreased by 4 percent.

Table 4.1 shows the number of patent application filings by origin (residence of first-named applicants or inventors) relative to total filings at each office for 2018.

Table 4.1: 2018 APPLICATIONS FILED - ORIGIN

Office	EPO	JPO	KIPO	CNIPA	USPTO	Total
EPC States	81,468	20,884	12,702	39,810	95,699	250,563
Japan	22,615	253,630	15,595	45,284	85,322	422,446
R. Korea	7,296	5,070	162,561	13,875	33,961	222,763
P.R. China	9,401	5,325	3,140	1,393,815	32,615	1,444,296
U.S.	43,612	23,121	13,035	38,859	285,095	403,722
Others	9,925	5,537	2,959	10,359	64,449	93,229
Total	174,317	313,567	209,992	1,542,002	597,141	2,837,019

Fig. 4.2 shows the respective shares of patent applications filings by origin (residence of the first-named applicant or inventor) relative to the total number of applications filed at each office, for 2017 and 2018.



The shares of patent application filings by bloc of origin vary between Offices, but are generally consistent for 2017 and 2018 within each Office.

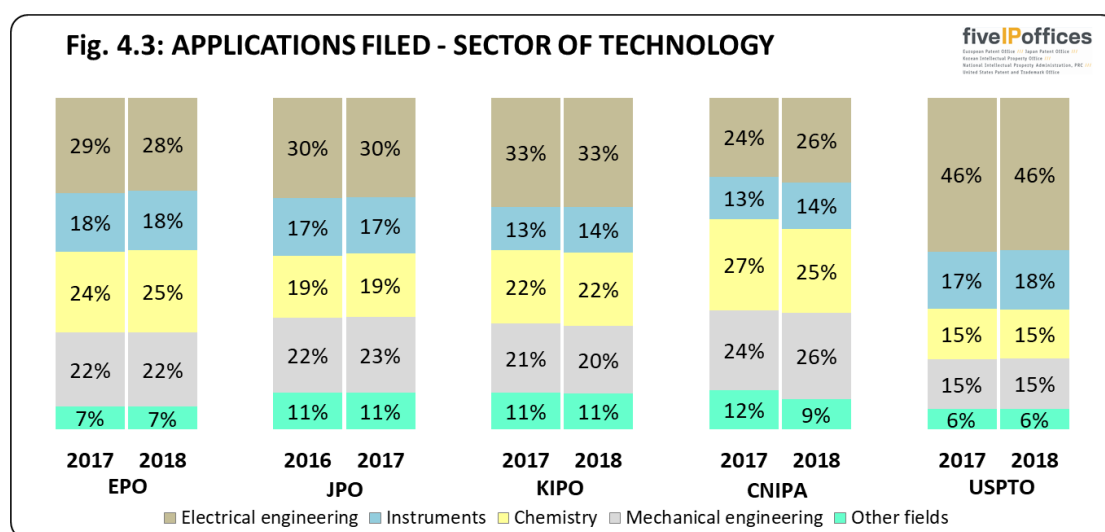
Caution should be used when comparing the numbers of applications between the IP5 Offices, due to the fact that the average number of claims contained in individual applications varies significantly. On average, in 2018, an application filed at the EPO contained 14.2 claims, (14.7 in 2017) while an application filed at the JPO contained an average of 10.7 claims (10.4 in 2017), and an application filed at the KIPO contained an average of 11.1 claims (11.2 in 2017). At the CNIPA, an application contained an average of 8.7 claims (8.1 in 2017), while one filed at the USPTO had 17.8 claims (18.6 in 2017) on average.

See the annexed statistical tables for longer trends.

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 sectors³³. 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 CNIPA, and the USPTO for the filing years 2017 and 2018, while for the JPO the breakdown is given for the filing years 2016 and 2017³⁴.



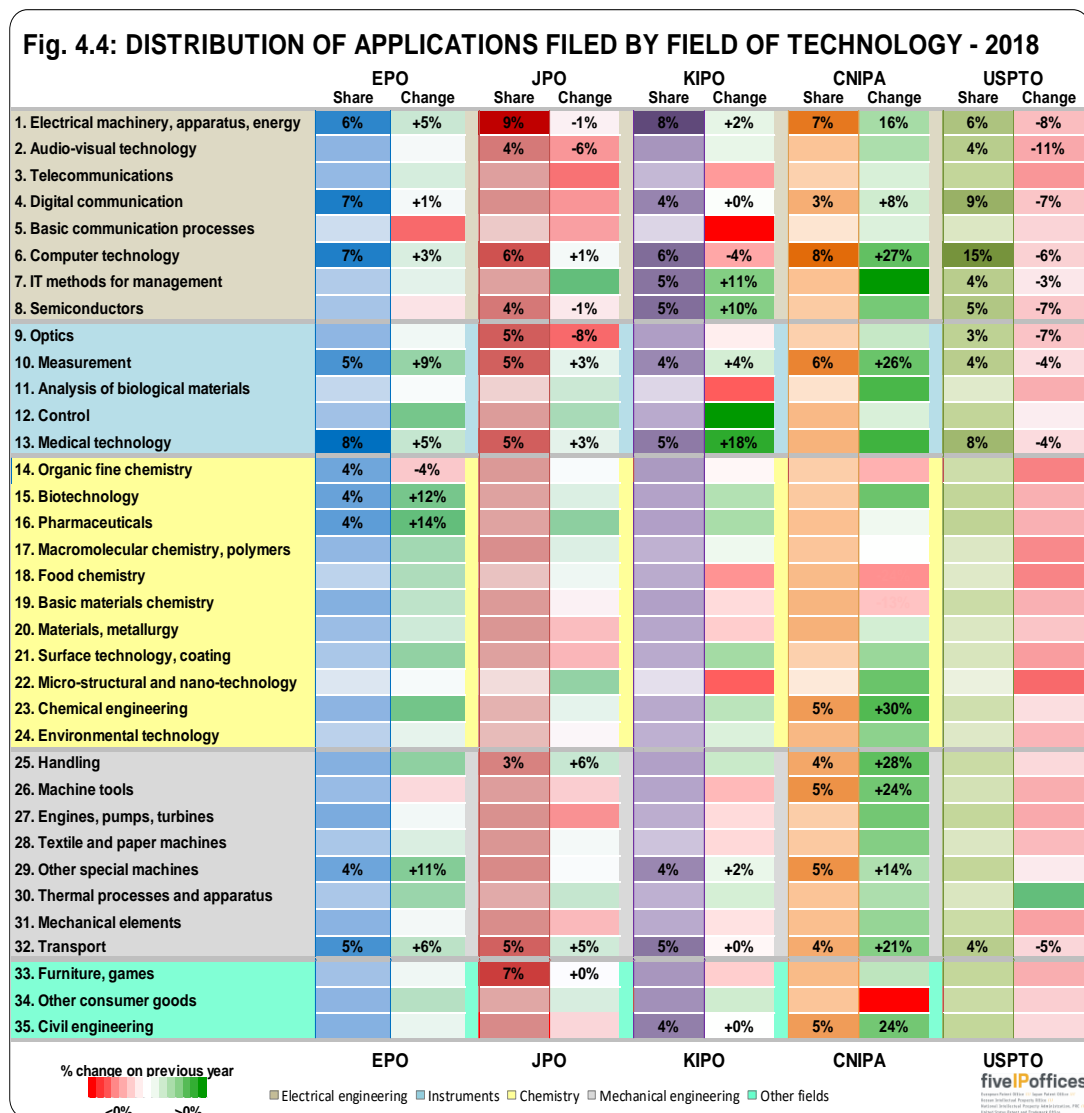
The Electrical engineering sector is more prominent at the USPTO than in the other IP5 Offices. A higher proportion of applications are filed in the Chemistry sector at the CNIPA and at the EPO than in the other IP5 Offices. At each office, the distribution between sectors of technology was fairly stable between the two years reported. On the longer term, there are some slow variations that can be seen in the statistical annex. For example, at JPO there was a slow decline in the proportion for the Electrical Engineering sector since 2011.

³³ www.wipo.int/meetings/en/doc_details.jsp?doc_id=117672

www.wipo.int/export/sites/www/ipstats/en/statistics/patents/xls/ipc_technology.xls

³⁴ JPO data for 2017 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). Percentages may not total 100 due to rounding.

Fig. 4.4 describes the distribution of the 2018³⁵ applications by the more detailed fields of technology at each office (left column for each IP5 Office), and the change in application counts compared to 2017 (right column). Actual shares and percentage changes in application counts are shown for the top 10 leading fields at each Office. The distribution of applications is represented by a colour scale: the darker the shade of a colour, the greater the share. The extent of change is reflected by a red-to-green colour scale, the dark red indicates a marked decrease and dark green indicates a marked increase.



Three fields are leading fields at all the IP5 Offices: 1. *Electrical machinery, apparatus, energy*, 6. *Computer technology* and 10. *Measurement*.

Six of the leading fields at the USPTO and five of the leading fields at the KIPO are related to the Electrical engineering sector (1 to 8). At the JPO, KIPO and USPTO, most of leading fields are related to the Electrical engineering sector (1 to 8) or to Instruments sector (9 to 13). At the CNIPA and the EPO, the leading fields are more spread between sectors, with EPO a little more concentrated in the Electrical engineering (1 to 8) and in the Chemistry (14 to 24) sectors.

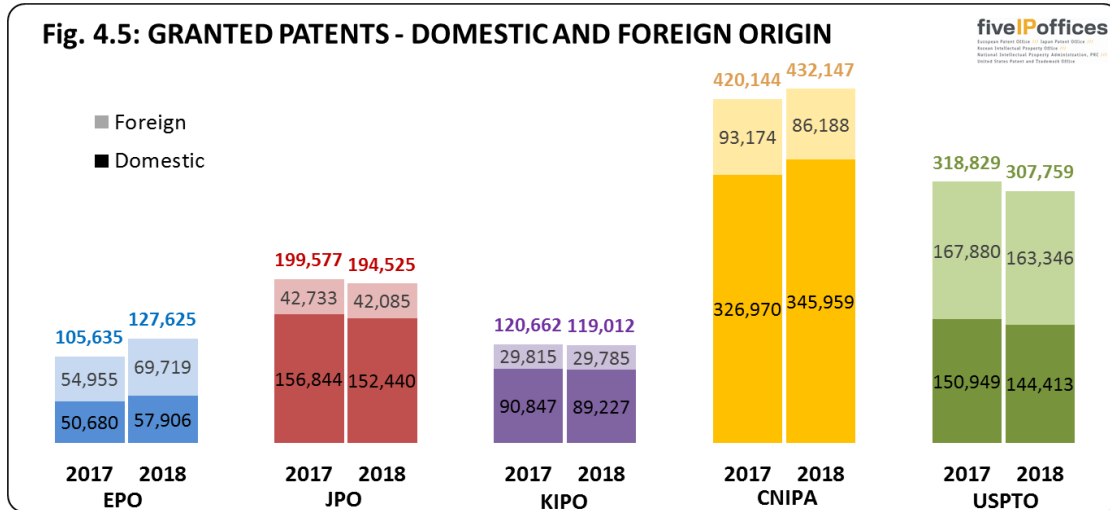
³⁵ In the case of JPO data for 2017 are reported and compared to data for 2016.

The highest share in a field can be found in *6.Computer technology* receiving 15 percent of all applications at the USPTO. Applications in the leading fields at the CNIPA experienced very diverging growth.

GRANTED PATENTS

ORIGIN

Fig. 4.5 shows the numbers of granted patents 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 1,181,068 patents in 2018. This was 16,221 more than in 2017 and represents an increase of 1 percent.

The numbers of granted patents increased in 2018 at the EPO and the CNIPA. At the EPO, there was an increase of approximately 21 percent, which is especially marked in foreign grants. There was an increase of 3 percent at the CNIPA, which is caused by domestic grants. The number of granted patents decreased by 3 percent at the USPTO, by 3 percent at the JPO and by 1 percent at the KIPO.

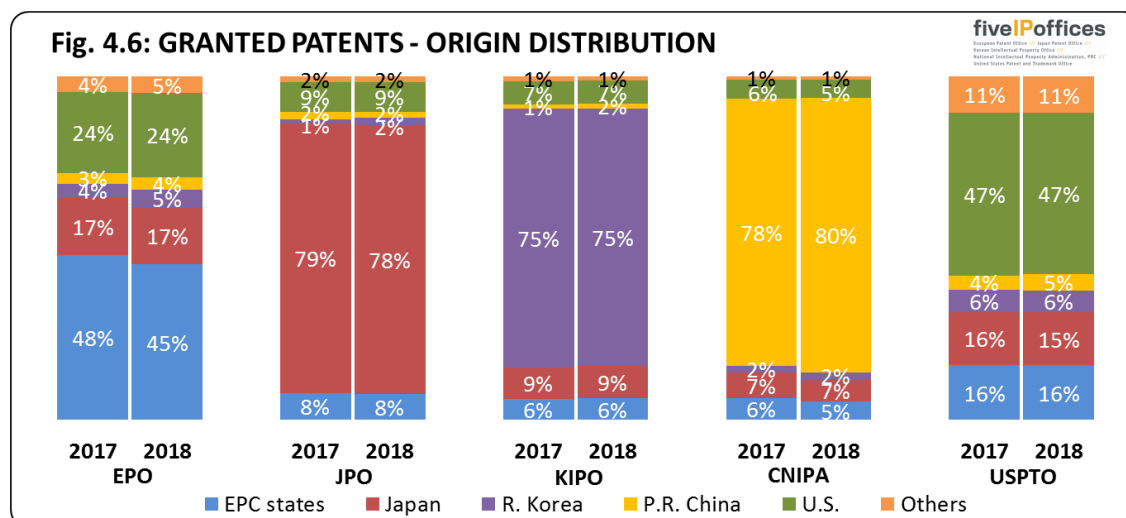
The differences between the IP5 Offices regarding the absolute numbers of granted patents can only be partly explained by differences in the numbers of corresponding applications. These numbers are also affected by differing grant rates and durations to process applications by the IP5 Offices (see the section below "Statistics on Procedures").

Table 4.2 shows the number of granted patents by origin (residence of first-named owner or inventor) at each office for 2018.

Table 4.2: 2018 GRANTED PATENTS – ORIGIN

Office Origin	EPO	JPO	KIPO	CNIPA	USPTO	Total
EPC States	57,906	14,653	7,467	22,978	48,963	151,967
Japan	21,343	152,440	11,239	28,094	47,566	260,682
R. Korea	6,262	4,199	89,227	8,623	19,780	128,091
P.R. China	4,831	3,152	1,801	345,959	14,488	370,231
U.S.	31,136	17,080	7,912	22,915	144,413	223,456
Others	6,147	3,001	1,366	3,578	32,549	46,641
Total	127,625	194,525	119,012	432,147	307,759	1,181,068

Fig. 4.6 shows the shares of granted patents by origin (residence of first-named owner or inventor) at each office for 2017 and 2018.

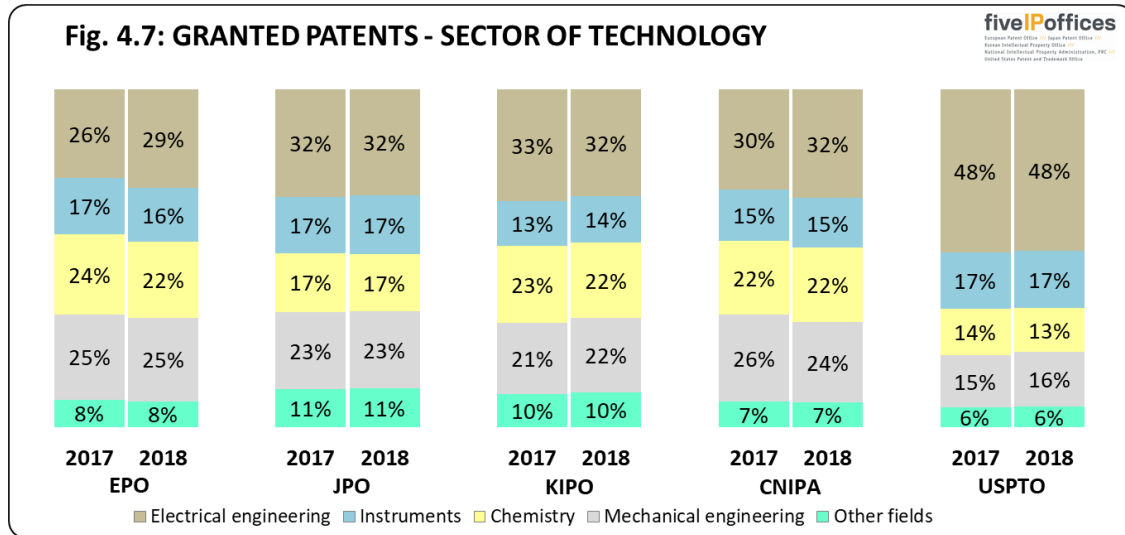


At the EPO, the share of domestic granted patents continued to decline in 2018, while it increased at CNIPA.

At all offices, the share of domestic granted patents in 2018 is lower than the share of domestic applications that is shown in Fig. 4.2. For CNIPA, the difference is larger than for the other offices, which can be partially explained by the strong growth in domestic applications observed during the past few years. That is not yet reflected in the distribution of granted patents.

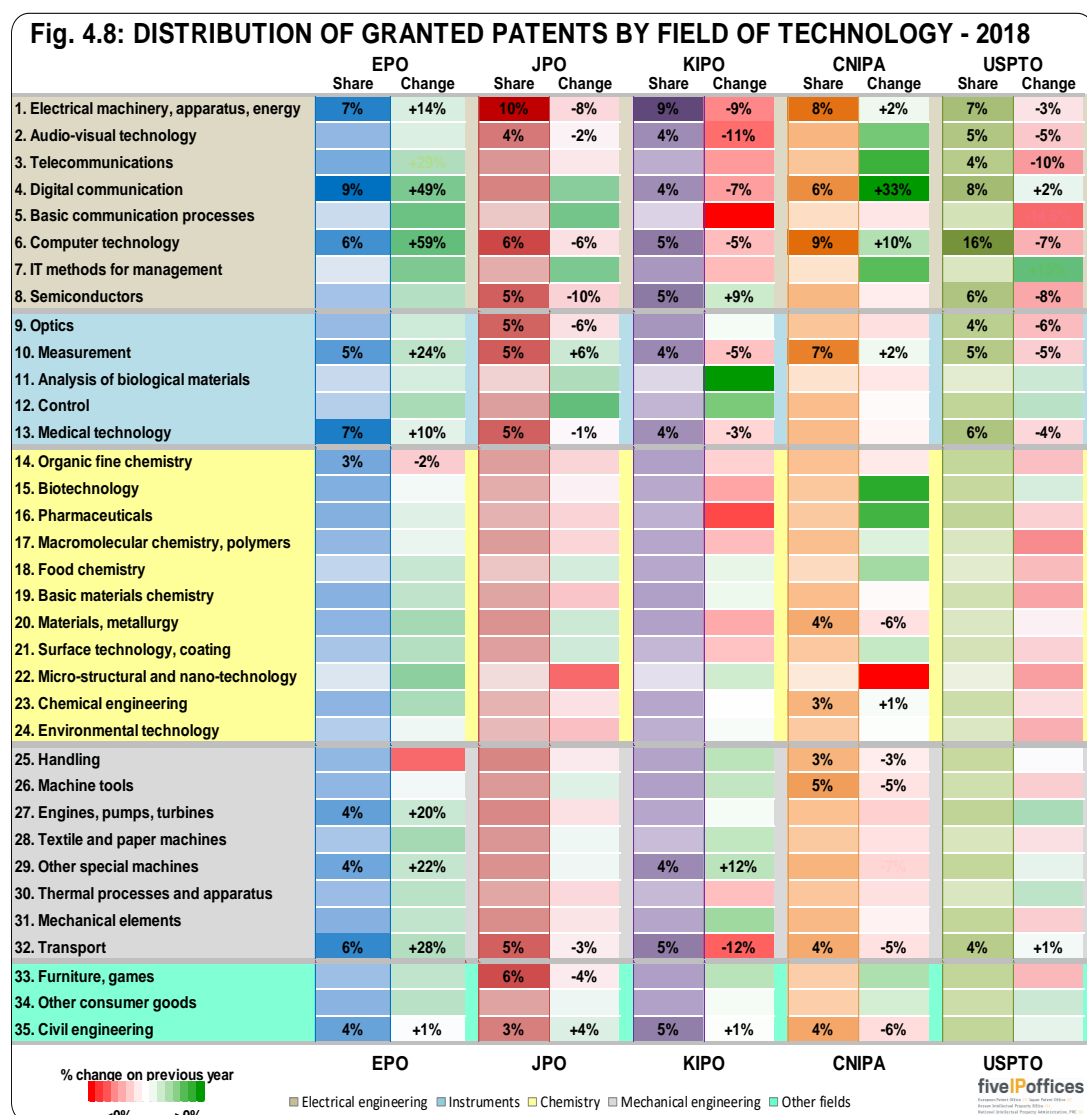
SECTORS AND FIELDS OF TECHNOLOGY

Fig. 4.7 shows the distribution of the granted patents in 2017 and 2018 at each office according to the five main sectors of technology.



The distribution of granted patents by sectors is fairly consistent with that shown in Fig. 4.3 for applications. At the CNIPA, the share of Chemistry in granted patents is noticeably lower than the share in applications.

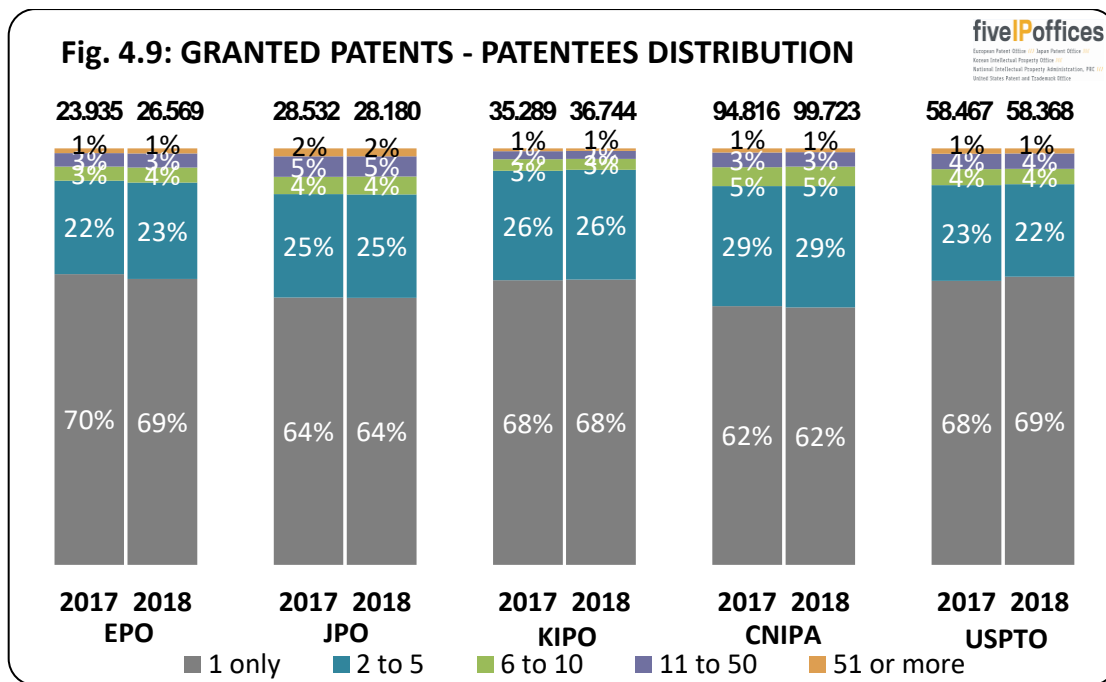
Fig. 4.8 describes the distribution of the 2018 granted patents by the more detailed fields of technology at each office (left column for each IP5 Office), and the change in granted patents counts compared to 2017 (right column). Actual shares and percentage changes in patent counts are shown for the top 10 leading fields at each Office. The distribution of applications is represented by a colour scale: the darker the shade of a colour, the greater the share. The extent of change is reflected by a red-to-green colour scale, the dark red indicates a marked decrease and dark green indicates a marked increase.



At the EPO 27. *Engines, pumps, turbines* and 35. *Civil engineering* are leading fields in granted patents but not in applications. At the JPO, 35. *Civil engineering* is a leading field in granted patents but not in applications. At the KIPO 2. *Audio-visual technology* is a leading field in granted patents but not in applications. At the CNIPA, 20. *Material, metallurgy* is leading fields in granted patents but not in applications. At the USPTO 3. *Telecommunications* and 5. *Basic communication processes* are leading fields in granted patents but not in applications.

The large increase in the number of granted patents by the EPO is reflected by a higher number of fields for which the count of granted patents increased.

Fig. 4.9 shows the breakdown of patentees by their numbers of granted patents in 2017 and 2018.



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 2017 and 2018 for each office. See the annexed statistical tables for longer term trends. These data are fairly static.

At the CNIPA there is a slightly higher share of the “2 to 5” category than at the other IP5 Offices.

Most of the patentees received only one grant in a year. In 2018, the proportion was between 62 percent (CNIPA) and 69 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 was higher at the JPO (7 percent) than at the USPTO (5 percent), at the EPO (4 percent), at the CNIPA (4 percent) and at the KIPO (3 percent).

In 2018, the average number of granted patents received remained unchanged for most offices when comparing 2017 to 2018. The numbers were 5 for the EPO, 7 at the JPO, 3 at the KIPO, 4 at the CNIPA and 5 at the USPTO. The greatest number of patents granted to a single applicant was 2,538 at the EPO, 4,344 at the JPO, 2,912 at the KIPO, 3,369 at the CNIPA and 9,088 at the USPTO. This maximum number for 2018 was larger than for 2017 at the EPO, the KIPO and the USPTO.

MAINTENANCE

A patent is enforceable for a fixed term that depends on actions taken by the owner. In the IP5 Offices, the maximum term is usually twenty years 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, including those of the IP5 Offices, protection expires if a renewal fee is not paid in due time.

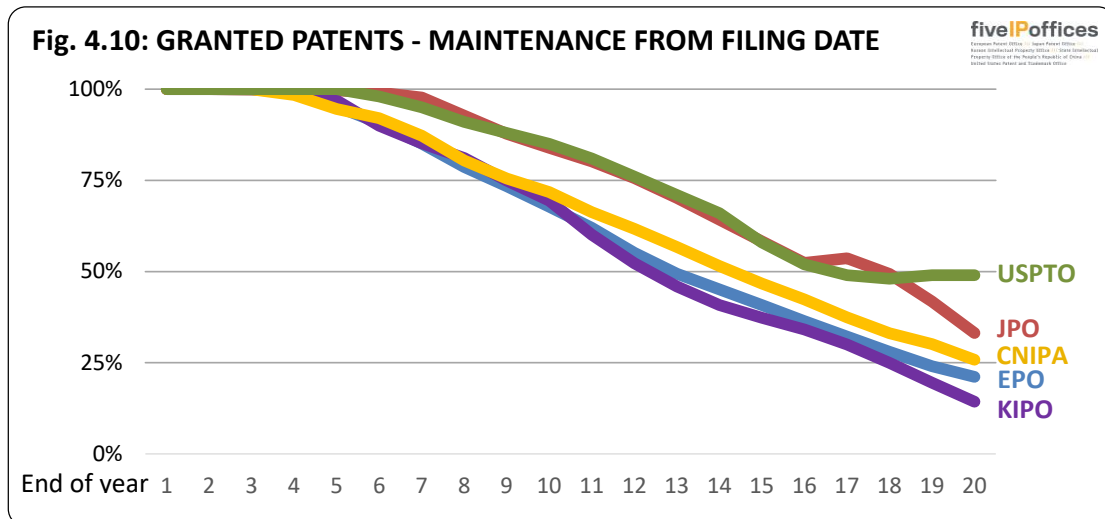
At the EPO, annual renewal fees are payable at the beginning of the year from the third year after filing in order to maintain the application. After the patent has been granted, renewal fees are then paid to the national office of each designated EPC contracting state in which the patent has been registered. 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 need 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 CNIPA, 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 at 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. 4.10 shows the proportions of granted patents 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 states³⁶.



At the USPTO, 49 percent of the granted patents are maintained for the 20 years from filing. This compared to 35 percent at the JPO, 26 percent at the CNIPA, 21 percent at the EPO and 14 percent at the KIPO.

More than 50 percent of the JPO and the USPTO granted patents are maintained for at least 16 years, compared to 14 years at the CNIPA, 13 years at the EPO and 12 years at the KIPO.

In addition to patentees' behaviour, these differences can be partly explained by differences in the procedures, such as a multinational maintenance system (EPO), deferred examination (JPO, KIPO, CNIPA) and a stepped maintenance payment schedule (USPTO). Changes in patent laws and administrative processes also may have some effect on maintenance rates.

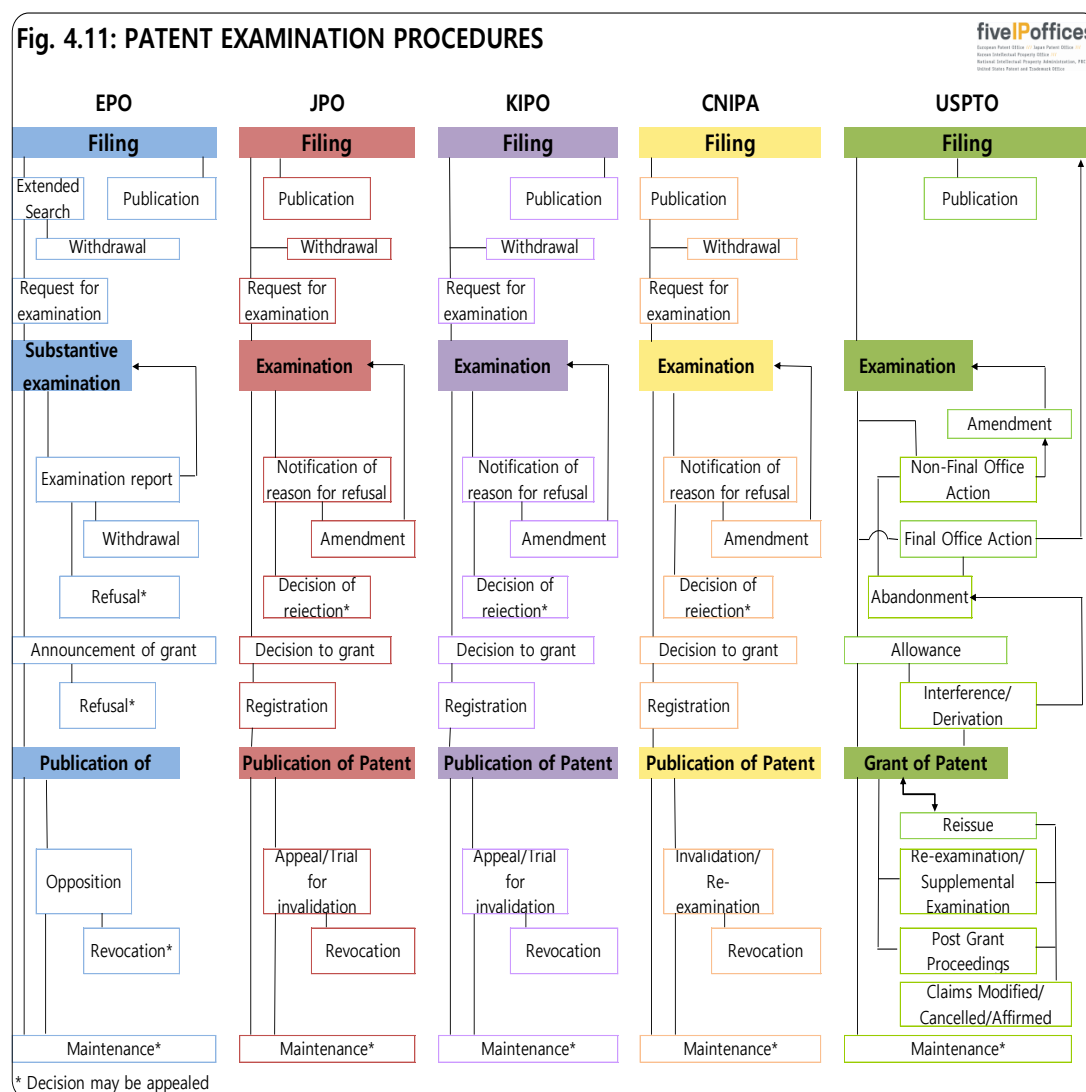
The USPTO payment schedule is somewhat hidden because the data are shown on a time basis (by year after application) that is different from the time basis used for collection of the fees (by year after patent grant).

³⁶ Once granted by the EPO, European patents need to be validated to come into force in the various member states that are designated at the time of grant.

PATENT EXAMINATION PROCEDURES

PROCEDURE FLOW CHART

Fig. 4.11 is a simplified view of the major phases of the 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).



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 page³⁷.

³⁷ See www.fiveipoffices.org/statistics/statisticaldata_index.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 THE PROCEDURES

Table 4.3 shows various statistics as average rates and numbers where applicable for 2017 and 2018. Definitions of the various terms are given in Annex 2.

Details on the definition of the terms presented in Table 4.3 can found in Annex 2. In the following cases, there exist some differences between the offices:

- Pending examination: For the KIPO, only the unexamined patent applications with a request for examination filed have been counted. In the reports prior to the 2016 edition, the figure of this category included the entire unexamined patent applications.
- Pendency first office action: For the EPO, the first office action is the extended European search report that includes a written opinion on patentability or, in the case of a PCT without supplementary search, the international search report with a written opinion. The USPTO measures pendency starting from the date of initial filing, and the EPO, JPO, KIPO and CNIPA measure from the request for examination.
- Pendency final action: 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 (CNIPA), and the filing date (USPTO).

For the JPO, the pendency time is the number of months in FY 2017 or FY 2018 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.

Note: The length of time until request for examination can vary, this leads to significant differences between offices in the time periods that are reported.

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	KIPO	CNIPA	USPTO
Examination	2017	94.9	71.8	85.4	75.8	100.0
	2018	94.7	71.8	84.4	83.8	100.0
Grant	2017	57.1	74.6	63.1	56.4	71.9
	2018	62.2	75.3	65.2	53.5	74.5
Opposition	2017	3.7	0.6	-	-	-
	2018	3.2	0.6	-	-	-
Appeal on examination	2017	18.2	30.7	6.9	14.7	3.1
	2018	16.4	29.2	6.5	13.3	2.7
Pendency	Year	EPO ³⁸	JPO	KIPO	CNIPA	USPTO ³⁹
Awaiting request for examination	2017	96,000	643,788	294,257	466,067	-
	2018	95,643	633,244	235,969	294,079	-
Pending examinations	2017	407,443	171,508	151,352	1,431,757	546,286
	2018	371,884	168,679	166,878	1,968,203	546,792

³⁸ EPO's new definition for "Awaiting request for examination": count all applications awaiting completion of the European search and a request for examination by the end of the year.

³⁹ USPTO pendency is measured from the date of initial filing, not the request for examination.

Pendency first action (months)	2017	4.8	9.3	10.4	14.4	15.7
	2018	4.4	9.3	10.3	15.4	15.6
Pendency final action (months)	2017	24.9	14.1	15.9	22.0	24.2
	2018	25.1	14.1	15.8	22.5	23.8
Pendency invalidation (months)	2017	-	10.6	-	5.2	-
	2018	-	11.1	-	5.1	-

- = not applicable

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 CNIPA 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 grant rates at the EPO, JPO, KIPO and at the USPTO increased between 2017 and 2018. At the CNIPA, the grant rate decreased between 2017 and 2018.

The appeal on examination rates vary between offices, mainly due to the differing procedures.

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.

As shown in Table 4.3, about 4.5 million applications were pending (i.e. awaiting request for examination or pending examination) in the IP5 Offices at the end of 2018. The total number of applications pending at the IP5 Offices increased by 6.5 percent between 2017 and 2018. As a consequence of the large increase in filings, the number of pending applications kept increasing at CNIPA. Pending applications decreased at EPO and JPO, increased at KIPO and CNIPA, and remained stable at USPTO.

The pendency to first action decreased at the EPO, the KIPO and the USPTO, while it remained unchanged at the JPO. The pendency to final action decreased at the KIPO and the USPTO, but remained unchanged at the JPO.

These numbers should be compared with caution, 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 up to 6 months after the issue of a search report. For the JPO, KIPO and the CNIPA, a request for examination may be made up to 3 years after filing.

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 firstly the impact of the PCT system on global patenting activity. Then it describes the various activities of the IP5 Offices that relate to the PCT system.

Graphs are presented that display the shares that used the PCT, by origin, of patent applications, grants and patent families. 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 Database⁴⁰ and the IP5 Offices. The graphs cover five-year periods that include the latest year for which reliable data are available⁴¹. Data for 2018 are presented in all figures except for Fig. 5.1 (proportions of applications filed by PCT) and Fig. 5.6 (IP5 patent families by origin).

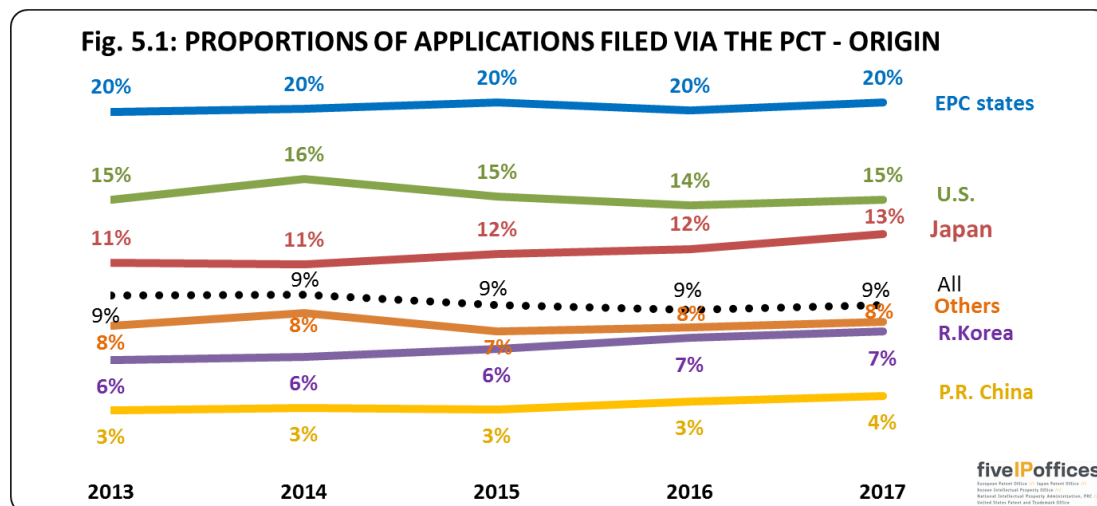
⁴⁰ This edition refers to general patent data as of March 2019, and to PCT international application data as of April 2019, www.wipo.int/ipstats/en/index.html

⁴¹ The statistical tables file found in the web version of this report includes extended time series for most of the data included in this chapter. www.fiveipoffices.org/statistics/statisticsreports.html

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 filings that are PCT international applications. Applications are counted in the year of filing. These data are comparable to those in Figs. 3.1 to 3.4.



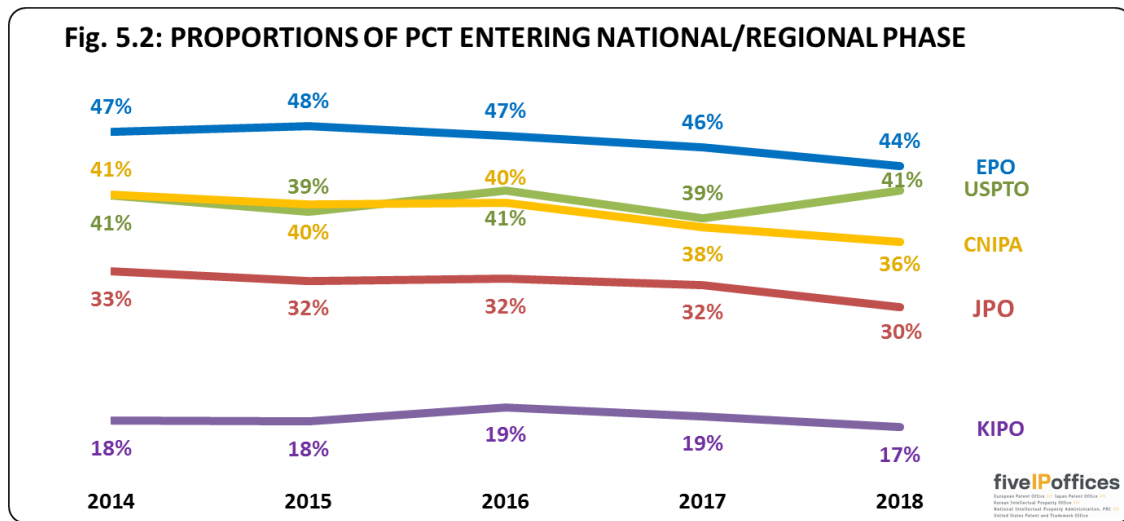
9 percent of worldwide patent filings were made via the PCT route in 2017.

Comparing 2016 and 2017, the proportion of applications filed via the PCT remained stable for applications originating from the EPC states and R. Korea. For U.S., Japan and P.R. China, the proportion increased by 1 percent. The proportion for the EPC states 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 proceed further with their applications into the national or regional phase for each country or regional organization of interest. If the decision is made to proceed, then the applicant has to fulfil the various requirements of the selected PCT contracting states or organizations.

Fig. 5.2 shows the proportions of international PCT applications 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 expired⁴².



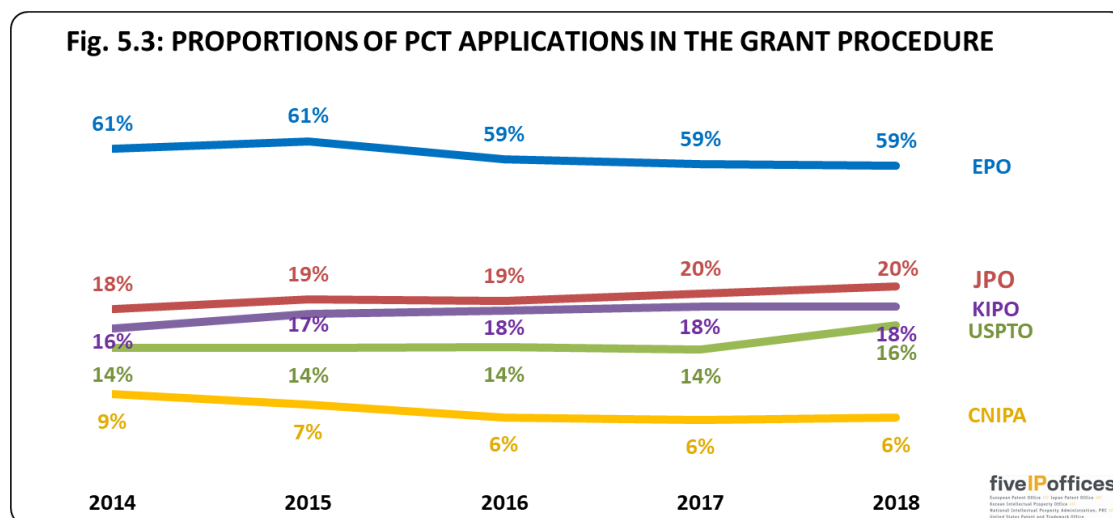
A higher proportion enters the regional phase at the EPO than enters the national phase at any of the other IP5 Offices. The proportion remains lowest at the KIPO.

Between 2014 and 2018, the proportion declined slightly at the EPO, the JPO, KIPO and the CNIPA.

⁴² 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 in the grant procedure at each office (as presented earlier in Fig. 4.1).

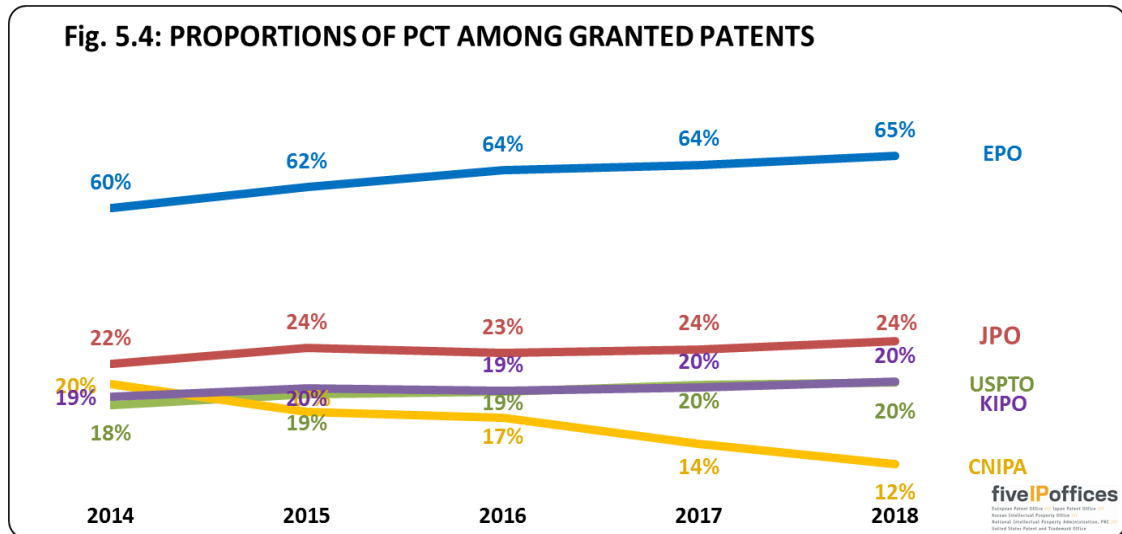


The proportions of PCT national/regional phase applications among all applications remained stable from 2017 to 2018 for EPO, JPO, KIPO, and CNIPA. At the USPTO the proportion increased by 2 percent.

EPO continues to have much higher proportion of PCT applications, compared to the other IP5 Offices. This can be explained by the fact that, contrary to other IP5 Offices, most of the first filings filed in the EPC states are filed at national offices, resulting in a higher share of PCT at the EPO.

PCT GRANTS

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



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

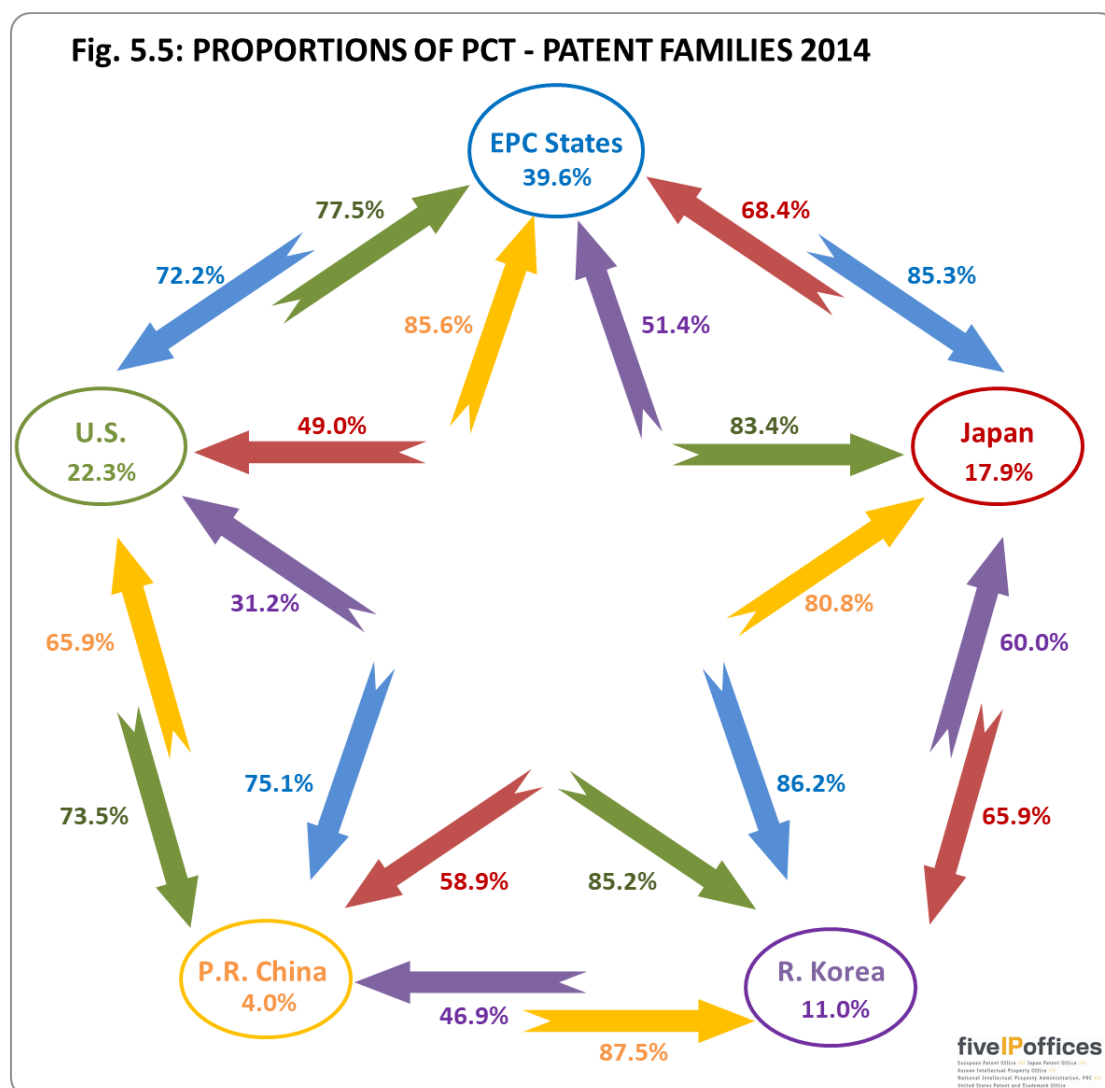
Over the 5-year period, there was an increase in the proportion of PCT in patent grants at the EPO, the JPO, the KIPO and the USPTO, of 5 percent, 2 percent, 1 percent and 2 percent respectively. At the CNIPA, the percentage decreased by 8 percent. The percentages of PCTs in patent grants in Fig. 5.4 are always higher than the percentages of PCTs in applications in Fig. 5.3, for all IP5 Offices, except for the EPO before 2015.

PATENT FAMILIES AND PCT

A patent family is a group of patent filings that claim the priority of a single filing, as was described in the final section of Chapter 3.

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 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 that quote the priority of the same first filing.

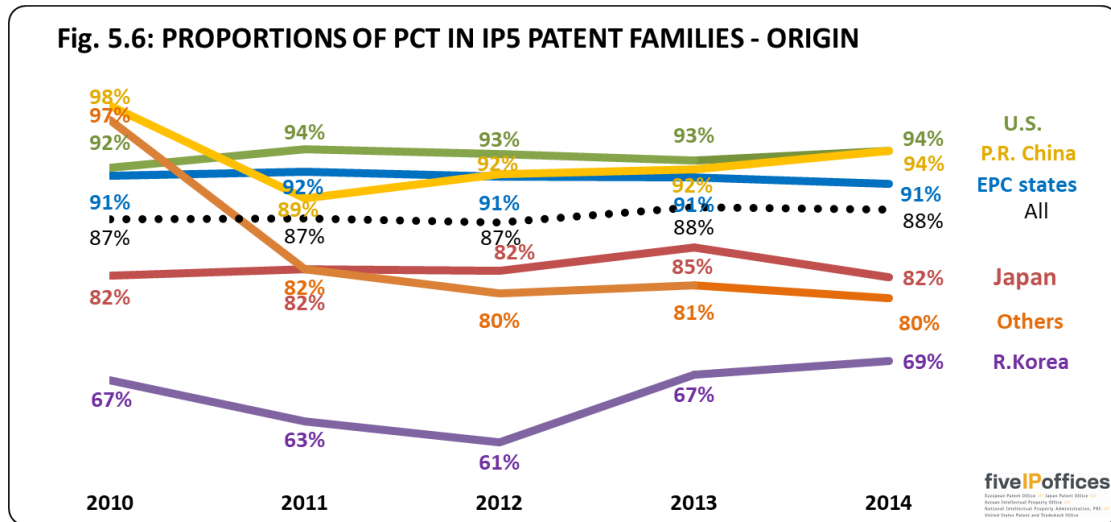
Fig. 5.5 shows the usage of the PCT among patent families for the priority year 2014. Two types of percentages are shown. The first, next to the name of each bloc, is the proportion of the overall number of first filings for the bloc that generated families using the PCT. The second, next to the arrows indicating flows between-blocs, shows the share of total patent family flows that used the PCT system. This figure is based on first filings in 2014, and can be compared with Fig. 3.14.



In general, the usage of the PCT route is far higher when making applications abroad rather than at home. Applicants from the U.S., P.R. China and the EPC states use the

PCT system for their foreign filings to a greater extent than applicants from Japan and R. Korea do.

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.



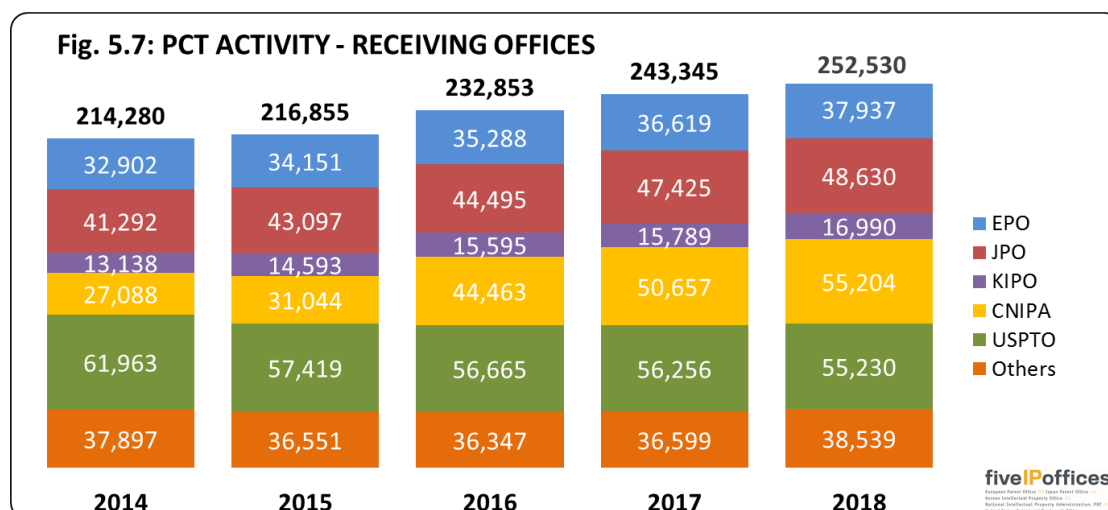
Since IP5 patent families represent highly internationalised applications, the rate of PCT usage is high compared to the overall usage of PCTs among applications in general, as was shown in Fig. 5.1.

In 2014, the percentage of usage of the PCT system remained unchanged in the EPC states. Usage in U.S. and P.R. China increased by 1 percent and 2 percent respectively. The percentage increased by 2 percent in R. Korea, where it remains lower than in the other blocs. The usage in Japan decreased 3 percent.

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 2014 to 2018.

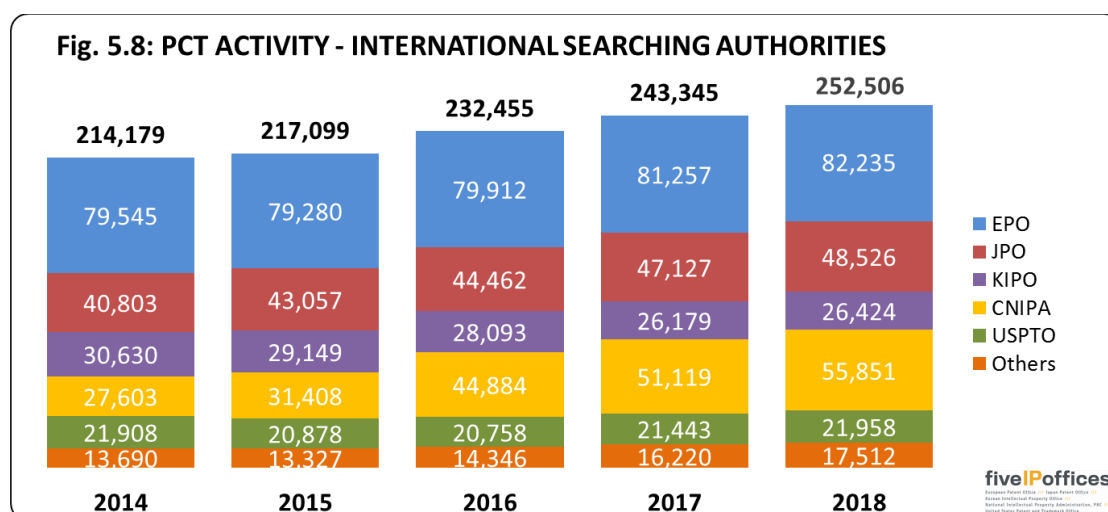
Fig. 5.7 shows the breakdown of PCT international filings by ROs over time.



After a limited growth in 2015, the total number of PCT international phase filings grew at a higher pace in 2016, 2017 and 2018. The compound annual growth rate from 2014 to 2018 was 4.0 percent.

In 2018, the IP5 Offices had an overall increase of PCT international filings of 4 percent compared with 2017. The CNIPA had the largest percentage increase of 9 percent. Together the IP5 Offices were RO for 85 percent of the PCT international filings in 2017 (82 percent in 2014).

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.

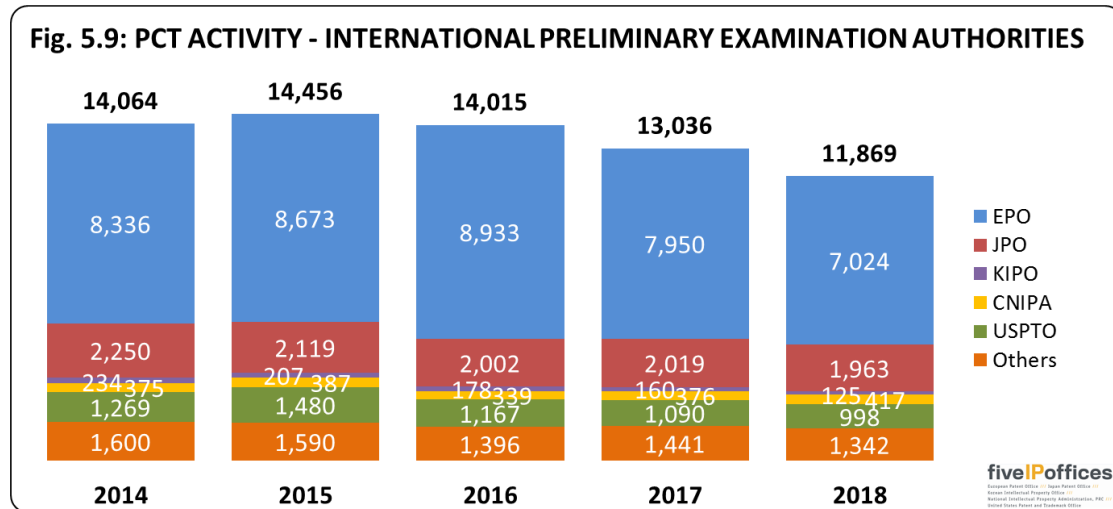


There is a steady increase in total activity over the period described. In 2018, the IP5 Offices received 93 percent of all PCT international search requests, consistent with

the percentage of requests received by the IP5 Offices during the previous years. The EPO continues to receive the largest number of requests, receiving 33 percent of all requests in 2018.

CNIPA once again demonstrated strong growth with a 9 percent increase. JPO experienced an increase of 3 percent. USPTO and KIPO increased by 2 percent and 1 percent respectively.

Fig. 5.9 shows the breakdown over time of the numbers of international preliminary examination requests to IP5 Offices as IPEA.



From 2017 to 2018, the total number of requests for international preliminary examinations decreased 9 percent. Despite an increase between 2014 and 2015, it should be born in mind that there had been a decline in the numbers over the past 10 years, as can be seen in the statistical tables that are available at the web-site.

Together, the IP5 Offices were in charge of 89 percent of the IPEA work in 2018. Annually, from 2014 to 2018, the EPO performed 59 percent of all the international preliminary examinations.

Chapter 6

OTHER WORK

This brief chapter contains statistics about 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, KIPO, CNIPA), designs (JPO, KIPO, CNIPA, USPTO), trademarks (JPO, KIPO, USPTO), and search requests to be performed on behalf of national offices (EPO).

The utility model is different from the patent for invention⁴³, because it is used to protect a device in relation to the shape or construction of articles or combination of articles (JPO, CNIPA), or to protect a creation of a technical idea using the rules of nature regarding the shape, structure, or combination of subjects (KIPO). 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 (typically 20 years).

The numbers of requests received for these types of other work are shown for 2017 and 2018 in Table 6.

Table 6: STATISTICS ON OTHER WORK

Activity	Year	EPO	JPO	KIPO	CNIPA	USPTO
Search for national offices	2017	26,403	-	-	-	-
	2018	26,499	-	-	-	-
Design applications	2017	-	31,961	63,453	628,658	43,340
	2018	-	31,406	63,680	708,799	45,083
Utility model applications	2017	-	6,106	6,809	1,687,593	-
	2018	-	5,388	6,232	2,072,311	-
Plant patent applications	2017	-	-	-	-	1,059
	2018	-	-	-	-	1,079
Re-issue applications	2017	-	-	-	-	1,012
	2018	-	-	-	-	1,013
Trademark applications	2017	-	190,939	182,918	-	615,251
	2018	-	184,483	200,341	-	638,618

In 2018, the number of utility model applications increased 23 percent at the CNIPA and decreased by 12 percent at the JPO. The number of trademark applications increased by 10 percent at the KIPO and 4 percent at the USPTO. For design applications, there were increases at the CNIPA and USPTO (by 13 percent, and 4 percent, respectively) and decreases at JPO (by 2 percent).

⁴³ Not to be confused with the utility model, the USPTO's main type of patent, called a utility patent, is a patent for invention that is similar to the standard patent at the other IP5 Offices.

Annex 1

DEFINITIONS FOR IP5 OFFICES EXPENDITURES

EPO EXPENDITURES (Fig. 2.4)

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. 2.5)

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 INPIT⁴⁴

H. Others

All other expenses not covered by the above.

⁴⁴ This term is explained in the glossary that is available with the web-based version of the report, www.fiveipoffices.org/statistics/statisticsreports.html

KIPO EXPENDITURES (Fig. 2.6)

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.

CNIPA EXPENDITURES (Fig. 2.7)

A. Administrative Operation

B. Patent Examination

C. Social and Housing security, Pension

- Pension of staff in administrative agencies
- Infrastructure-related expenses.

D. Others

All other expenses not covered by the above.

USPTO EXPENDITURES (Fig. 2.8)

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 OF TERMS AND STATISTICS ON PROCEDURES

This annex contains firstly definitions of the main terms used in the report⁴⁵. 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 2016;
- Japan (Japan in this report);
- Republic of Korea (R. Korea in this report);
- People’s Republic of China (P.R. China in this report);
- United States of America (U.S. in this report).

The remaining geographical areas are grouped together as:

⁴⁵ A more extensive glossary of terms is available with the web-based version of the report.

- 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

Demand 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 filed⁴⁶. 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 priority⁴⁷ 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 filings⁴⁸ and that PCT filings are subsequent filings. Currently, 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*.

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

⁴⁷ See the Article 4A to 4D of the Paris Convention at the WIPO web site; www.wipo.int/treaties/en/ip/paris/

⁴⁸ 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.

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 filed⁴⁹. See the term definition for Domestic Applications for additional details.

GRANTS, COUNTING OF

Grant counts in Chapter 3 are based on the WIPO Statistics Database⁵⁰. 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 to 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 report⁵¹, 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.

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

⁴⁹ For the USPTO, this is by the residence of the first-named inventor; For the EPO, the JPO, the KIPO, and the CNIPA, this is by the residence of the first-named applicant.

⁵⁰ www.wipo.int/ipstats/en/statistics/pct/index.html

⁵¹ The additional statistical tables that are 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.

parts of this report they are counted in the year of filing in the earlier international phase⁵².

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 priority⁵³ 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.

⁵² 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.

⁵³ 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 KIPO, the CNIPA, 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 KIPO, and the CNIPA, deferred examination systems exist and filing of a national application does not imply a request for examination. This may be made up to three years after filing for the JPO, KIPO and the CNIPA.

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 (KIPO), decision to grant (CNIPA), and 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 (KIPO), notification of reason for refusal (CNIPA), and 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 (KIPO), decision of rejection (CNIPA), final rejection (USPTO) - or withdrawn by the applicant - withdrawal (EPO), withdrawal or abandonment (JPO), withdrawal or abandonment (KIPO), withdrawal or abandonment (CNIPA), and abandonment (USPTO). In addition, if no request for examination for an application is filed to the EPO, the JPO, the KIPO, or the CNIPA 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, KIPO and the CNIPA), 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, KIPO, CNIPA, 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 KIPO, and the CNIPA.

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 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 CNIPA has re-examination and invalidation procedures. Where an applicant for a patent is not satisfied with the decision of the CNIPA 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 2017 relates to applications mainly filed in the years 2013 to 2017.

For the JPO, the period to file a request for examination is three years from filing date. The rate for 2017 relates mainly to applications filed in the year 2014.

For the KIPO, the period to file a request for examination has been changed from 5 years to 3 years from filing date in 2017.

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

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 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 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 to the EPO and the JPO. 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.

The JPO rate is the total number of oppositions (counting one(1) for each patent) filed in the calendar year divided by the total number of granted patents in the calendar 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.

The JPO rate is the total number of appeals against examiners' decisions of refusal filed in the calendar year divided by the total number of examiners' decisions of refusal rendered by the examiners in the calendar 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, KIPO, and the CNIPA, 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, KIPO and the CNIPA) 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 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 CNIPA, 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 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 JPO, the pendency time is the number of months in FY2015 and FY2016, 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.

For the CNIPA, pendency for examination refers to the average time period taken, in months, for the granting of invention patent applications, calculated from the date on which the application enters the substantive examination phase to the date on which the decision to grant 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

The CNIPA, “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.

The JPO pendency period is the average processing period for a trial for invalidation in a calendar year from the date a request for a trial for invalidation is filed, to the date a trial decision is dispatched (if an “advance notice of a trial decision” is to be made, it is the date the notice is dispatched), to the date a withdrawal or abandonment is finalized and concluded, or to the date a dismissal is dispatched.

Annex 3

ACRONYMS

4IR	4IR (18) [KIPO]
AI	Artificial Intelligence (iii)
ARIPO	African Regional Intellectual Property Office (35)
CCD	Common Citation Document (10) [EPO]
CPG	Cooperation for facilitating Patent Grant (14) [JPO]
CNIPA	China National Intellectual Property Administration (i)
CPES	Cloud Patent Examination System (26) [CNIPA]
CS&E	Collaborative Search and Examination (26) [CNIPA]
DOCDB	DOCumentDataBase (47) [EPO]
EAPO	Eurasian Patent Organization (26)
EPC	European Patent Convention (2) [EPO]
EPO	European Patent Office (i)
EU	European Union (8) [EPO]
EUIPO	European Union Intellectual Property Office (26) [CNIPA]
FA	First Action (i) [JPO]
FAOM	First Office Action on Merits (94) [USPTO]
FI	File Index (13) [JPO]
FSC	Financial Services Commission (19) [KIPO]
F-term	File Forming Term (13) [KIPO]
GCCPO	Gulf Cooperation Council Patent Office (35)
GIPA	Global Intellectual Property Academy (29) [USPTO]
GPPH	Global Patent Prosecution Highway (14) [JPO]
IAM	Intellectual Assets Magazine (8) [EPO]
IB	International Bureau of WIPO (iii)

IFRS	International Financial Reporting Standards (11) [EPO]
IMF	International Monetary Fund (iii)
IP	Intellectual Property (i)
IP5	Five IP Offices: EPO, JPO, KIPO, CNIPA, USPTO (i)
IP5 SR	IP5 Statistics Report (i)
IPC	International Patent Classification (3)
IPEA	International Preliminary Examining Authority (3)
IPRs	Intellectual Property Rights (18) [KIPO]
ISA	International Searching Authority (3)
ITPGRFA	International Treaty for Plant Genetic Resources for Food and Agriculture (30) [USPTO]
JPO	Japan Patent Office (i)
KIPO	Korean Intellectual Property Office (i)
NMT	Neural machine translation (10) [EPO]
OAPI	Organisation African Intellectual Property (35)
OFF	Office of First Filing (14) [JPO]
OSF	Office of Second Filing (14) [JPO]
PACE	Program for Accelerated Prosecution of European Patent Applications (9) [EPO]
PATSTAT	Worldwide Patent Statistical Database (8) [EPO]
PCT	Patent Cooperation Treaty (1)
PCT-PPH	<i>See PCT and PPH</i> (14) [JPO]
PPH	Patent Prosecution Highway (iv)
P.R. China	People's Republic of China (2)
R&D	Research and Development (19) [KIPO]
RCE	Request for Continued Examination (31) [USPTO]
RCEP	Regional Comprehensive Economic Partnership (26) [CNIPA]
R. Korea	Republic of Korea (2)

RO	Receiving Office (3)
SUCCESS	Study of Underrepresented Classes Chasing Engineering and Sciences (28) [USPTO]
TURKPATENT	Turkish Patent and Trademark Office (14) [JPO]
UAE	United Arab Emirates (20) [KIPO]
U.S.	United States of America (2)
USPTO	United States Patent and Trademark Office (i)
VPI	Visegrad Patent Institute (14) [JPO]
WIPO	World Intellectual Property Organization (iii)

European Patent Office (EPO)

Bob-van-Bentham-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

Korean Intellectual Property Office (KIPO)

Government Complex Daejeon Building 4

189, Cheongsa-ro, Seo-gu, Daejeon, 35208

Republic of Korea

www.kipo.go.kr

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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.

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