

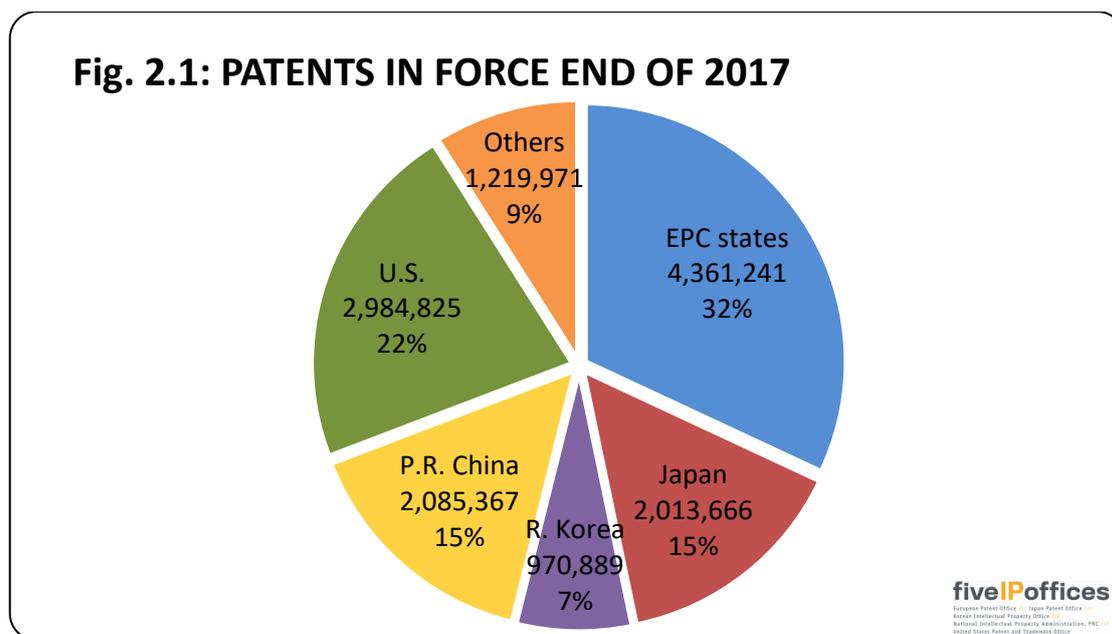
Chapter 2

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.

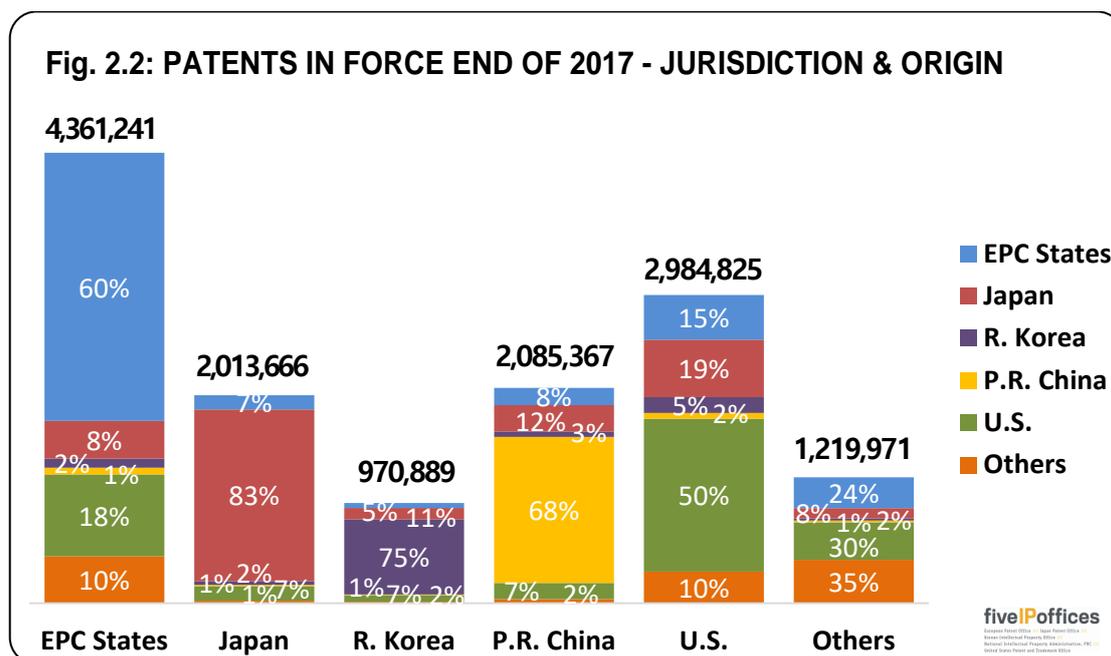


The number of patents in force worldwide increased from 11.8 million at end of 2016 to 13.6 million at the end of 2017. This demonstrates the prominent role that is played by the IP5 Offices.

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

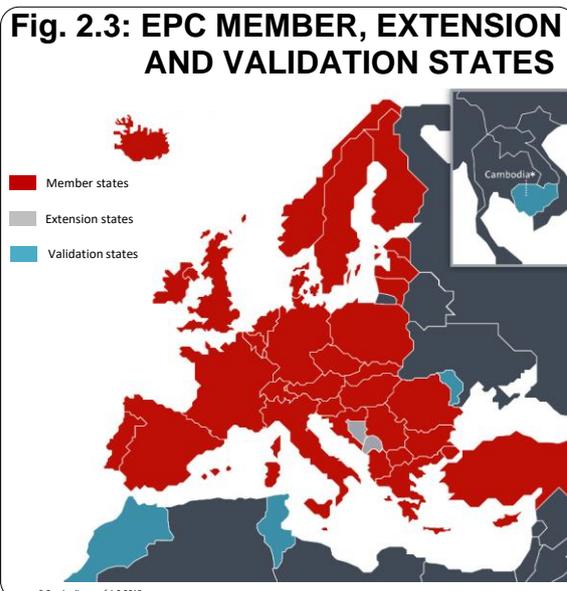
The mission of the EPO is to deliver high-quality patents and efficient services that foster innovation, competitiveness and economic growth. Its main task is to grant European patents according to the EPC. Moreover, under the PCT, the EPO acts as a receiving office as well as a searching and examining 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.

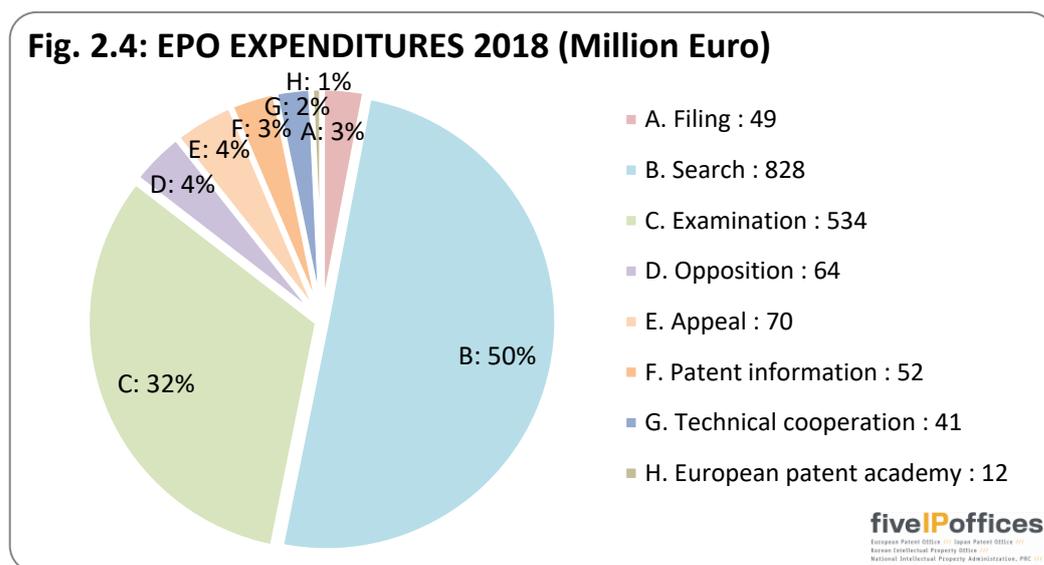
EPO budget

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

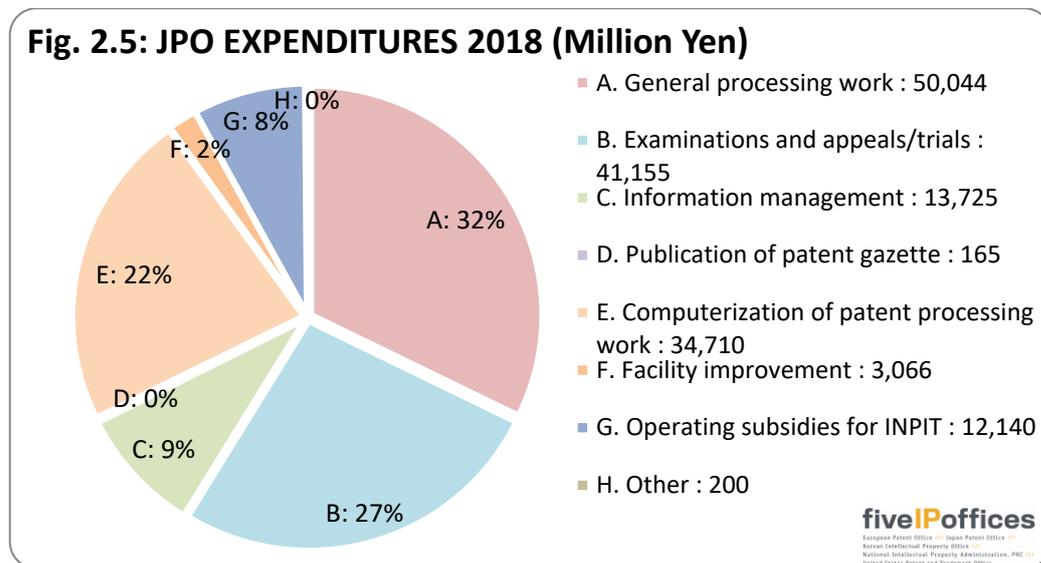
| JPO PRODUCTION FIGURES | 2017 | 2018 | Change | % Change |
|--|----------------|----------------|----------------|---------------|
| Applications filed (by Origin of Application) | | | | |
| Domestic | 260,292 | 253,630 | - 6,662 | - 2.6% |
| Foreign | 58,189 | 59,937 | + 1,748 | + 3.0% |
| Total | 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

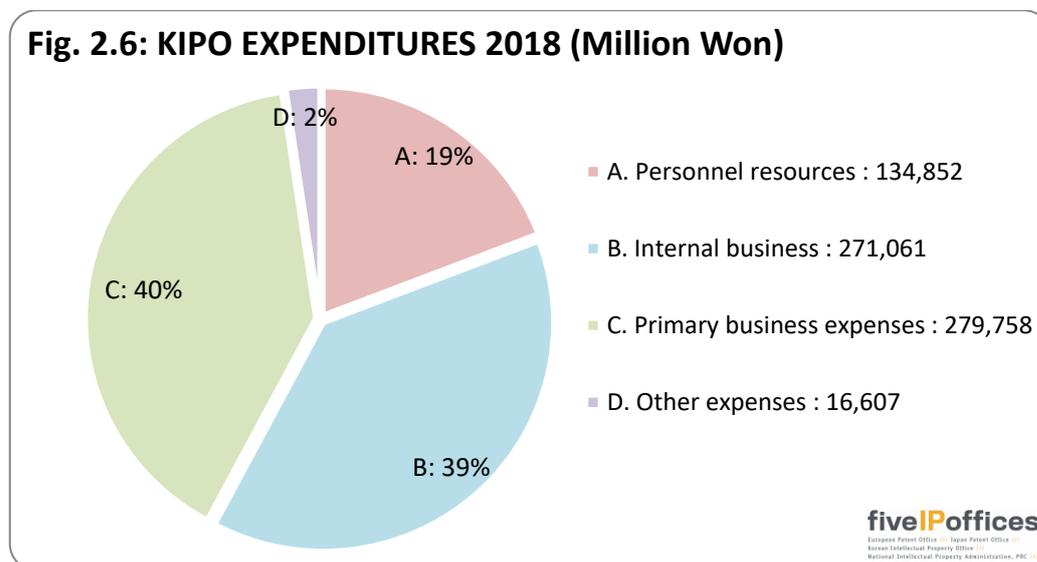
Table 2.3 shows production figures for applications, examinations, grants, appeals or trials and PCT activities for 2017 and 2018.

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*.

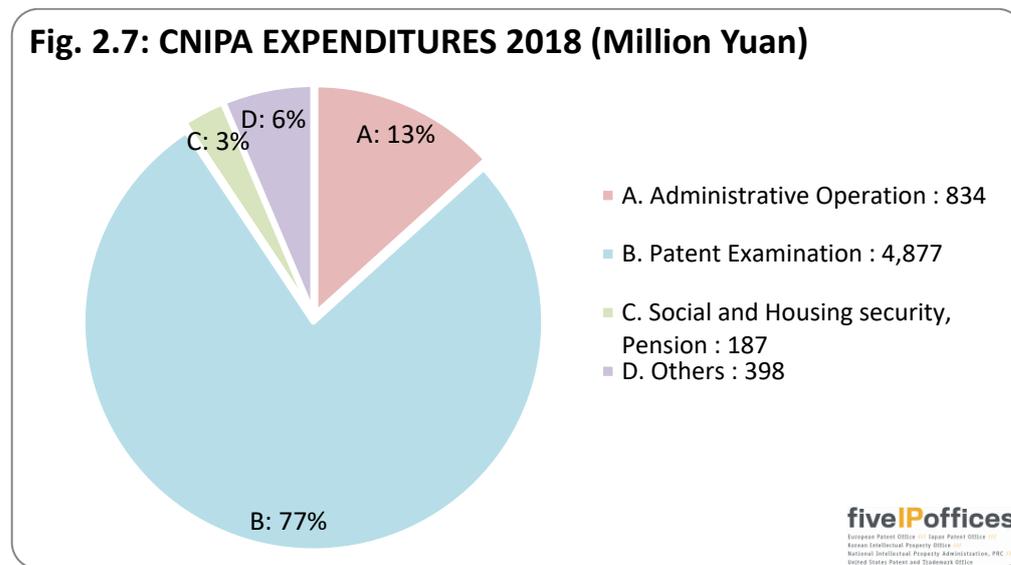
The CNIPA carried out cooperation on data exchanges with 26 countries, regions and organizations. Under the framework of BRICS, it has reached consensus with other relevant offices on common data list, which could facilitate data sharing and utilization. The use of the Cloud Patent Examination System (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. Internally, the USPTO has developed a new cognitive assistant called “U” or “Unity” which leverages AI and machine learning in a way that augments existing next-generation patent tools. The tool allows patent examiners to conduct a “federated search” across patents, publications, non-patent literature, and images. Through AI and machine learning-based algorithms, this presents the examiner the results in the form of a “pre-search” report. The USPTO is also exploring semi-automated tools for “search query expansion,” trained to mine technology-specific synonyms with the help of crowd or “examiner-sourcing.” 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.

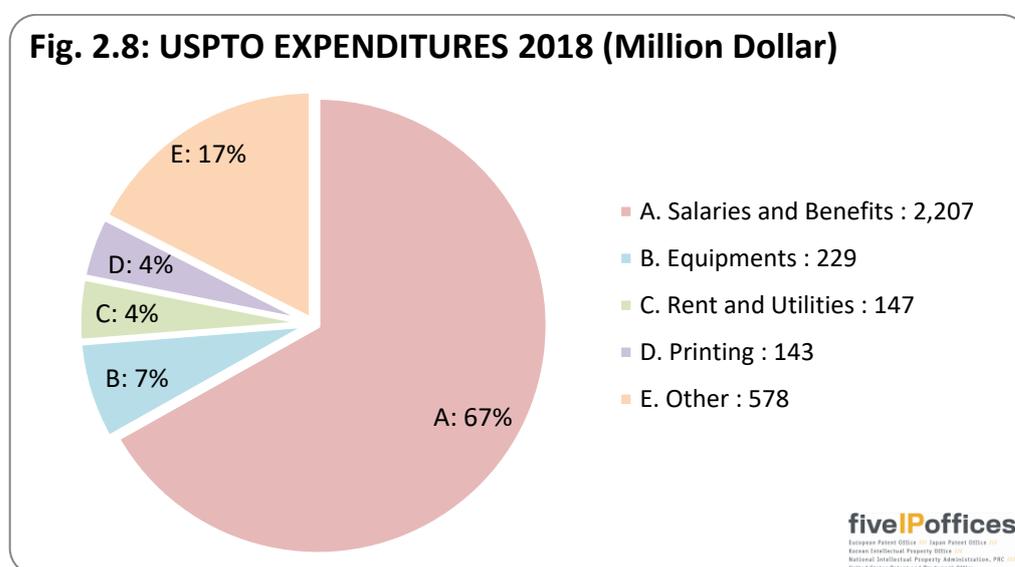
²² A Request for Continued Examination is a USPTO procedure under which an applicant may obtain continued examination of an application by filing a submission and paying a specified fee, even if the application is under a final rejection, appeal, or a notice of allowance.

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.