

IP5 Statistics Report 2021 Edition



five IP offices

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

IP5 Statistics Report

2021 Edition



IP5 Statistics Report 2021 Edition

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

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EPO, November 2022

IP5 Statistics Report **2021 Edition**

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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 (IP) 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).

Worldwide patenting activity until 2020¹:

- At the end of 2020, 15.8 million patents were in force in the world (+6.0 percent). 91 percent of these patents were in force in one of the IP5 Offices' jurisdictions.
- In 2020, 3.3 million patent applications were filed worldwide, either as direct national, direct regional or international phase PCT applications, of which 93 percent originated from the IP5 regions (IP5 Blocs).
- In 2020, 77 percent of the worldwide patent applications were filed as direct national applications. The proportion of applications filed via the PCT remained stable.

IP5 Offices patenting activities in 2021:

- In 2021, 2.9 million patent applications were filed at the IP5 Offices (+3.7 percent).
- Together the IP5 Offices granted 1.5 million patents in 2021 (+10 percent).
- At the IP5 Offices, there have not been significant changes in their first action pendency and total pendency for patent applications.
- In 2021, the main developments at the IP5 Offices were:
 - Annual IP5 high-level events: In June, the 14th meeting of the IP5 Heads of Office was held virtually. The IP5 Heads agreed to further strengthen their co-operation on initiatives that benefit the users. Notable progress was made with the endorsement of the IP5 NET/AI Roadmap², which outlined several co-operation opportunities for the IP5 working groups to explore. Additionally, new work plan for the IP5 Patent Harmonisation Expert Panel (PHEP) as endorsed as a means to further promote practice alignment among the IP5 Offices. A meeting of the IP5 Heads and Industry also addressed the role of IP in protecting and promoting innovations to overcome COVID-19 and boosting economic recovery.
 - At the IP5 Offices in 2021, the applications increased by 6 percent at the CNIPA, by 5 percent at the EPO, by 4 percent at the KIPO and by less than 1 percent at the JPO while they decreased by 1 percent at the USPTO. The data showed annual growth of 4 percent for overall applications at the IP5 Offices (See Chapters 2 and 4 of this report).
 - EPO: The EPO saw a marked return to growth in patent applications. Despite an increasing workload the EPO achieved steady improvements in timeliness

¹ The most recent worldwide data available (see Chapter 3).

² New Emerging Technology / Artificial Intelligence, see www.fiveipoffices.org/news/20210810

and reduced pendency in examination to 23 months while maintaining pendency in search below 5 months. For the eleventh consecutive time the Intellectual Asset Management (IAM) magazine ranked the EPO number one among the IP5 Offices for quality.

- JPO: The JPO has been aiming to achieve the “world’s fastest and utmost quality patent examinations”, and implementing various measures focused on “maintaining speed”, “granting high quality rights”. In 2021, the JPO received 289 200 patent applications, and the total pendency and the first action pendency were 15.3 and 10.1 months on average, respectively. Furthermore, in 2021, first action pendency from request for accelerated examination was 2.7 months on average.
- KIPO: The annual average first office action pendency period was 12.2 months for patents and utility models. KIPO received a preliminary total of 592 615 applications filing for patents, utility models, industrial designs, and trademarks in 2021. The number of PCT applications filed from Korea increased by 3.2 percent from 20 045 in 2020 to 20 678 in 2021, which is the 4th largest amount by country of origin.
- CNIPA: In 2021, 1.266 million invention patent applications were examined and concluded. The average pendency for high-value invention patent applications was reduced to 13.3 months, and the average pendency for invention patents was reduced to 18.5 months.
- USPTO: In 2021, the USPTO officially issued U.S. patent number 11 million, recognizing an important milestone in American innovation and ingenuity. The USPTO continued to improve access to the innovation ecosystem demographically and economically, by partnering with the U.S. Small Business Administration (SBA), U.S. Customs and Border Protection, and the U.S. Copyright Office. In addition, as part of the Council for Inclusive Innovation, a series of Innovation Chat webinars was held to further discussions on increasing opportunities for all Americans to participate in innovation.

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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 report published in springtime. The latest reports, along with other data exchanges and information about the Group, can be found at the IP5 Offices homepage www.fiveipoffices.org.

Political and economic conditions as well as technological factors influence the levels of patent filings which in turn contribute to economic growth. There is a worldwide tendency to harmonise patent laws with common international standards and to facilitate filing of applications across borders. Common vehicles to ease patent prosecution across different jurisdictions such as the Patent Cooperation Treaty (PCT), the validation agreements and the Patent Prosecution Highway (PPH) 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. 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 user needs. Definitions related to the terminology used in the report are given in Annexes [1](#) and [2](#).

When reading this report, please bear in mind that the procedures and practices among the IP5 Offices differ in many aspects. Therefore, caution should be applied when analysing, interpreting and especially comparing the various statistics.

Materials from this report can be freely reproduced in other publications, but the IP5 Offices request that this should be accompanied by a reference to the title and the website location of this report. Please note the links to the statistics available at each Office:

www.fiveipoffices.org/resources/annualreports

For users wishing to explore the patent statistics in detail there is a set of statistical tables accompanying this report that show extended time series and graphs for most of the data available in this report and a glossary of patent related terms.

EPO, JPO, KIPO, CNIPA, and USPTO
With the cooperation of WIPO

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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”³, including:

- Patents for invention
- Utility models
- Trade secrets
- 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 invention⁴. 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 granting procedures. However, the patent laws vary from country to country. Similarly, the scope of an individual patent application can also differ depending on the applicable jurisdiction. These factors limit the degree to which patenting activity in different countries and regions can be compared directly.

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 with the domestic national authority in charge of granting the right to protect the invention, followed within a one year priority period by subsequent applications to expand protection to other countries.

³ See also, World Intellectual Property Organization, “What is Intellectual Property?”

www.wipo.int/about-ip/en/ and World Intellectual Property Indicators, www.wipo.int/publications/

⁴ 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.

Separate references are made to "direct" applications filed under national and regional procedures and "PCT" international phase applications, in order to distinguish the two subsets of applications handled by the patent offices. While applications filed under national procedures are handled by national authorities, regional applications are subject to a centralised procedure and usually fall under national (post grant) regulations only after grant. 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 states party to the EPC at the end of reporting year;
- 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 most of the data found in this report⁵.

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,

⁵ www.fiveipoffices.org/statistics

firstly in terms of the flows of applications between the IP5 Blocs, and then in terms of patent families⁶.

The statistics are mainly derived from the WIPO Statistics Database⁷, 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)⁸.

Then, the numbers of grant actions by the IP5 Offices are provided, broken down by the blocs of origin of the grants. The distributions of the numbers of grants per applicant are also included.

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 subsequently 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.

⁶ For a further discussion of patent families, see Chapter 3 and the term definitions in Annex 2.

⁷ The data refer to general patent data as of April of the year following the reporting period, and to PCT international phase application data as of May of the year following the reporting period,

www.wipo.int/ipstats/en/index.html

⁸ www.wipo.int/classifications/ipc/en/

Annex 1 – Definitions for IP5 Offices' expenditures

This explains some terms that appear in Chapter 2.

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.

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Chapter 2

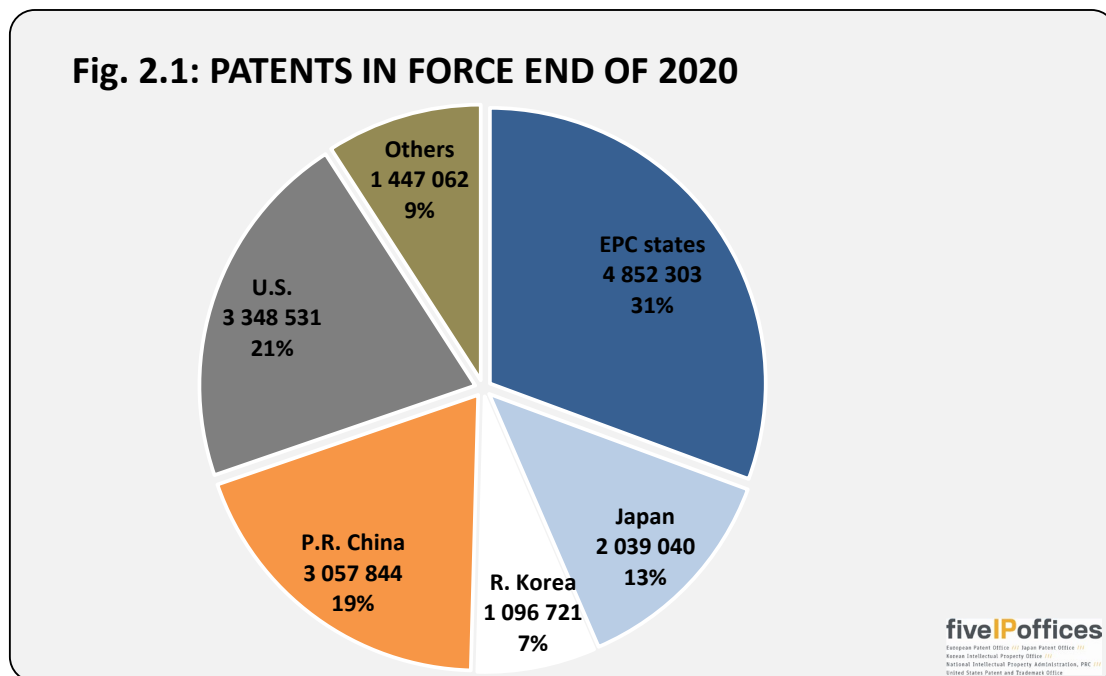
THE IP5 OFFICES

This chapter details developments at each of the IP5 offices⁹.

International trade and markets continue to be of great importance, such that innovators want their intellectual creations to be protected concurrently in multiple major markets.

PATENTS IN FORCE

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 2020. The data are based on worldwide patent information available from the WIPO Statistics Database¹⁰.

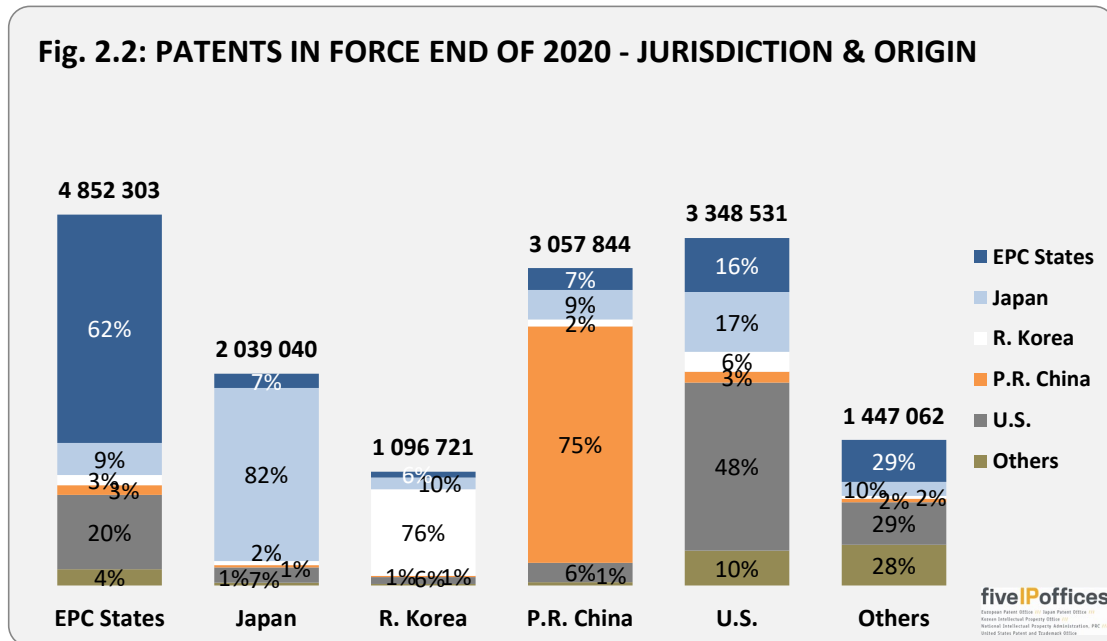


At the end of 2020, 91 percent of the 15.8 million patents that were in force were valid in one of the IP5 Offices jurisdictions. This demonstrates the prominent role that is played by the IP5 Offices.

⁹ 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. www.fiveipoffices.org/statistics/statisticsreports

¹⁰ www.wipo.int/ipstats/en/index.html Data for patents in force for 2020 are missing for some countries in the WIPO data. Where available, the most recent previous year's data were substituted for missing 2020 data. Data for 2021 are not yet available from WIPO.

Fig. 2.2 shows the residence of the holders of the patents in force at the end of 2020 in the regions of the IP5 Offices.



At the end of 2020, out of the 15.8 million patents in force, 31 percent were valid in the EPC states, 21 percent in the U.S., 19 percent in P. R. China, 13 percent in Japan, and 7 percent in R. Korea.

In 2020, while 82 percent of the patents valid in Japan originated in Japan¹¹, 48 percent of the U.S. patents had a U.S. origin. For EPC States, the corresponding shares was 62 percent, it was 76 percent for R. Korea, and 75 percent for P.R. China.

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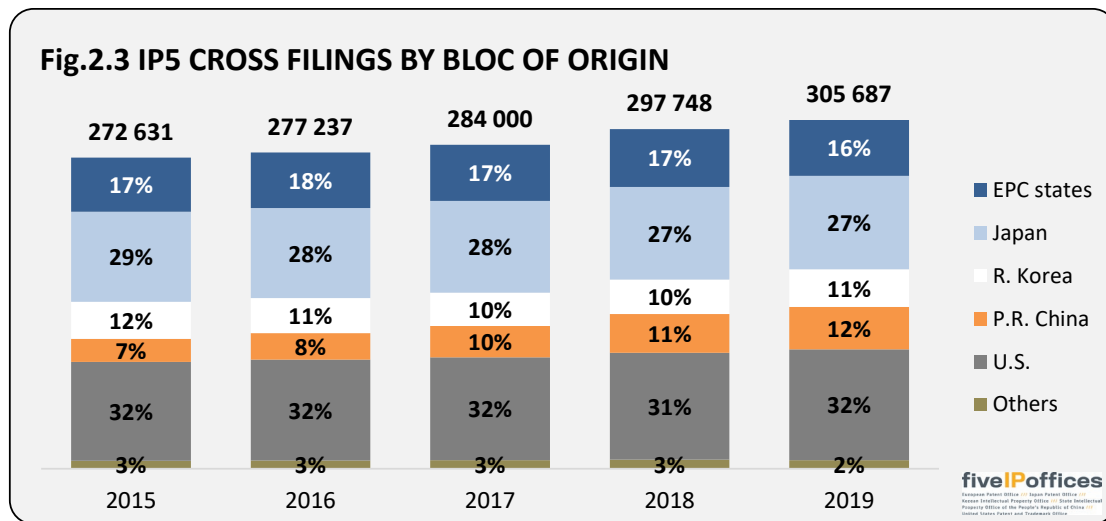
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¹¹ Patent origin is based on the patent's first-named inventor or applicant.

IP5 CROSS FILINGS

As shown below, more and more 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 potentially resulting backlogs, the IP5 Offices are working together to try to reduce the amount of duplication of similar work that takes place between offices for such patent applications.

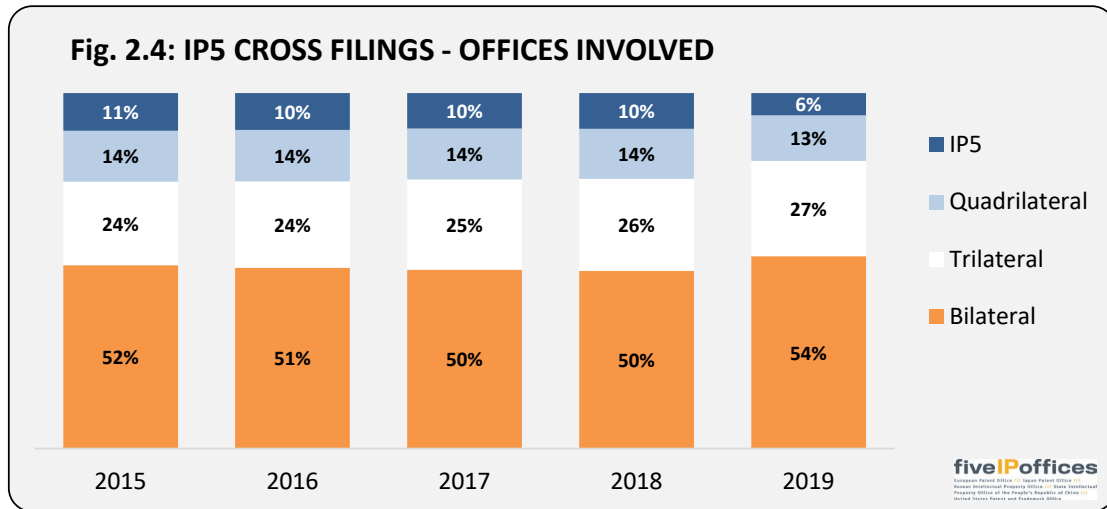
Fig. 2.3 shows the development of the number of cross filings between the IP5 Offices filed over the period 2015 to 2019 according to the bloc of the corresponding first filing.



The Figure 2.3 is based on published applications data allowing to track subsequent applications in other jurisdictions. As a consequence, data beyond 2019 are not yet complete.

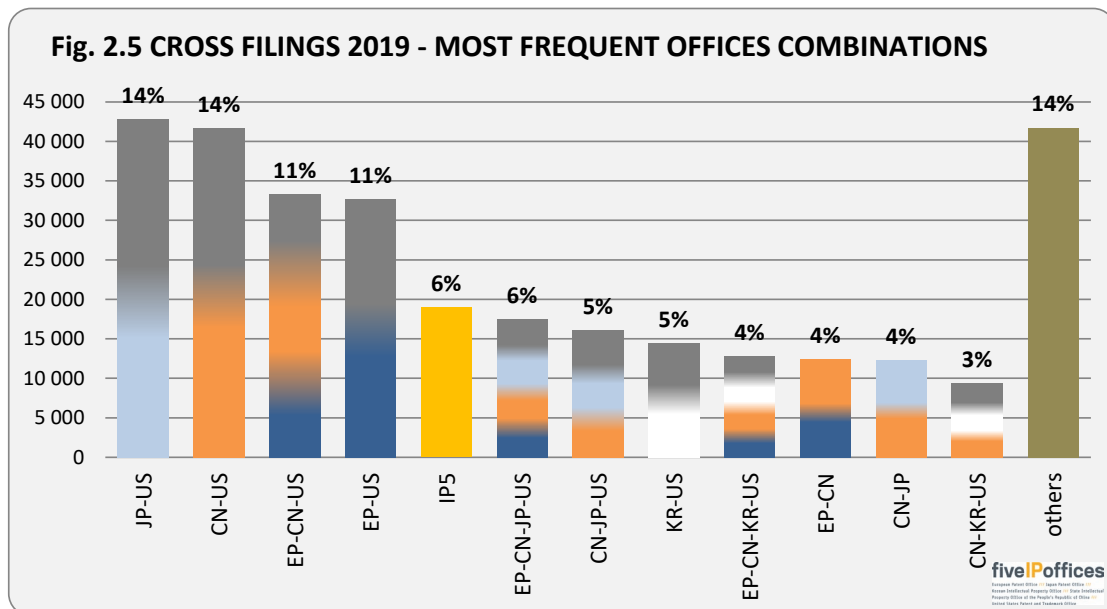
The number of cross filings among the IP5 Offices increased by 3 percent in 2019 (5 percent in 2018). Cross filings originating from Japan, P.R. China, R. Korea and U.S. increased by 1 percent, 9 percent, 9 percent and 4 percent respectively in 2019. At the same time, cross filings originating from the EPC states decreased by 4 percent.

Cross filings may be applications filed at 2 (*Bilateral*), 3 (*Trilateral*), 4 (*Quadrilateral*) or all 5 IP5 Offices (*IP5*). Fig 2.4 below shows the distribution of the cross filings according to the number of IP5 Offices involved.



In 2019, the share of Bilateral filings increased and the share of IP5 cross filings decreased.

Fig. 2.5 shows the distribution of the cross filings among the most frequent combinations. In 2019, 12 of the 26 combinations accounted for 86 percent of all cross filings. The leading four combinations, Japan-U.S. (JP-US 14 percent), P.R. China-U.S. (CN-US 14 percent), EPO-P.R. China-U.S. (EP-CN-US 11 percent) and EPO-U.S. (EP-US 11 percent), accounted for 49 percent of all cross filings in 2019 (48 percent in 2018).



EUROPEAN PATENT OFFICE

The EPO's mission 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. Under the PCT, the EPO also 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 (in 2021: Albania, Belgium, Croatia, Cyprus, France, Greece, Italy, Latvia, Lithuania, Luxembourg, Malta, Monaco, the Netherlands, San Marino and the United Kingdom), state-of-the-art searches for the purpose of national procedures. The EPO also plays a major role in the patent information area, by developing analytics tools and hosting the world's largest databases of patent literature.

Member states

The EPO is the central patent granting authority for Europe, providing patent protection in up to 44 countries based on a single patent application and a centralised grant procedure (see Fig. 2.6).

At the end of 2021, the 38 members of the EPO¹² 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
Serbia	Slovakia	Slovenia	Spain	Sweden
Switzerland	Turkey	United Kingdom		

Fig. 2.6: EPC MEMBER, EXTENSION AND VALIDATION STATES



¹² On 1 October 2022, Montenegro acceded to the European Patent Convention as 39th member state.

The national patent offices of all the above states also grant patents. After it has been granted by the EPO, 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 over 700 million people.

Highlights of 2021

Demand for patents grew markedly anew in 2021. The EPO received about 188 600 European patent applications last year, which was 4.5 percent above the 2020 figure.

Rising to the multiple challenges resulting from the pandemic, the EPO continued to perform strongly in 2021 achieving steady improvements in timeliness. With a revived demand for services the EPO pending workload represented 14 months of work. The EPO published some 108 800 European patents in 2021, with 2 percent (-88) fewer examiners than in 2020.

Launched in 2020, the digital file marketplace played a growing role in helping manage the workload effectively in 2021. The number of internal file transfers increased by 50 percent from roughly 4 000 per month on average in 2020 to around 6 000 in 2021. Beyond helping the EPO adapt to workload fluctuations fast and effectively, the digital file marketplace bears witness to the new opportunities for closer collaboration and efficiency gains created by digitalisation in the EPO's core business.

Digitalisation led to efficiency gains across the board that were reflected in the timeliness of the EPO's products and services. Improvements in search timeliness seen in recent years were consolidated in 2021, with the mean time for search completion including the written opinion reaching 4.8 months. The mean time for issuing the intention to grant was 23 months from the valid examination request, while 79 percent of intentions to grant were issued within 36 months. The overall time to grant for EP first filings was 43.3 months on average, from filing to the intention to grant. The percentage of EPO PCT international search reports published along with the application (i.e. A1 publications) remained high at above 98 percent in 2021.

A significant effort was dedicated to migrating the full prior-art repository from a mainframe environment to a cloud-native platform. This migration ensures greater computing capacity for faster processing of prior-art, easier access to experts in modern technologies, faster implementation of changes, more interoperability at lower costs.

In July 2021, the EPO launched an AI-based pre-classification engine built in-house, giving it full control over a crucial core activity. The new engine was used to allocate over 50 000 EP and PCT applications to EPO examiners in the second half of the year. Another digital service that remained crucial in 2021 was the pilot on conducting oral proceedings in opposition via videoconferencing.

In terms of sustainability, the digital transformation continued to have a positive impact on the EPO's footprint in 2021. On top of a 60 percent reduction in annual paper consumption, which fell to a record low of 24.3 million sheets, the EPO's CO2 emissions from heating also plunged by over 1 300 tonnes (CO2 equivalent) after its switch to biomethane gas to heat buildings in The Hague. Moving beyond compliance, the EPO also aligned its emissions reporting with the Greenhouse Gas (GHG) Protocol Corporate standard for the first time in 2021, as part of its plan to go carbon-neutral by 2030.

Unitary Patent

2021 was also a momentous year for the Unitary Patent package, which is set to mark the biggest change to the patent system in Europe in the EPO's history. More importantly, it offers significant potential for innovation, investment and technology transfer at a time when they are needed more than ever. Preparations for the Unitary Patent (UP) continued across the Office in 2021 and every effort will be made to promote its early uptake. For more details, readers are referred to the area of the EPO website dedicated to [Unitary Patent & Unified Patent Court](#).¹³

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 2020 and 2021.

Table 2.1: EPO PRODUCTION INFORMATION

EPO PRODUCTION FIGURES	2020	2021	Change	%Change
Patent applications (Euro-direct & Euro-PCT regional phase)	181 532	188 600	+ 8 163	+ 4.5%
Searches carried out				
European (including PCT supplementary)	122 804	121 471	- 1 333	- 1.1%
PCT international	85 186	82 666	- 2 520	- 3.0%
On behalf of national offices	27 577	27 945	+ 368	+ 1.3%
Total production search	235 567	232 082	- 3 485	- 1.5%
Examination-Opposition (final actions)				
European	158 955	121 537	- 37 418	- 23.5%
PCT Chapter II	5 619	5 186	- 433	- 7.7%
Oppositions	1 855	4 647	+ 2 792	+ 150.5%
Total final actions examination- opposition	166 429	131 370	- 35 059	- 21.1%
European granted patents	133 715	108 799	- 24 916	- 18.6%

Patent knowledge

Providing the public with patent data has always been central to the EPO's mission. The EPO's patent databases remain the most comprehensive collection of patent

¹³ Entry into force is foreseen for 1 April 2023

literature in the world. The total number of records in the EPO worldwide bibliographic database (DOCDB) now passed the 140 million patent publications mark. EPO worldwide legal event data (INPADOC) relates to information on the events during the lifetime of a patent application. INPADOC contains legal events from over 50 international patent authorities worldwide, available as backfile and frontfile data.

EPO databases are accessible through services such as Espacenet, as well as via numerous commercial providers and partner institutions. The enriched version of the Espacenet patent search service makes the EPO's patent information easily accessible to users, with advanced functions such as a dynamic query builder, an enhanced result list, an improved legal status overview and a responsive design.

Users interested in performing statistical analyses of patent data can take advantage of the EPO's PATSTAT database and the PATSTAT online services. Both form a unique basis for conducting sophisticated analyses of bibliographic and legal status data for patent intelligence and analytics.

The EPO's [Patent Index 2021](#) provides a comprehensive overview of the figures representing recent activity in the global patent system and insights into emerging technology trends. Users wishing to explore the statistics behind the Patent Index, customise their own graphs and download selected data, can do so by visiting The EPO's online [Statistics & Trends Centre](#).

With its network expanded to 326 patent information centres (PATLIBs) in 2021, the EPO helped users and potential patent applicants understand the patent system and, crucially, boost technology transfer across its member states. To amplify its positive impact, the PATLIB network was upgraded in 2021, with the first fully digital Patent Knowledge Week held in November 2021, attracting over 2 200 participants from 90 countries. To empower the centres as creators, the PATLIB 2.0 project now offers tailored service packages enabling PATLIB centres to teach effective use of patent information and patent tools (train-the-trainers), perform analytics and statistics based on patent data and draw conclusions on trends in specific technical fields. In 2021, in the framework of the PATLIB exclusive learning path, the European Patent Academy offered the PATLIB network 21 courses.

In 2020, the EPO launched a new, regularly updated ["Fighting coronavirus" platform](#), which is designed to help researchers and decision-makers benefit from patent information in their fight against new coronaviruses. Initial data sets released on this platform cover antiviral vaccines, pharmaceutical therapeutics and diagnostics tools. Expert EPO patent examiners and data analysts have compiled over 300 search strategies that allow data extractions via Espacenet and the platform is expanding constantly. This endeavour, much welcomed by the user community, has been constantly enriched in 2021 (additional statistics, supplementary data, interviews) and it is also aimed at providing a significant contribution in terms of EPO social responsibility.

Despite the difficult circumstances that emerged in 2020, the EPO regularly updated users on all developments in its tools and products to ensure efficient, easy access to its services. After in-person events and training were rendered impossible by the pandemic, a great deal of effort went into digitalising events and training. The EPO continued to successfully organise several high-level online events in 2021, including the European Inventor Award, together with a whole range of online seminars and meetings. Resting on an extensive digitalisation, the EPO "New Normal" will see new working environments for its examiners and supporting staff, as well as a wealth of

new tools for a better customer experience, at the service of applicants and general public.

International and European Cooperation

Numerous high-level bilateral and multilateral interactions took place in 2021. The EPO also continued to expand its geographical reach by signing a reinforced partnership agreement with the Saudi Agency of Intellectual Property (SAIP). In 2021, 24 bilateral co-operation agreements were signed.

The EPO's geographical coverage has grown further, increasing to a total of 2.020 billion inhabitants by the end of 2021 through 38 Member States, 2 extension states, 4 validation states (soon 5 with Georgia) and 10 reinforced partnerships.

Throughout 2021, several patent offices joined the Cooperative Patent Classification (CPC) standard, including those in Morocco, Romania and Bulgaria. Successful deployment of the External Classification Portal in the test environment in early November 2021 offered an opportunity to test the Contact Information Service tool and the CPC Reclassification Service. By the end of the year, around 65 million patent documents were classified in the CPC.

The EPO's PPH network, which comprises a total of 17 partner offices worldwide, enables European applicants to obtain patents more quickly and efficiently elsewhere through a fast-track procedure allowing for the re-use of the EPO's high-quality work products. In response to growing uptake and positive user feedback, the EPO started implementing the PPH programme as a permanent procedure in early 2020, and progressively achieves this objective of stable and durable scheme with its partners.

Economic studies

To demonstrate the value of patent information, the EPO's Chief Economist Unit published three studies in 2021 covering a diverse range of cutting-edge technologies and exploring the economic impact of patents. Two of those studies document recent trends in technology for the energy transition to low-carbon energy technologies; and technologies related to plastics and plastic recycling. The study on energy transition was the second EPO study produced in collaboration with the International Energy Agency, with which the EPO signed a memorandum of understanding in 2020. The third study, published in February 2021, was a firm-level analysis of the relationship between intellectual property rights (IPRs) and firm performance in the European Union. This report, which was a joint project between the EPO and the European Union Intellectual Property Office (EUIPO), shows that firms that own IPRs have on average higher revenue per employee than firms that do not.

In 2021, the EPO launched an impact analysis of the potential introduction of a grace period. The study is based on a broad survey of EPO applicants (worldwide), complemented by user consultations and desk research of the existing literature. It gives the EPO and its stakeholders fact-based evidence on the workings of the European patent system. The results of the study will also contribute to the policy discussions on the international patent system and how it benefits both our applicants and society as a whole.

All of these studies can be consulted online on the [EPO website](#).

EPO budget

The EPO is a self-financed organisation with a yearly budget of about EUR 2.4bn (2021).

Revenues are mainly generated from patent and procedural fees comprising

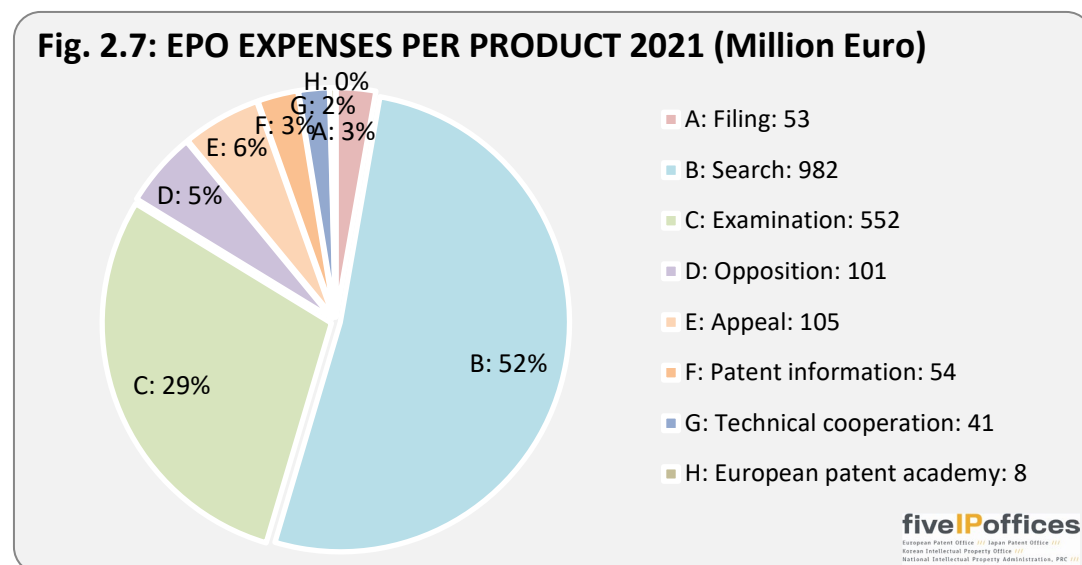
- fees for patent-granting, opposition and appeal procedures
- fees for searches and preliminary examinations on international applications
- national renewal fees for granted European patents¹⁴
- fees for searches for national offices and third parties

The EPO foresees biannual inflation-based fee adjustment.

The EPO is financing all operational and capital expenditures without subsidies from its member states. A large part of the budget is foreseen for direct staff expenditures (salaries, allowances, etc.), the running cost of the EPO's own social security schemes, IT and building cost as well as for cooperation with member states. Any budget surplus is transferred to the one of the EPO's investment entities to support long-term sustainability.

The [EPO's budget](#) is available in full on our website.

Fig. 2.7 shows EPO expenses¹⁵, based on the International Finance Reporting Standards (IFRS) per product in 2021.



A description of the items in Fig. 2.7 can be found in [Annex 1](#).

¹⁴ After a European patent has been granted, renewal fees for subsequent years during its term are payable to the designated Contracting States. Each Contracting State pays to the EPO, for each European patent maintained in that state, a proportion of its national renewal fee fixed by the Administrative Council (50 percent since 1984).

¹⁵ The EPO uses the word "expenses" in accordance with the IFRS reporting approach.

EPO Staff

At the end of 2021, the EPO's staff totalled 6 261 employees (-2 percent) from 34 different European countries¹⁶. This figure includes 3 999 examiners working in search, examination, and opposition and 196 Boards of Appeal members.

After their recruitment, all new examiners complete a three-year training programme and are tutored by more experienced colleagues. All staff at the EPO work in its three official languages: English, German, and French.

More information

Further information can be found on the EPO's Homepage.

www.epo.org

[Report](#)

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¹⁶ For more details, see the [2021 EPO social report](#)

JAPAN PATENT OFFICE

The JPO has been aiming to achieve the “world’s fastest and utmost quality patent 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) Examination Performance

With the acceleration of the intellectual property creation cycle, comprised of intellectual property creation, the establishment of rights, and utilization of rights, there is a growing need to shorten total pendency, and the JPO has been engaging in initiatives to speed up examinations. In fiscal year 2021 (FY 2021), First Action Pendency¹⁷ and Total Pendency for Patent Examinations¹⁸ were 10.1 months and 15.2 months on average.

2) Accelerated Examination System

Under certain conditions, the JPO offers an accelerated examination system/super-accelerated examination system that, upon the request of an applicant, expedites the commencement of an examination. The accelerated examination system for patent applications may be applied for applications that are also filed in one or more other countries and applications by small and medium-sized enterprises, etc. In 2021, first action pendency from request for accelerated examination was 2.7 months on average.

The JPO is running pilot programs for a super-accelerated examination system for highly important applications, such as applications for inventions that have already been put into practice and that are also filed in one or more other countries. First action is issued within one month from the request, in principle (within two months, in principle, in the case of designated office applications).

In 2021, there were 1 362 requests, and first action pendency from request for super-accelerated examination was 0.8 months on average (1.4 months for Designated Office (DO) applications).

3) Examination Measures for Addressing Various User Needs

The JPO conducts interview examinations to facilitate communication between examiners and applicants, etc. In response to the needs of applicants and agents, etc. in remote areas, the JPO not only conducts interview examinations in the JPO’s building, but also conducts on-site interview examinations and online interview examinations. It is also possible to conduct an interview examination with some of the participants participating online. With the spread of COVID-19, the JPO actively

¹⁷ The first action pendency is the period from the date of examination request until the JPO sends the first notice of examination results to the applicant, etc. (for the most part, either a notice of patent grant or a notice of reasons for refusal).

¹⁸ The total pendency (also called the “standard pendency”) is the period from the date of examination request to withdrawal or abandonment or until a final disposition (excluding cases where the JPO requests an applicant to respond to the second notice of reasons for refusal due to the amendments submitted by the applicant, and where the applicant performs procedures they are allowed to use, such as requests to the JPO for extension of the period of response and for an accelerated examination).

conducted online interviews from the viewpoint of preventing infection. As a result, the number of on-site interview examinations decreased by 93.3 percent from the previous year, while the number of online interview examinations increased by 40.2 percent from the previous year. In 2021, there were 1 689 interview examinations (of these, 13 were conducted on-site, and 1 423 were conducted online).

4) Initiatives for AI related Inventions

In January 2021, in order to achieve efficient and high-quality examinations of AI related inventions, the JPO inaugurated the Team for Supporting AI Examinations to improve the examination environment for AI-related inventions. The team consists of managers, etc. and officials in charge of AI, who work together beyond their responsible technical fields to accumulate and share knowledge on the latest AI-related technologies and case examples of examination results, and to hold discussions on related measures for patent examinations.

The officials in charge of AI collect knowledge from the respective examination divisions, serving as a hub of examinations concerning AI-related inventions, provide consultation services to examiners outside the team and thereby support examiners in achieving efficient and quality examinations.

5) The Revisions

The revisions made in the Act for Partial Amendment of the Patent Act, etc., which was promulgated as Act No. 42 on May 21, 2021, are as follows.

a. Review of the System for Restoration of Right

The criteria for reinstatement of rights which are lost due to failure to comply with time limits were relaxed. (The Utility Model Act, the Design Act, and the Trademark Act were revised to the same effect.)

b. Introduction of a System for Seeking Comments from Third Parties in Patent Infringement Litigation, etc.

In patent infringement litigation, etc., if the court, at the motion of a party, finds it to be necessary, the court should be able to seek comments from third parties regarding necessary matters such as the application of laws. (The Utility Model Act was revised to the same effect)

c. Allowing Parties, etc. to Appear Online on the Date of the Oral Proceedings

Parties, etc. can participate in oral proceedings of a trial or an appeal via a web conference system, etc. without having to come to the trial court in person. (The Utility Model Act, the Design Act, and the Trademark Act were revised to the same effect.)

d. Review of the Requirement of the Consent of a Non-exclusive Licensee in a Trial for Correction, etc.

The consent of a non-exclusive licensee is no longer required when filing a request for trial for correction, and when filing a request for correction in a trial for patent invalidation or in the procedures for filing opposition to grant of patent, etc. (The Utility Model Act and the Design Act were revised to the same effect.)

e. Revision of Patent Fee

System changes were made to specify the statutory maximum amount of patent fees by law and the specific amount by Cabinet Order within that range. The statutory maximum amounts were raised from the existing fees.

(The Trademark Act was revised to the same effect. The Utility Model Act and the Design Act only made the system changes.)

f. Exemption from Payment of a Surcharge in the Event of a Disaster, etc.

A right holder is exempted from payment of a patent surcharge (registration surcharge) when the right holder fails to pay the patent fee (registration fee) within the prescribed period due to a disaster, etc.

(The Utility Model Act, the Design Act, and the Trademark Act were revised to the same effect.)

6) Dissemination of information on JPO's measures to overseas users

The JPO disseminates information to overseas users regarding matters such as the JPO's measures that are available to overseas users and latest statistics. Through such dissemination of information, the JPO supports overseas users in filing applications with the JPO and smoothly obtaining rights in Japan, and it promotes their understanding of the JPO's activities.

- In 2021, "The JPO Quick Reads"¹⁹ was published 47 times, through which the JPO disseminated information focusing on measures available to foreign users, such as the JPO's attachés in various countries, the JPO's international cooperation that contributes to global registration of rights, and reports on international meetings.
- The JPO enhanced the content provided on "The JPO Key Features".²⁰ It contains information on a range of measures related to patent, design, trademark, and trial and appeal.
- The JPO enhanced the content of materials that introduce the JPO's measures to overseas users and published the materials on its website.²¹
- In 2021, the JPO exchanged opinions with 10 foreign companies, aimed at deepening their understanding of Japan's IP rights systems and examination practices and grasping what foreign companies demand of the JPO. It established a website for companies to apply for opinion exchanges with the JPO.²²
- The JPO also disseminated information using its official English-language Twitter account to reach a broad range of overseas users.²³
- The JPO provided updates of its measures to overseas users at international symposiums and seminars.

¹⁹ www.jpo.go.jp/e/news/quickreads/index.html

²⁰ www.jpo.go.jp/e/news/keyfeatures/index.html

²¹ www.jpo.go.jp/e/resources/report/sonota-info/presentation-material.html

²² www.jpo.go.jp/e/support/general/opinion-exchange.html

²³ twitter.com/JPO_JPN/

JPO Production information

Table 2.2 shows production figures for applications, examinations, grants, appeals or trials and PCT activities in the Japanese procedure in 2020 and 2021.

Table 2.2: JPO PRODUCTION INFORMATION

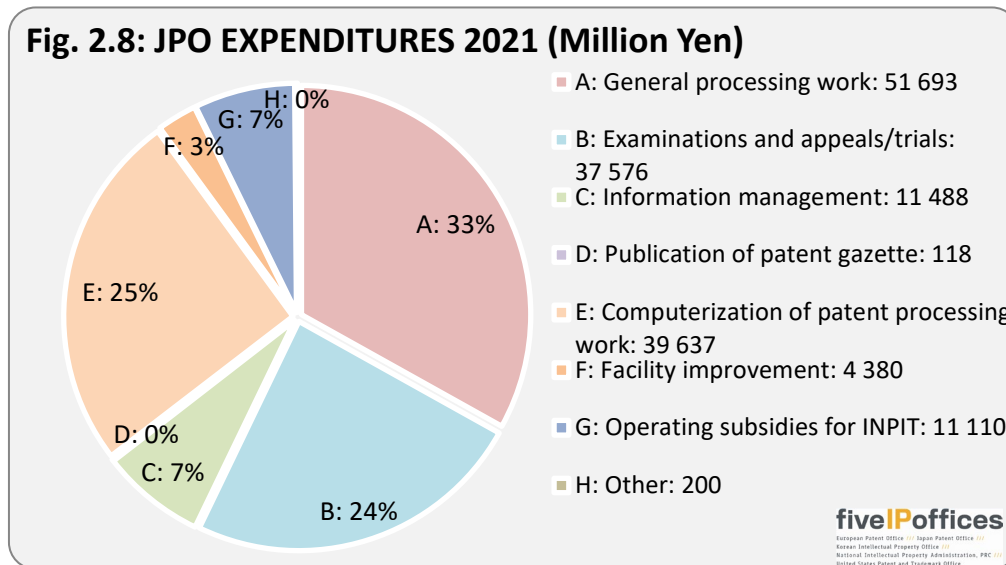
JPO PRODUCTION FIGURES	2020	2021	Change	%Change
Applications filed				
(by Origin of Application)				
Domestic	227 348	222 452	- 4 896	- 2.2%
Foreign	61 124	66 748	+ 5 624	+ 9.2%
Total	288 472	289 200	+ 728	+ 0.3%
Applications filed				
(by Type of Application)				
Divisional ²⁴	26 827	29 319	+ 2 492	+ 9.3%
Converted ²⁵	59	66	+ 7	+ 11.9%
Regular	261 586	259 815	- 1 771	- 0.7%
Total	288 472	289 200	+ 728	+ 0.3%
Examination				
Requests	232 215	238 557	+ 6 342	+ 2.7%
First Actions	222 344	232 070	+ 9 726	+ 4.4%
Final Actions	221 486	231 272	+ 9 786	+ 4.4%
Grants				
Domestic	140 322	141 853	+ 1 531	+ 1.1%
Foreign	39 061	42 519	+ 3 458	+ 8.9%
Total	179 383	184 372	+ 4 989	+ 2.8%
Appeals/Trials				
Demand for Appeal against refusal	16 899	16 894	- 5	- 0.0%
Demand for Trial for invalidation	121	106	- 15	- 12.4%
PCT Activities				
International searches	50 383	48 502	-1 836	- 3.6%
International preliminary examinations	1 806	1 541	- 265	- 14.7%

²⁴ 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.

²⁵ 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. 2.8 shows JPO expenditures by category in 2021.



A description of the items in Fig. 2.8 can be found in [Annex 1](#).

JPO Staff Composition

As of the end of FY 2021, the total number of staff at the JPO was 2 793.

Examiners	
Patent / Utility model	1 665
Design	50
Trademark	168
Appeal examiners	380
General staff	530
Total	2 793

More information

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

[Report](#)

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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.

Premium Examination Services

KIPO continually aims to provide high-quality, customer-oriented, and fast examination services by raising the quality of IP administration, improving examination systems, and reducing first office action pendency. In 2021, the average first office action pendency was 12.2 months for patents and utility models, 10.8 months for trademarks, and 5.2 months for industrial designs

IPR Applications

In 2021, KIPO received a preliminary total of 592 615 applications filing for patents, utility models, industrial designs, and trademarks. Out of that number, 87 010 applications were filed by non-residents.

PCT Applications

The number of PCT applications from the Korea has continually grown every year. KIPO has the 4th largest amount of PCT applications by country of origin. There were 20 678 PCT applications in total for 2021 which is a 3.2 percent increase from 20 045 applications in 2020. The Korean language is also the 4th most commonly used language as an official PCT publication language.

Improvement of the IP System

1. Prioritizing Examination of COVID-19 Vaccines

The US-Korea Summit was held in May 2021 to establish a comprehensive "KORUS Global Vaccine Partnership" amidst the growing demand for COVID-19 vaccines. As a follow up measure, a revision of the Enforcement Decree of the Patent Act was enacted on June 23, 2021 implementing a policy to give the Commissioner of KIPO discretion to ex officio designate applications for accelerated examination in order to facilitate quick and flexible response in emergency situations. By giving priority to examination of vaccine technologies related to vaccine development and production, the Korea will be able to allow quick acquisition of patents and bolster vaccine manufacturing.

After passing the enforcement decree, KIPO applied this policy for the first time on COVID-19 vaccine related applications for the period of one year until June 23, 2022. The first office action pendency for accelerated examination takes about 2.3 months which is a significant reduction in examination processing time compared with the average 12.2 months (as of Dec. 2021).

2. Introducing an Expert Commissioner System in Patent Trial and Appeal

Since October 2021, the Intellectual Property Trial and Appeal Board (IPTAB) has enforced a system where third party technical experts with specialized knowledge called “expert commissioners” participate in patent trials and appeals to provide supplementation with their expertise.

The IPTAB selected various fast-changing and cutting-edge technical fields that require field knowledge to comprehend. A total of 11 fields were deemed necessary to have an expert commissioner: artificial intelligence (AI), autonomous driving, secondary/fuel cells, wireless communication (5G/6G), video/audio compression, FinTech, semiconductors (photo lithography, etching, deposition technology), robot control, ground stabilization, transmission, and bio-health. To date, about 130 candidates have been recruited and new candidates can be added to the list whenever it is recognized as necessary.

Creating and Utilizing IP

1. Exceeding Six Trillion South Korean Won in IP Finance

“IP-finance” refers to financing activities backed by the value of non-tangible IPRs owned by companies. Financial institutions provide funds to companies in the form of loans collateralized by IP, loans guaranteed by IP, and IP-based investments which are based on the valuation of IP assets of a company.

The cumulative total of overall IP-finance transactions in the Korea as of 2021 exceeded KRW 6 trillion. Specifically, loans collateralized by IP accounted for KRW 1.931 trillion, loans guaranteed by IP for KRW 3.214 trillion, and IP-based investments for KRW 862.8 billion. Within the year 2021 alone, newly provided funds increased 21.3 percent to amount KRW 2.504 trillion compared to 2.064 trillion in 2020. Loans collateralized by IP accounted for KRW 1.508 trillion, loans guaranteed by IP for KRW 844.5 billion, and IP-based investments for KRW 608.8 billion.

2. Publishing a Non-mRNA Vaccine Patent Analysis Report

In December 2021, KIPO published a patent analysis report on non-mRNA vaccines to support companies, universities, and research institutions in their effort to develop COVID-19 vaccines. The report has been made available in Korean on “COVID-19 Patent Information Navigation,” a website which provides the latest patent information related to COVID-19 in real time. (kipo.go.kr/ncov)

The “Non-mRNA Vaccine Patent Analysis Report” provides analysis of 15 types of international non-mRNA vaccines that are undergoing global clinical trials. The report describes the characteristic of each platform technology and key patents held by pharmaceutical companies and includes detailed analyses of recently published COVID-19 patents and their original patents. Making such information available to the public will aid researchers identify existing patents of vaccine technology platforms and help set the direction of vaccine Research and development (R&D) as well as establish strategies to avoid, invalidate, buy or license key patents as necessary.

3. Ranking No.1 in Standard-Essential Patents

The Korea became the No.1 country with the largest amount of declared standard-essential patents by 2021 reported to three international standard-setting

organizations (SSOs)—the International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and the International Telecommunication Union (ITU). Standards frequently make reference to technologies that are protected by patents, and a patent that protects technology which is essential to a standard is called a “standard-essential patent (SEP).” In total, the Korea has declared 3 390 SEPs (22.6 percent of all SEPs) which is more than six times the amount of 571 patents in 2017.

Along with the three international SSOs, there are two SSOs—the Institute of Electrical and Electronics Engineers (IEEE) and European Telecommunications Standards Institute (ETSI) related to ICT (e.g. WIFI, mobile telecommunication, etc)—which are collectively considered as the five major SSOs. Considering all five major SSOs, the Korea ranks No.3 with a total of 20 616 patents declared SEPs, which comes after the U.S. at No.2 with 28 980 patents and China at No.1 with 32 859 patents.

Establishing Global Leadership in IP

1. Fifth in the Global Innovation Index by WIPO

With the annual launch of the Global Innovation Index (GII) by WIPO on September 20, 2021, the Korea was revealed to rank as the 5th most innovative economy among 132 economies worldwide and first among Asia.

The GII is a global innovation ranking conducted by WIPO which uses seven pillars to measure innovation, including five input and two output sub-indexes. The Korea has continued to be No.1 in the sub-index of Human Capital and Research for three consecutive years which is a measure of investment in innovation. Also, the Korea’s ranking in the two output sub-indexes which measure the performance of innovative activities advanced to 5th from 10th of the previous year due to the increase in domestic and international patent applications.

Furthermore, among the total 81 indicators within the pillars, the Korea ranked No.1 in nine indicators: Patent Applications per GDP, PCT Applications per GDP, Patent Families per GDP, Design Applications per GDP, Researchers per Population, Percentage of Research Talent in Business, Government’s Online Services, E-participation (government’s use of online services), and the Percentage of High-tech Exports.

2. Fourth Largest in the Number of PCT Applications

KIPO announced that the Korea is the country with the 4th largest number of applications filed to WIPO under the Patent Cooperation Treaty (PCT) in 2021 for the second consecutive year. The number of PCT applications is regarded as an important indicator of a country's capacity for innovation, used in both the Bloomberg Innovation Index and WIPO Global Innovation Index.

The Korea showed a 3.2 percent increase in PCT applications filed in 2021, which is the highest growth rate among the top five countries including China, the United States, Japan, and Germany. Two Korean companies, in particular, Samsung Electronics (3rd) and LG Electronics (4th), were among the top 10 companies with the largest number of PCT applications.

KIPO Production information

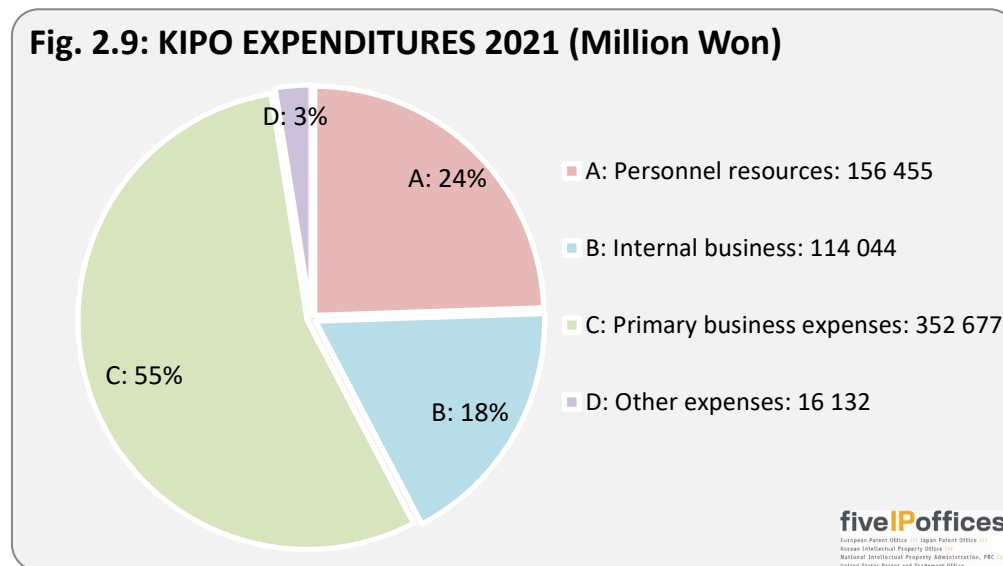
Table 2.3 shows production figures for applications, examinations, grants, appeals or trials and PCT activities for 2020 and 2021.

Table 2.3: KIPO PRODUCTION INFORMATION

KIPO PRODUCTION FIGURES	2020	2021	Change	%Change
Applications filed (by Origin of Application)				
Domestic	180,477	186 245	+ 5 768	+ 3.2%
Foreign	46 282	51 573	+ 5 471	+ 11.8%
Total	226 759	237 998	+ 11 239	+ 5.0%
Examination				
Requests	223 842	233 055	+ 9 213	+ 4.1%
First Actions	186 495	181 976	- 4 519	- 2.4%
Final Actions	177 556	184 710	+ 7 154	+ 4.0%
Grants				
Domestic	103 881	110 351	+ 6 470	+ 6.2%
Foreign	30 885	35 531	+ 4 646	+ 15.0%
Total	134 766	145 882	+ 11 116	+ 8.2%
Appeals/Trials				
Demand for Appeal against refusal	2 110	2 196	+ 86	+ 4.1%
Demand for Trial for invalidation	383	408	+ 25	+ 6.5%
PCT Activities				
International searches	28 536	28 350	- 186	- 0.7%
International preliminary examinations	100	124	+ 24	+ 24.0%

KIPO budget

Fig. 2.9 shows KIPO expenditures by category in 2021



A description of the items in Fig. 2.9 can be found in [Annex 1](#).

KIPO Staff Composition

At the end of 2021, the KIPO had a total staff 1 903. The breakdown is as follows.

Examiners	
Patents and Utility Model	953
Designs and Trademarks	194
Appeal examiners	107
Other staff	649
Total	1 903

More information

Further information can be found on KIPO's Homepage:

www.kipo.go.kr/en/MainApp

[Report](#)

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China National Intellectual Property Administration

Statistical Overview of 2021

1) Patent Applications in 2021

In 2021, a total of 1.586 million invention patent applications were filed in China, a year-on-year increase of 5.9 percent. Among them, 1.428 million were domestic applications, accounting for 90.0 percent of the total, a year-on-year increase of 6.2 percent; 158 000 were foreign applications filed in China, accounting for 10.0 percent of the total, a year-on-year increase of 3.6 percent. Among the domestic invention patent applications, 1.314 million were applications for service inventions, accounting for 92.0 percent, with a year-on-year increase of 8.2 percent. 66.8 percent of domestic invention patent applications were filed by enterprises, 6.1 percentage points higher than the previous year.

In 2021, 2.852 million utility model patent applications and 806 000 industrial design patent applications were filed in China, registering a decrease of 2.5 percent and an increase of 4.6 percent respectively.

2) Patents Granted in 2021

In 2021, 696 000 invention patents were granted, a year-on-year increase of 31.3 percent. Among them, 586 000 were granted to domestic applications, accounting for 84.2 percent of the total; 110 000 were granted to foreign applications filed in China, a year-on-year increase of 23.0 percent. Among the granted domestic invention patents, 565 000 were service inventions, accounting for 96.4 percent, a year-on-year increase of 33.3 percent; 21 000 were nonservice inventions, accounting for 3.6 percent, a year-on-year increase of 23.0 percent.

In 2021, 3.12 million utility model patents were granted, a year-on-year increase of 31.2 percent; 786 000 design patents were granted, a year-on-year increase of 7.3 percent.

3) Valid invention patents in 2021

As of the end of 2021, the total number of invention patents granted and maintained valid in China reached 3.597 million, a year-on-year increase of 17.6 percent. Among them, 2.773 million were domestic invention patents, accounting for 77.1 percent of the total, an increase of 21.7 percent; 824 000 were foreign invention patents in China, accounting for 22.9 percent of the total, a year-on-year increase of 5.8 percent.

As of the end of 2021, the number of high-value invention patents per 10 000 population in China (not including Hong Kong Special Administrative Region, Macau Special Administrative Region and Taiwan Province of China) reached 7.5.

4) Examination Period

In 2021, the average pendency for high-value invention patent applications was reduced to 13.3 months, which fulfilled the task set out by the State Council on deepening the reform to streamline administration, delegate power, improve regulation and upgrade services ahead of schedule. The average pendency for invention patents was reduced to 18.5 months. A special campaign was launched to sort out long-pending cases, and 217 000 such cases were concluded throughout the year.

In accordance with the Special Implementation Plan for Improving the Quality and Efficiency of Invention Patent Examination (2019-2022), CNIPA took concrete steps to ensure strict legal compliance in the examination process, impose rigorous standards on granting and confirmation of patent rights, and enhance the quality and efficiency of patent examination. The user satisfaction rating on patent examination quality in 2021 reached 85.7, keeping in the satisfactory range for 12 consecutive years.

CNIPA production information

Table 2.4 shows production figures of patent applications, examination, grants, re-examination and invalidation, and PCT activities in the years 2020 and 2021. The data in table 2.4 concentrate only on patents for invention.

Table 2.4: CNIPA PRODUCTION INFORMATION

CNIPA PRODUCTION FIGURES	2020	2021	Change	% Change
Applications filed				
Domestic	1 344 817	1 427 845	83 028	+ 6.2%
Foreign	152 342	157 818	5 476	+ 3.6%
Total	1 497 159	1 585 663	88 504	+ 5.9%
Examination				
First actions	1 177 540	n.a.	-	-
Final actions	1 093 942	1 120 991	27 049	+ 2.5%
Grants				
Domestic	440 691	585 910	145 219	+ 33.0%
Foreign	89 436	110 036	20 600	+ 23.0%
Total	530 127	695 946	165 819	+ 31.3%
Re-examination and invalidation				
Re-examination requests	49 988	73 601	23 613	+ 47.2%
Invalidation request	1 442	1 713	271	+ 18.8%
PCT activities				
International searches	70 068	78 200	+ 8 152	+ 11.6%
International preliminary examinations	456	444	- 12	- 2.6%

n.a. : not available

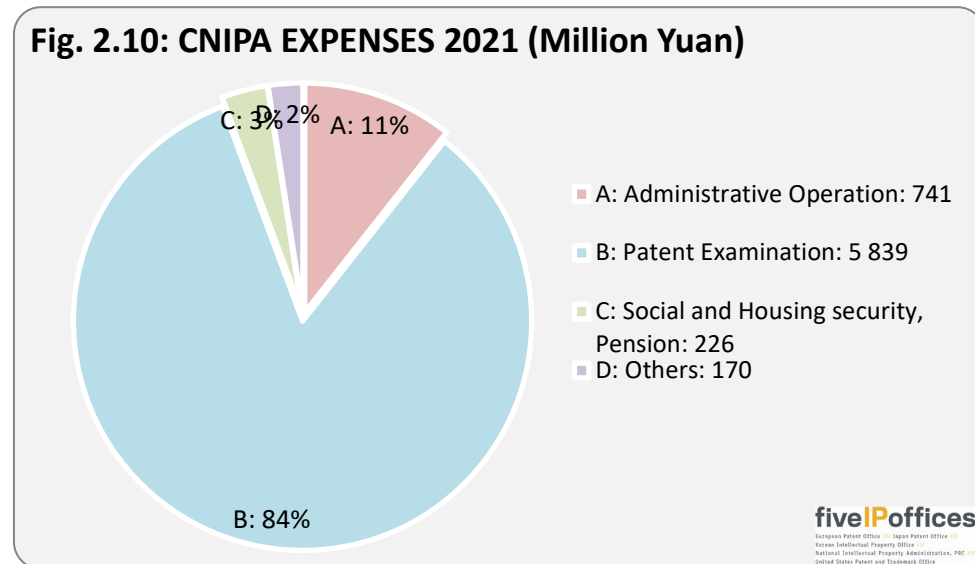
International Cooperation

In 2021, CNIPA was engaged in upgrading the top-level design of international cooperation, and took innovative and proactive measures to mitigate the impact of the COVID-19 pandemic. Exchanges and cooperation were conducted via cloud dialogues, traditional partnerships were strengthened via cloud training sessions, and outcomes of cooperation were consolidated via cloud signing ceremonies. CNIPA continued to advance international cooperation and competition in the IP field, participate constructively in the adjustment of international IP norms, and deepen pragmatic IP cooperation with other countries and regions. Further progress was made in

establishing the comprehensive paradigm of international cooperation featuring coordinated progress at bilateral, plurilateral and multilateral levels and with neighbouring countries.

The CNIPA budget

Fig 2.10 shows CNIPA expenditures by category in 2021.²⁶



A description of the items in Fig. 2.10 can be found in [Annex 1](#).

The CNIPA Staff Composition

By the end of 2021, the CNIPA has 8 functional departments (vice bureau level).

More information

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

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²⁶ Percentages may not add to 100 due to rounding.

UNITED STATES PATENT AND TRADEMARK OFFICE

Mission Statement

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

To be a catalyst for inclusive innovation, economic prosperity, U.S. competitiveness domestically and abroad, national security, and world problem-solving by incentivizing and protecting more innovation, especially in key technology areas, and bringing that innovation to impact.

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.

Beginning with first principles, the USPTO patent system was designed for the public good, and the Agency is staying focused on this. The USPTO must ensure our innovation ecosystem works to inclusively incentivize more innovation, including in key technologies; protect that innovation in the U. S. and worldwide; and bring that innovation to impact to create jobs and foster economic prosperity.

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 core business units, Patents and Trademarks.

The USPTO’s Strategic Plan for 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 focus 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

The USPTO continued to be productive despite the continued impact of the global pandemic. Utility patent filings fell 1.4 percent to 595 398; the number of pending

applications rose slightly (0.7 percent); and the number of grants fell by 5.3 percent. Included in the patents issued in FY 2021²⁷ was the Agency's 11 millionth patent.

The Agency kept up the assistance to facilitate the U.S.'s economic recovery, in part by supporting the COVID-19-related initiatives of the Patents 4 Partnerships marketplace, an online platform created by the USPTO to unite parties that have COVID-19-related technologies available for voluntary licensing with parties that have an interest in these technologies and the ability to commercialize them as well as the Prioritized Examination Pilot Programs, which, while also eliminating certain associated fees, aim to accelerate the evaluation of patent and trademark applications for technologies related to COVID-19.

In January 2021, President Biden signed an executive order which, among other directives, supports the USPTO's efforts to secure an equitable economic future, reduce greenhouse gas emissions, and mitigate the effects of climate change. These efforts culminated in the implementation of the Climate Change Mitigation Pilot Program, which targets impact on the climate by accelerating examination of patent applications for innovations that reduce greenhouse gas emissions.

The USPTO continued to make strides in patent timeliness by aligning examination capacity with the inventory levels of unexamined patent applications. For the last decade the USPTO has been measuring Patent Term Adjustment (PTA) goals based on statutory requirements specifying time frames for the Office to act on applications at various stages of prosecution; failure to meet these time frames may increase the patent term. PTA calculations provide a more refined description of pendency that measures the USPTO's consistency in meeting the time frame goal, an indication not provided by traditional pendency metrics.

In FY 2021, total PTA Compliance - Mailed actions (defined as all actions mailed by the Office throughout the measurement period and counted as either compliant or non-compliant compared to the applicable PTA time frame) is 83 percent. The total PTA Compliance – Remaining Inventory (defined as all cases awaiting any action by the Office at the end of the measurement period and counted as compliant or non-compliant compared to the applicable PTA time frame, based on the time spent waiting as of the end of the measurement period) is 86 percent. Efforts toward the long-term PTA compliance goals contribute to the optimization of patent application pendency and the predictability of the patent application process.

The USPTO persisted in renewing IT to enable more streamlined, less technically cumbersome examination, improve application quality and efficiency, increase data quality, smarter interfaces, and stronger security. The Agency has modernized patent filings by transitioning to the use of the DOCX format and implemented the new Patent Center where filing and application management are incorporated within a single user interface for enhanced user experience.

The USPTO has incorporated Artificial Intelligence (AI) tools into two critical areas of patent examination: search and classification. The USPTO has developed an AI-based prototype search system that helps to identify relevant documents and provides suggestions for other areas to search. The USPTO has also developed an auto-classification tool that leverages machine learning to classify patent documents using the CPC system. The system can suggest CPC symbols and includes the ability to identify claimed subject matter for additional refinement of the suggested CPC symbols.

²⁷ The USPTO's Fiscal Year is October 1 to September 30.

In FY 2021 the USPTO expanded access to the innovation ecosystem demographically and economically by partnering with the U.S. Small Business Administration (SBA) and SBA-funded small business support organizations, U.S. Customs and Border Protection, and the U.S. Copyright Office. Additional outreach included the Council for Inclusive Innovation which published a series of Innovation Chat webinars to further the discussion on how to increase opportunities for all Americans to participate in innovation.

Historically, demand for trademarks has exhibited a more immediate correlation with changes in the economy than is the case for the demand for patents. In FY 2021, due to the economic response to unprecedented levels of fiscal and monetary stimuli issued by governments around the world in response to the COVID-19 pandemic, trademark filings experienced a surge of nearly 28 percent over the prior year. In the same year, the USPTO Trademarks organization developed new rules for implementing the Trademark Modernization Act of 2020. This Act provides business owners with additional tools to help clear the federal Trademark Register of unused marks and enables the USPTO to move applications through the system more efficiently.

International Cooperation and Work Sharing

The USPTO's Global Intellectual Property Academy (GIPA) continued its decade-long commitment to producing and maintaining in-depth, on-demand content through distance learning with modules available in five languages and covering six areas of IP protection and enforcement. In FY 2021, the USPTO trained over 17 800 participants, including over 10 000 foreign government officials representing 131 countries and intergovernmental organizations. During the year, GIPA conducted/delivered 250 programs with a distance learning or remote engagement component. Approximately 43 percent of all attendees were representatives of domestic, small and medium-sized enterprises; IP practitioners; and IP owners and users. The remaining attendees were patent, trademark, and copyright officials; prosecutors; police; customs officials; and policy makers. Additionally, self-study materials — including recordings of events, training slides, and IP toolkits — were updated for asynchronous learning. Collectively, this on-demand content has drawn nearly 200,000 unique views.

The USPTO maintained its work on global IP harmonization in FY 2021. In the past year the Agency established work sharing agreements with Mexico and Cambodia and signed a memorandum of understanding with India to cooperate on a number of activities pertaining to securing, using, and enforcing IP rights. The USPTO's Office of Policy and International Affairs also continues working with China to implement better IP protections for trade secrets and patents in accordance with the Economic and Trade Agreement between the Government of the U. S. and the Government of the PRC (Phase One), signed on January 15, 2020. Additionally, the USPTO carried on efforts to optimize its PPH and PCT programs, which have increased efficiencies and decreased costs for applicants filing in multiple offices.

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 calendar years 2020 and 2021.

Table 2.5: USPTO PRODUCTION INFORMATION

USPTO PRODUCTION FIGURES	2020	2021	Change	% Change
Applications filed				
Utility (patents for invention) ²⁸	597 175	591 473	- 5 702	- 1.0%
Domestic	277 297	281 996	+ 4 699	+ 1.7%
Foreign	319 878	309 477	- 10 401	- 3.3%
Plant	976	992	+ 16	+ 1.6%
Reissue	1 171	1 132	- 39	- 3.3%
Total utility, plant & reissue	599 322	593 597	- 5 725	- 1.0%
Design	47 838	56 711	+ 8 873	+ 18.5%
Provisional	172 052	152 909	- 19 143	- 11.1%
Total	819 212	803 217	- 15 995	- 2.0%
Request for continued examination (RCE) ²⁹	154 731	140 183	- 14 548	- 9.4%
PCT Chapter I searches	22 723	24 055	+ 1 332	+ 5.9%
PCT Chapter II examinations	1 035	944	- 91	- 8.8%
First actions (utility, plant, reissue)	573 920	540 135	- 33 785	- 5.9%
Grants (total)	351 993	327 775	- 24 218	- 6.9%
U.S. residents	164 555	149 700	- 14 855	- 9.0%
Foreign	187 438	178 075	- 9 363	- 5.0%
Japan	51 619	46 472	- 5 147	- 10.0%
EPC states	54 377	50 603	- 3 774	- 6.9%
R. Korea	21 977	20 764	- 1 213	- 5.5%
P.R. China	21 428	23 745	+ 2 317	+ 10.8%
Others	38 037	36 491	- 1 546	- 4.1%
Applications in appeal and interference proceedings (includes utility, plant, and reissue)				
Ex-parte cases received	6 676	5 270	- 1 496	- 21.1%
Ex-parte cases disposed	7 767	7 009	- 758	- 9.8%
Inter-partes cases received	4	7	+ 3	+ 75.0%
Inter-partes cases disposed	15	9	- 6	- 40.0%
Patent cases in litigation				
Cases filed	684	220	- 464	- 67.8%
Cases disposed	716	175	- 541	- 75.6%
Pending cases (end of calendar year)	535	217	- 318	- 59.4%

²⁸ 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).

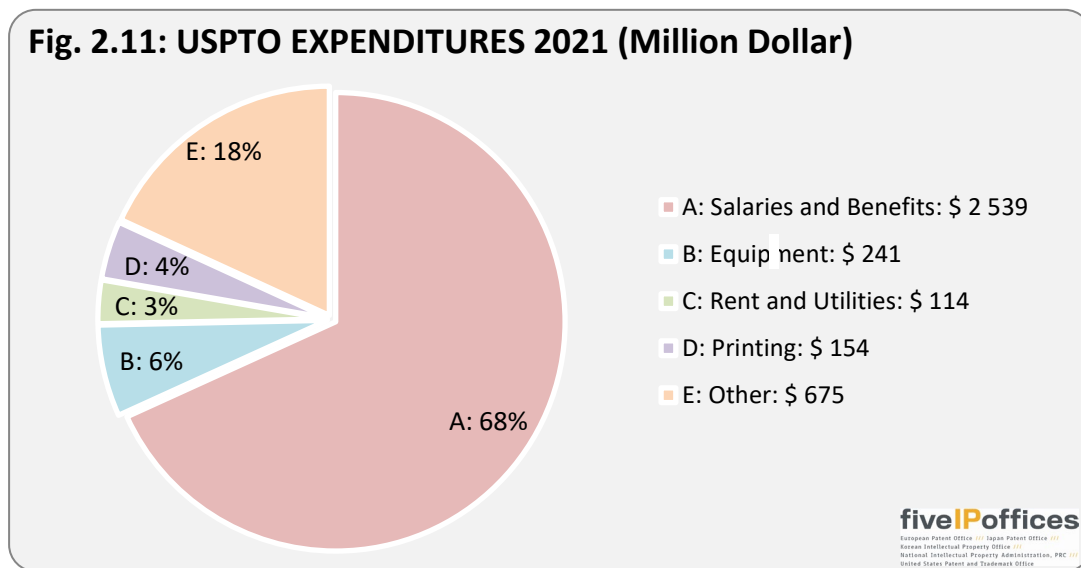
²⁹ A Request for Continued Examination is a USPTO procedure under which an applicant may obtain continued examination of an application by filing a submission and paying a specified fee, even if the application is under a final rejection, appeal, or a notice of allowance.

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 2021, USPTO expenditures totalled \$3 722.4 million. Agency-wide, 19.3 percent of expenditures were allocated to IT security and associated IT costs.

Goal 1 – Optimize Patent Quality and Timeliness	\$ 3 266.3 billion
Goal 2 – Optimize Trademark Quality and Timeliness	\$ 374.6 million
Goal 3 – Provide Domestic and Global Leadership to Improve IP Policy, Protection and Enforcement Worldwide	\$ 81.4 million

Fig. 2.11 shows USPTO expenditures by category in 2021³⁰



A description of the items in Fig. 2.11 can be found in [Annex 1](#).

USPTO Staff Composition

At the end of FY 2021, the USPTO work force was composed of 12 963 federal employees. Included in this number are 7 840 Utility, Plant, and Reissue patent examination staff and 233 Design examination staff; 622 Trademark examining attorney staff, and 4 228 managerial, policy, legal, administrative and technical support staff.

More information

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

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³⁰ Percentages may not add to 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 2016 to 2020³¹.

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 Database³², 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.

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, www.fiveipoffices.org/statistics/statisticsreports

³² This edition refers to general patent data as of April 2022, and to PCT international phase application data as of May 2022, www.wipo.int/ipstats/en/index.html. For some statistics on 2021, 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, OAPI³³), 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.

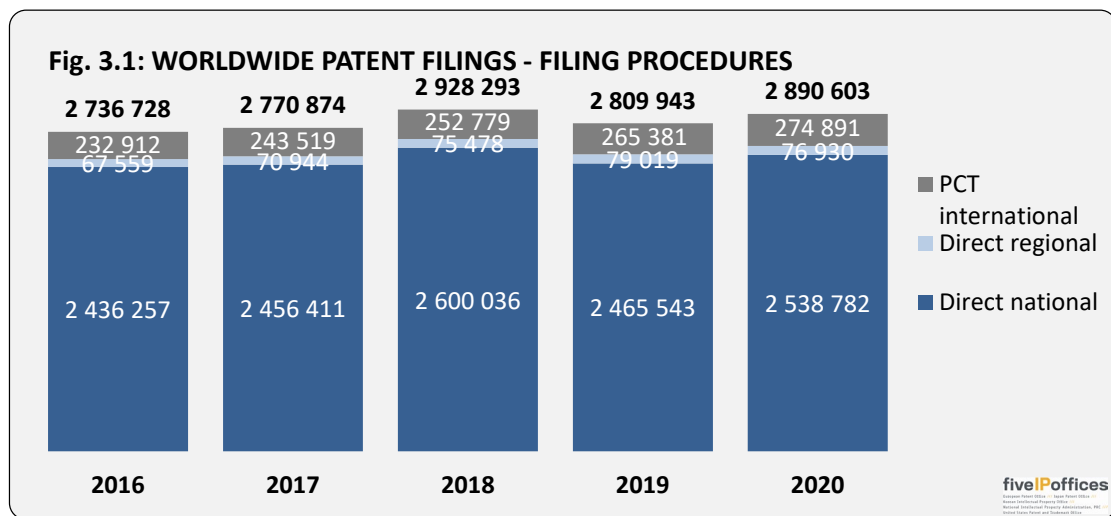
³³ The ARIPO is the African Regional Intellectual Property Office. The EAPO is the Eurasian Patent Organization. The GCCPO is the Gulf Cooperation Council Patent Office. The OAPI is the Organisation African Intellectual Property.

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.

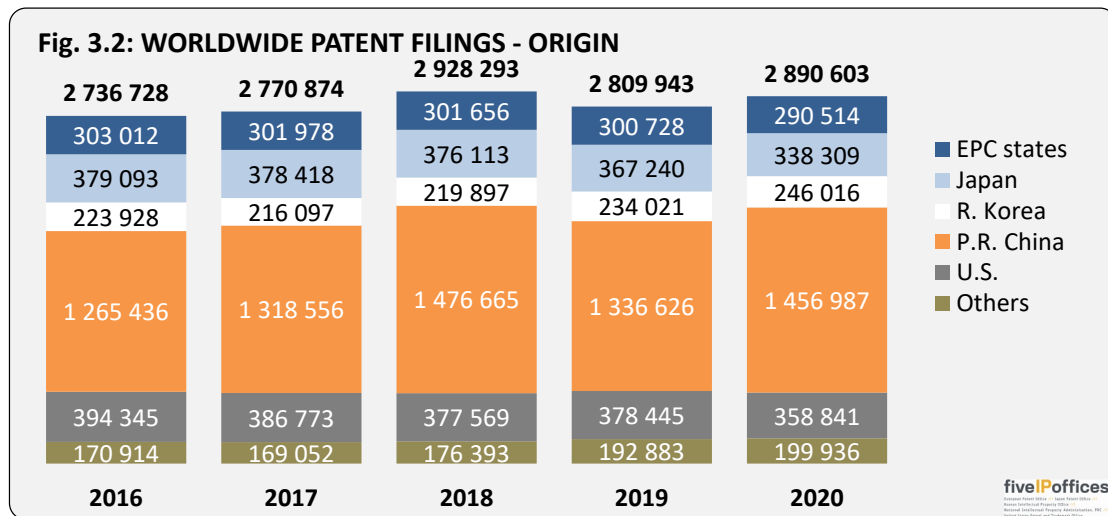
Fig. 3.1 shows a breakdown of patent filings according to the three types of filing procedures.



In 2020, the number of patent filings increased by 3 percent to 2.9 million. The number of direct national filings increased by 3 percent, while direct regional decreased by 3 percent and PCT international phase filings increased by 4 percent. Overall, 88 percent of the filings were made according to direct national procedures.

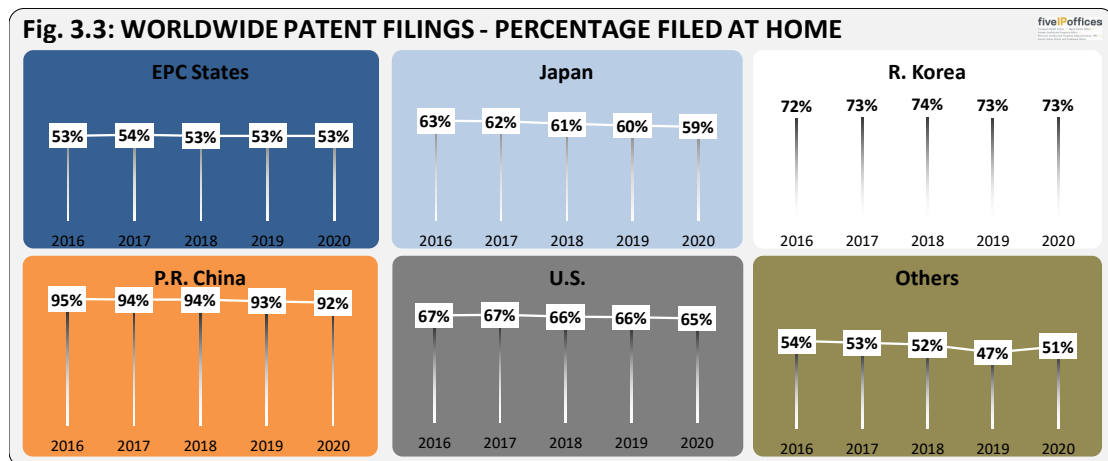
The contribution of the PCT system to filings will be discussed later in this chapter and in Chapter 5.

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).



Between 2016 to 2020, the IP5 Bloc's annual share remained stable at around 93 percent. In 2020, the number of patent filings increased by 3 percent. The number of patent filings that originated from and P.R. China and R. Korea increased by 9 percent and 5 percent respectively. Whereas, those originating from EPC states Japan and U.S. decreased by 3 percent, 8 percent and 5 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 2020 with 92 percent. Among the IP5 blocs, the EPC states had³⁴ the lowest proportion with 53 percent.

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

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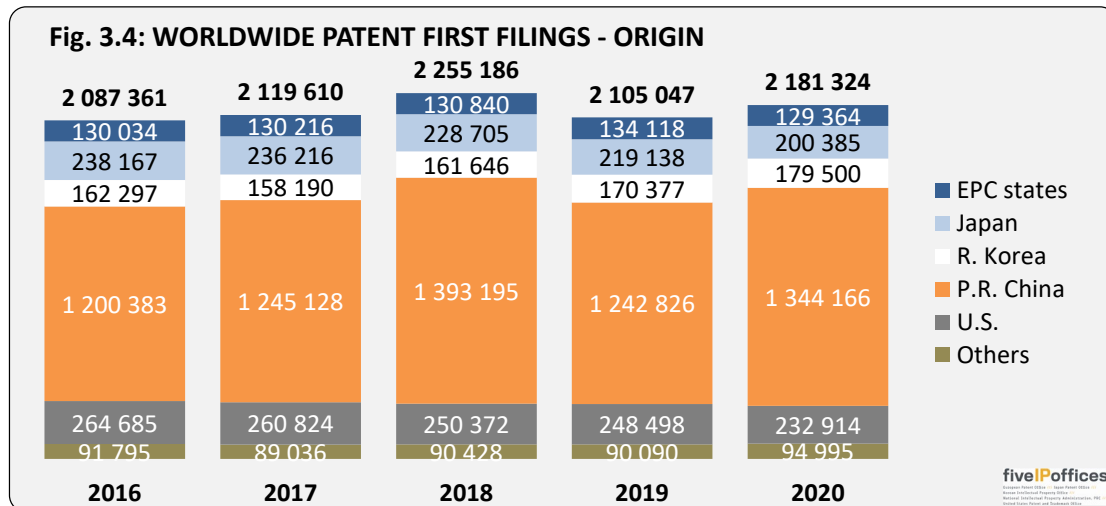
³⁴ For the purpose of reporting statistics for the EPC states considered as a bloc, a filing by a resident in an EPC state to another EPC state or to the EPO is considered to be filed within the bloc of origin. See the EPO section of Chapter 2 for a listing of the EPC states.

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 4 percent from 2019 to 2020. After a marked decline in 2019 first filings from P.R. China increased by 8 percent. First filings from R. Korea increased by 5 percent. First filings in EPC states, Japan and U.S. decreased by 4 percent, 9 percent and 6 percent respectively.

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 2020 between Fig. 3.2 and Fig. 3.4, it can be estimated that there are 709 279 subsequent filings, meaning that on average there were 0.34 subsequent filings per first filing made in 2019, assuming a one year delay ($709\,279 / 2\,105\,047 = 0.34$).

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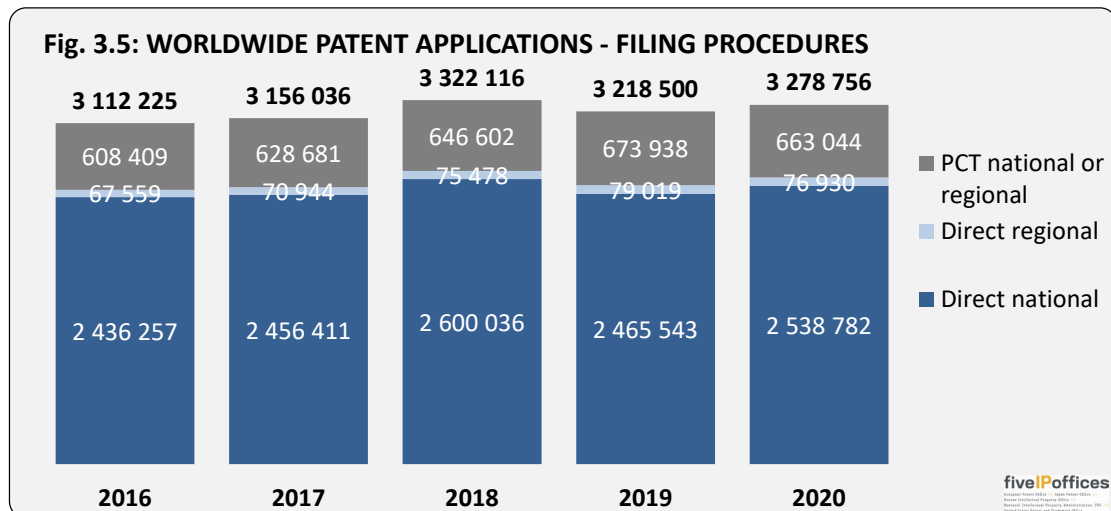
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PATENT APPLICATIONS

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 phase³⁵. 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.

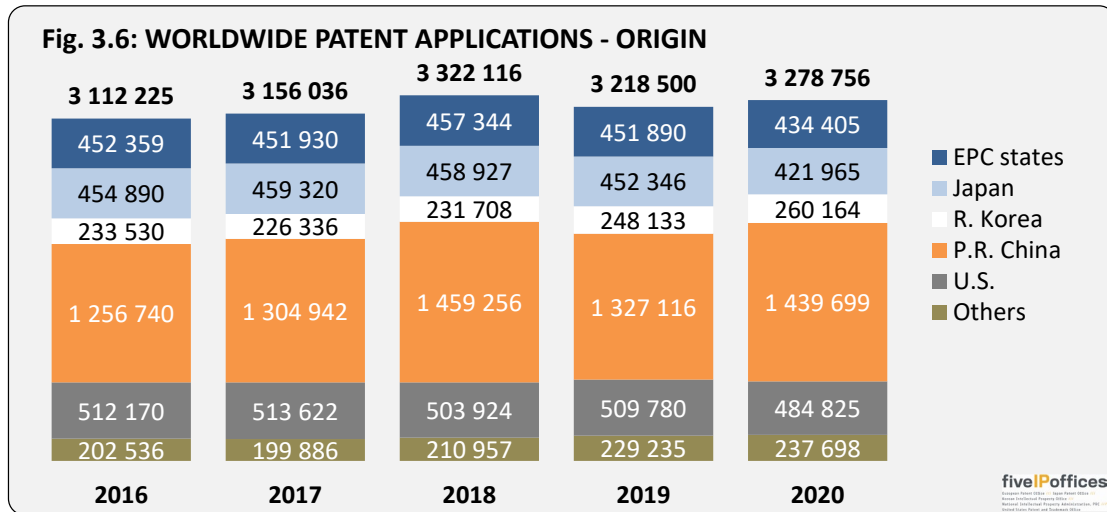


In 2020, nearly 3.3 million patent applications were filed worldwide. This represents 2 percent increase compared to 2019, but 1 percent lower than in 2018.

The number of direct national applications increased by 3 percent, while the number of direct regional decreased by 3 percent and the number of PCT national/regional applications decreased by 2 percent.

³⁵ 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.

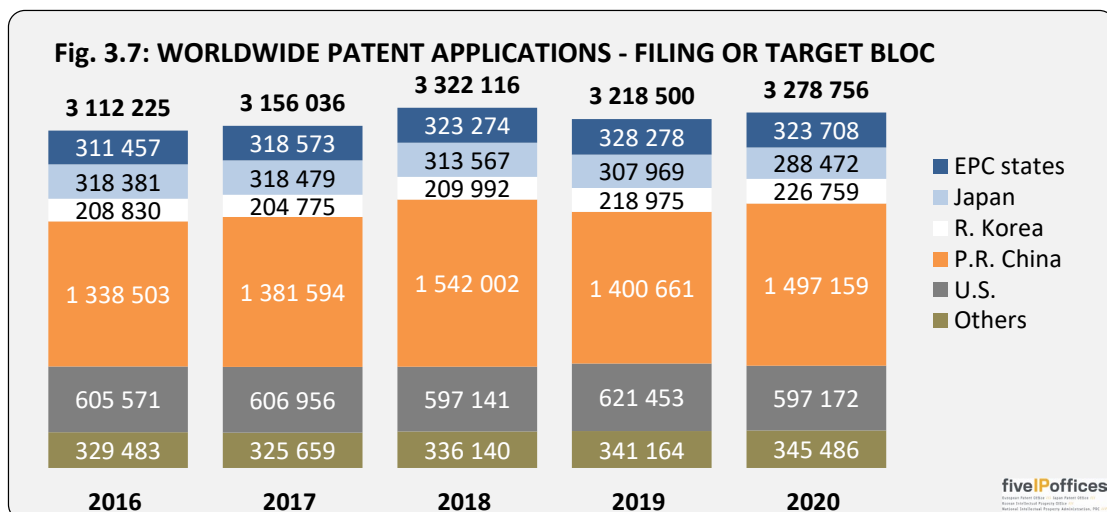
Fig. 3.6 shows the origins (residence of first-named applicants or inventors) of the worldwide patent applications of Fig. 3.5 entering a national or regional grant procedure.



In 2020, 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 2020 (8 percent). Also, the numbers of applications from the EPC states, Japan and U.S. decreased by 4 percent, 7 percent and 5 percent respectively while the numbers from R. Korea increased by 5 percent.

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 2020, applications decreased by 1 percent in EPC states, by 6 percent in Japan and by 4 percent in U.S. In P.R. China and R. Korea the number of patent applications increased 7 percent and 4 percent respectively.

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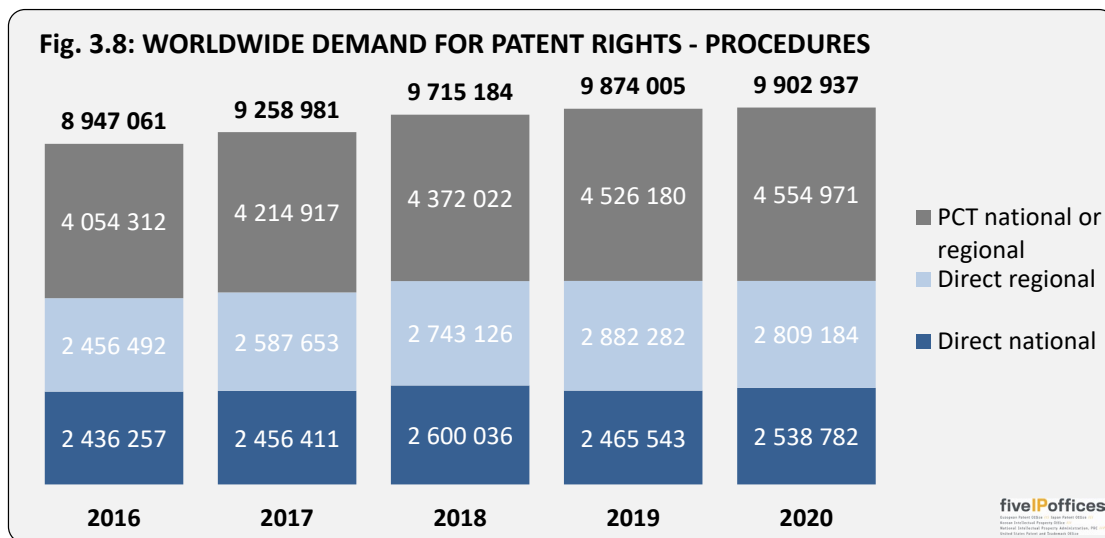
DEMAND FOR NATIONAL PATENT RIGHTS

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 systems³⁶.

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

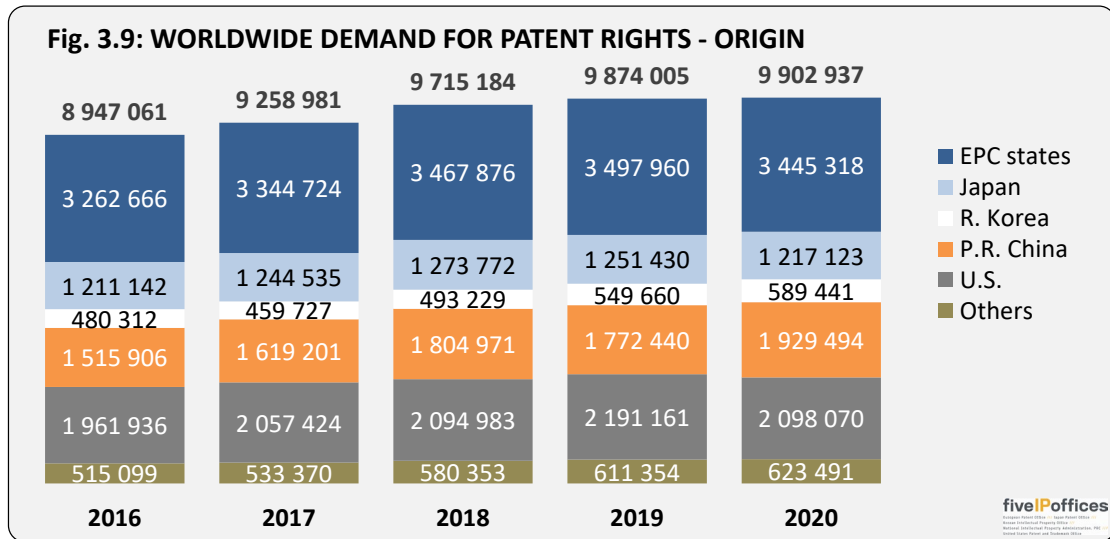


From 2019 to 2020, the worldwide demand for patent rights increased by less than 1 percent. In 2020, there was an increase in the use of direct national while PCT national or regional filing procedures noted in Figure 3.8, while the use of the direct regional procedures decreased by 3 percent.

Centralized filing procedures (PCT and direct regional) made up about 74 percent of the total demand in 2020. 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.

³⁶ At the end of 2020, 87 states were party to a regional patent system, ARIPO 18 (Harare Agreement), EAPC 8, EPC 38, GCCPO 6 and OAPI 17. Also at the end of 2020, 153 states were party to the PCT (156 end of July 2021). In addition, national patents can also be created in other states that have extension or validation agreements with the EPO (see Chapter 2).

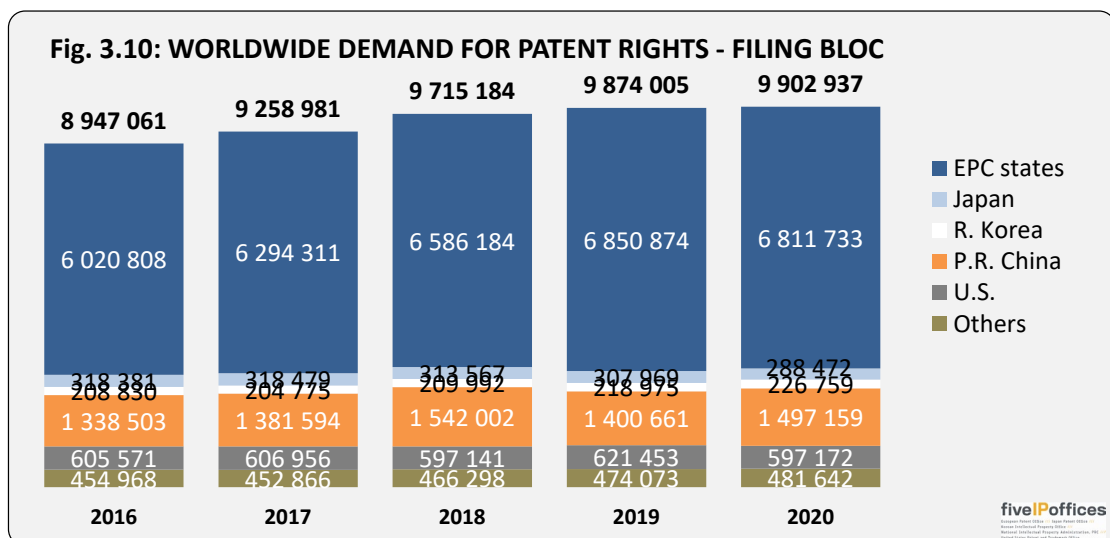
Fig. 3.9 shows the demand for national patent rights by blocs of origin (residence of first-named applicants or inventors) and is based on the same data as Fig. 3.8.



From 2019 to 2020, the worldwide demand for patent right increased less than 1 percent. Demand from EPC states, Japan and U.S. decreased by 2 percent, 3 percent and 4 percent. Demand from P.R. China and R. Korea increased by 9 percent, and 7 percent respectively.

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.

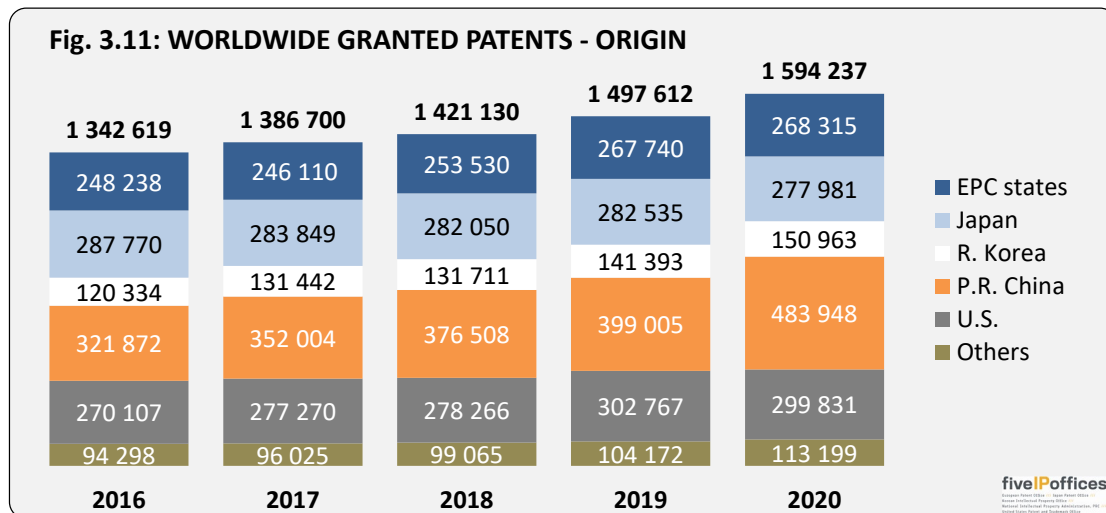


This chart illustrates the influence of regional patent systems. In 2020, the demand for national patent rights decreased in EPC states, Japan, and U.S by 1 percent, 6 percent and 4 percent respectively while that of in P.R. China and R. Korea increased by 7 percent and 4 percent.

GRANTED PATENTS

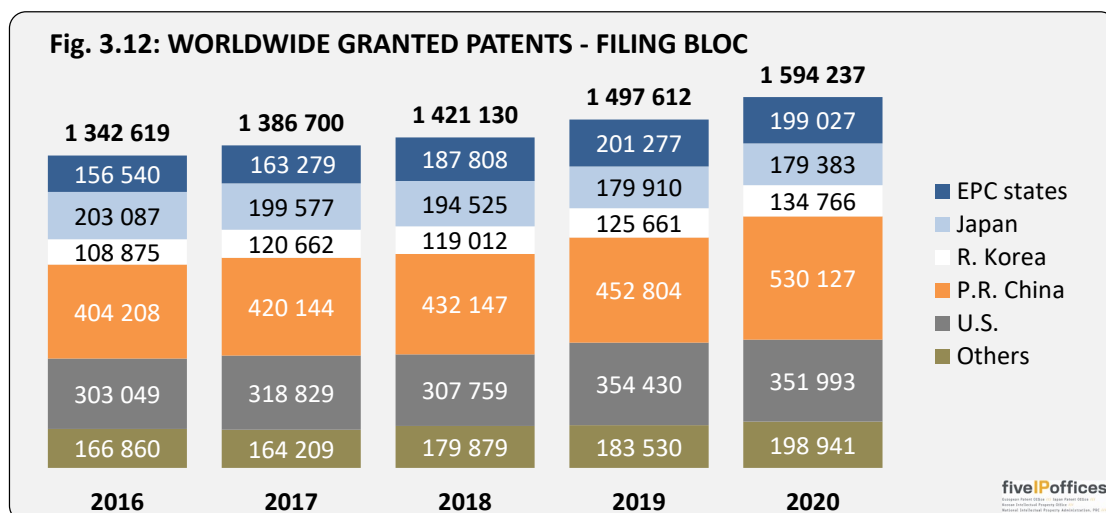
The development of the use of patents is shown in this section in terms of grants.

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 6 percent in 2020. Patents granted patent to residents in U.S. decreased by 1 percent, for Japan it decreased by 2 percent. For resident in R. Korea, granted patents increased by 7 percent and by 21 percent for residents in P.R. China. Patents granted for residents in EPC states increased by less than 1 percent.

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

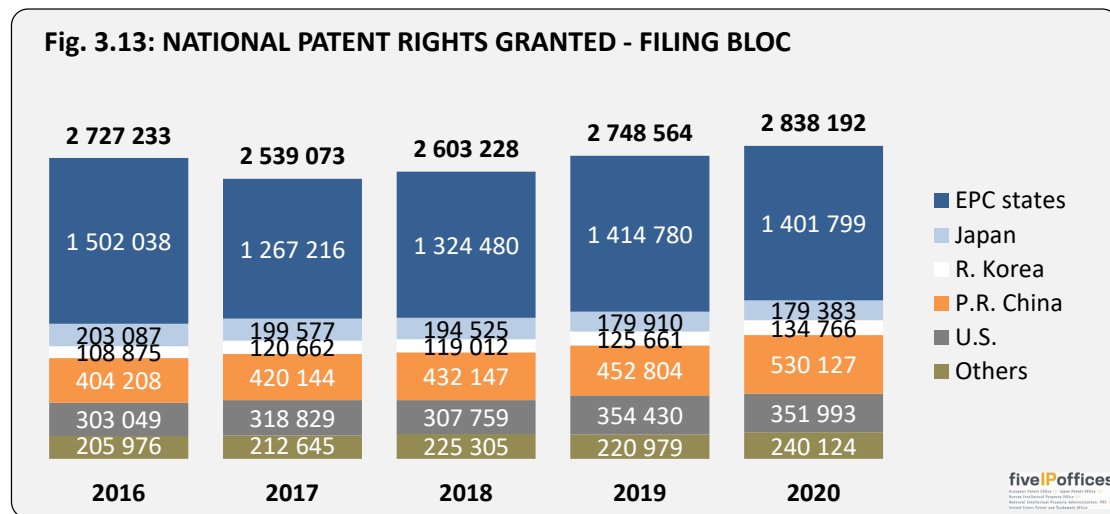


P.R. China had the largest percentage increase at 17 percent. The numbers of granted patents in EPC member states and in U.S. decreased by 1 percent. It increased by 7 percent in R. Korea. While in Japan, it decreased by less than 1 percent.

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 2020, more than 2.8 million patent rights were granted, which represents a 3 percent increase compared to 2019.

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 1 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.

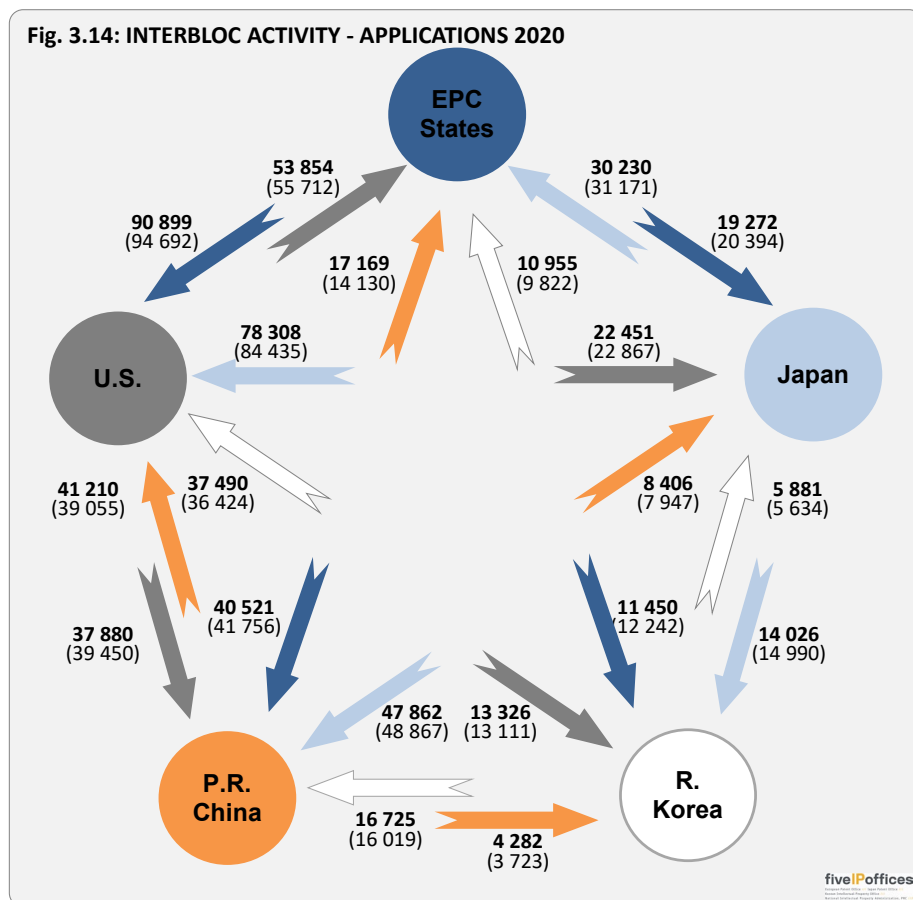
INTER-BLOC ACTIVITY

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 2020, with 2019 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 2020, the largest gap between blocs are between Japan and U.S., Japan and P.R. China and between EPC states and U.S.

In 2020, eleven of the twenty inter-bloc flows decreased to some extent. All flows from EPC states and Japan decreased. All flows from P.R. China and R. Korea increased. The flow from U.S. to Korea increased, the other flows from U.S. decreased.

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)³⁷ 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 2016 and 2017. 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: 2016

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 bloc	Any other IP5 bloc	EPC states	Japan	R. Korea	P.R. China	U.S.	Other countries	
EPC states	130 034	52 184 (40.1%)	50 845 (39.1%)		16 552 (12.7%)	10 278 (7.9%)	33 665 (25.9%)	45 718 (35.2%)	14 043 (10.8%)	7 153 (5.5%)
Japan	238 167	67 680 (28.4%)	65 955 (27.7%)	25 342 (10.6%)		14 816 (6.2%)	42 090 (17.7%)	55 959 (23.5%)	13 481 (5.7%)	6 308 (2.6%)
R. Korea	162 297	25 202 (15.5%)	24 901 (15.3%)	8 536 (5.3%)	5 030 (3.1%)		14 570 (9.0%)	22 221 (13.7%)	2 670 (1.6%)	2 885 (1.8%)
P.R. China	1 200 383	24 914 (2.1%)	23 200 (1.9%)	10 037 (0.8%)	4 748 (0.4%)	2 949 (0.2%)		21 332 (1.8%)	5 280 (0.4%)	1 907 (0.2%)
U.S.	264 685	85 564 (32.3%)	77 861 (29.4%)	64 636 (24.4%)	28 072 (10.6%)	19 398 (7.3%)	53 726 (20.3%)		38 621 (14.6%)	12 346 (4.7%)
IP5 blocs subtotal	1 995 566	255 544 (12.8%)	242 762 (12.2%)	108 551 (5.4%)	54 402 (2.7%)	47 441 (2.4%)	144 051 (7.2%)	145 230 (7.3%)	74 095 (3.7%)	30 599 (1.5%)
Others	91 795	17 972 (19.6%)	17 148 (18.7%)	6 411 (7.0%)	2 966 (3.2%)	1 473 (1.6%)	6 924 (7.5%)	14 764 (16.1%)		905 (1.0%)
Globla total	2 087 361	273 516 (13.1%)	259 910 (12.5%)	114 962 (5.5%)	57 368 (2.7%)	48 914 (2.3%)	150 975 (7.2%)	159 994 (7.7%)	74 095 (3.5%)	31 504 (1.5%)

Year of priority: 2017

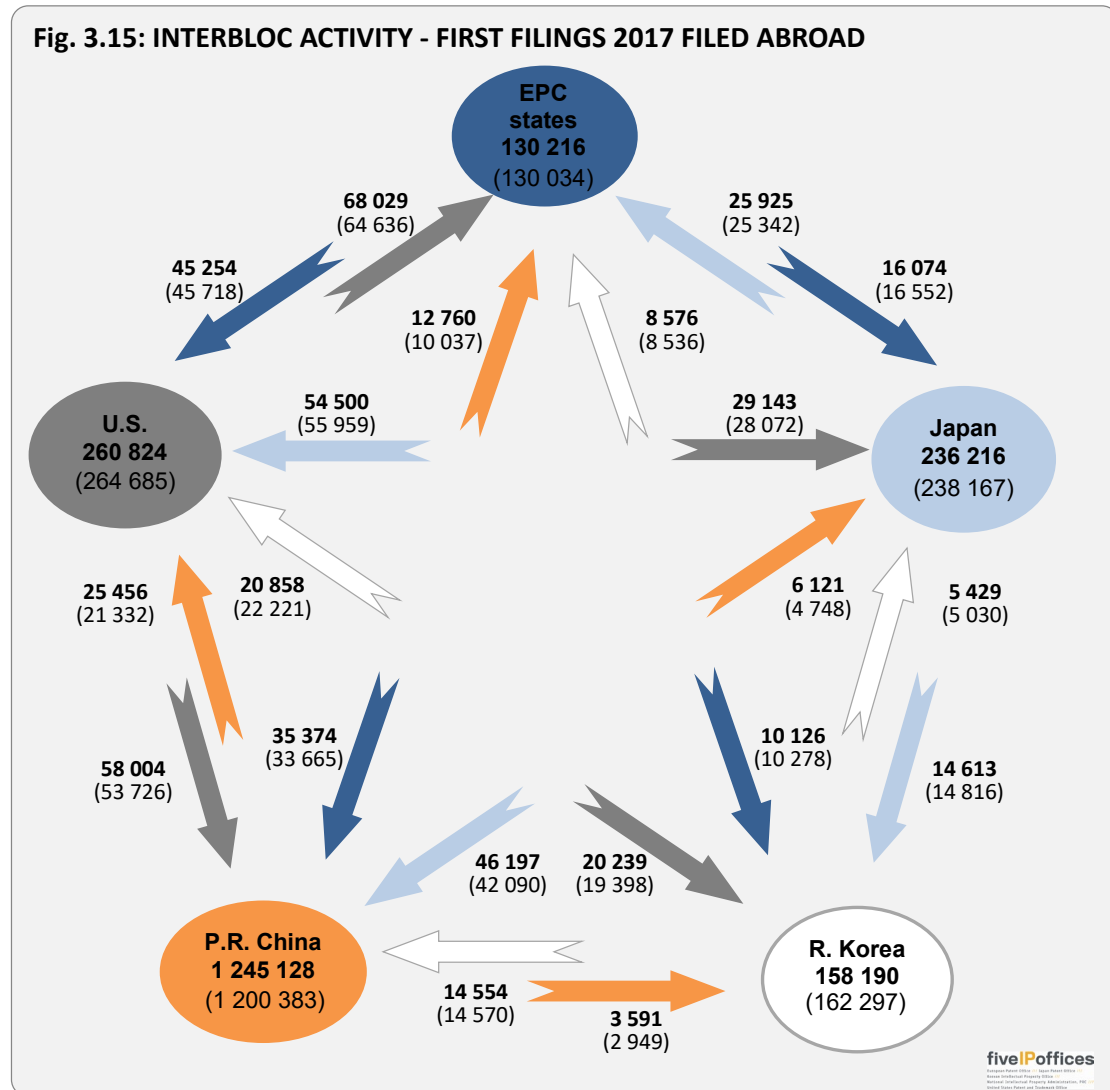
Bloc of origin from which priority is claimed	First filings in bloc of origin	Flows to subsequent filings								IP5 Patent Families from bloc of origin
		First filings in bloc of origin leading to priority claims in filings in:								
		Any other bloc	Any other IP5 bloc	EPC states	Japan	R. Korea	P.R. China	U.S.	Other countries	
EPC states	130 216	52 961 (40.7%)	51 628 (39.6%)		16 074 (12.3%)	10 126 (7.8%)	35 374 (27.2%)	45 254 (34.8%)	13 653 (10.5%)	6 758 (5.2%)
Japan	236 216	69 531 (29.4%)	67 586 (28.6%)	25 925 (11.0%)		14 613 (6.2%)	46 197 (19.6%)	54 500 (23.1%)	13 932 (5.9%)	5 931 (2.5%)
R. Korea	158 190	23 749 (15.0%)	23 506 (14.9%)	8 576 (5.4%)	5 429 (3.4%)		14 554 (9.2%)	20 858 (13.2%)	2 617 (1.7%)	3 095 (2.0%)
P.R. China	1 245 128	31 211 (2.5%)	29 528 (2.4%)	12 760 (1.0%)	6 121 (0.5%)	3 591 (0.3%)		25 456 (2.0%)	6 649 (0.5%)	2 210 (0.2%)
U.S.	260 824	89 555 (34.3%)	81 903 (31.4%)	68 029 (26.1%)	29 143 (11.2%)	20 239 (7.8%)	58 004 (22.2%)		38 096 (14.6%)	13 073 (5.0%)
IP5 blocs subtotal	2 030 574	267 007 (13.1%)	254 151 (12.5%)	115 290 (5.7%)	56 767 (2.8%)	48 569 (2.4%)	154 129 (7.6%)	146 068 (7.2%)	74 947 (3.7%)	31 067 (1.5%)
Others	89 036	18 214 (20.5%)	17 210 (19.3%)	6 738 (7.6%)	3 192 (3.6%)	1 739 (2.0%)	7 716 (8.7%)	14 764 (16.6%)		1 137 (1.3%)
Globla total	2 119 610	285 221 (13.5%)	271 361 (12.8%)	122 028 (5.8%)	59 959 (2.8%)	50 308 (2.4%)	161 845 (7.6%)	160 832 (7.6%)	74 947 (3.5%)	32 204 (1.5%)

Source: EPO DOCDB Database

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 2017. The flow figures between

³⁷ 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).

blocs of origin and target blocs indicate the numbers of 2017 first filings from the bloc of origin that led to subsequent filings in the target bloc. The comparable figures for 2016 are given in parentheses.



From information in Table 3, out of all first filings in the IP5 Blocs in 2017 (2 030 574), 13 percent formed patent families that included at least one of the remaining IP5 Blocs (254 151). Proceeding to a higher degree of selectivity, only 2 percent of all first filings in the IP5 Blocs in 2017 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 2017 differed considerably according to the bloc of origin of the first filings, as can be seen in Table 3 (EPC states 5.2 percent, U.S. 5.0 percent, Japan 2.5 percent, R. Korea 2.0 percent, P.R. China 0.2 percent and for Others 1.3 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 2017 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 2017. 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 22.6 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: 2017 PATENT FAMILIES - PERCENTAGES OF FIRST FILINGS WITH SUBSEQUENT FILINGS IN OTHER IP5 BLOCS



First filings in	EPC states offices* 130 216	Japan (JPO) 236 216	R.Korea (KIPO) 158 190	P.R.China (CNIPA) 1 245 128	U.S. (USPTO) 260 824
Bilateral families with subsequent filings in					
EPC states	-	11.0%	5.4%	1.0%	26.1%
Japan	12.3%	-	3.4%	0.5%	11.2%
R. Korea	7.8%	6.2%	-	0.3%	7.8%
P.R. China	27.2%	19.6%	9.2%	-	22.2%
U.S.	34.8%	23.1%	13.2%	2.0%	-
Three bloc families with subsequent filings in					
EPC states & Japan	-	-	2.2%	0.4%	10.0%
EPC states & R. Korea	-	2.9%	-	0.2%	6.6%
EPC states & P.R. China	-	8.7%	4.3%	-	17.6%
EPC states & U.S.	-	9.6%	5.1%	0.8%	-
Japan & R. Korea	5.9%	-	-	0.2%	5.8%
Japan & P.R. China	10.8%	-	2.8%	-	9.4%
Japan & U.S.	11.3%	-	3.0%	0.4%	-
R. Korea & U.S.	6.9%	4.3%	-	0.2%	-
P.R. China & R. Korea	7.2%	5.6%	-	-	7.0%
P.R. China & U.S.	22.6%	14.8%	7.8%	-	-
Four bloc families with subsequent filings in					
EPC states & Japan & R. Korea	-	-	-	0.2%	5.3%
EPC states & Japan & P.R. China	-	-	2.0%	-	8.7%
EPC states & Japan & U.S.	-	-	2.1%	0.3%	-
EPC states & R. Korea & P.R. China	-	2.7%	-	-	6.1%
EPC states & R. Korea & U.S.	-	2.6%	-	0.2%	-
EPC states & P.R. China & U.S.	-	7.8%	4.2%	-	-
Japan & R. Korea & P.R. China	5.6%	-	-	-	5.5%
Japan & R. Korea & U.S.	5.5%	-	-	0.2%	-
Japan & P.R. China & U.S.	10.0%	-	2.5%	-	-
P.R. China & R. Korea & U.S.	6.4%	3.9%	-	-	-
IP5 families	5.2%	2.5%	2.0%	0.2%	5.0%

* EPO or EPC states national offices

From Fig. 3.16 and Table 3, the 2017 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. (34.8 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.

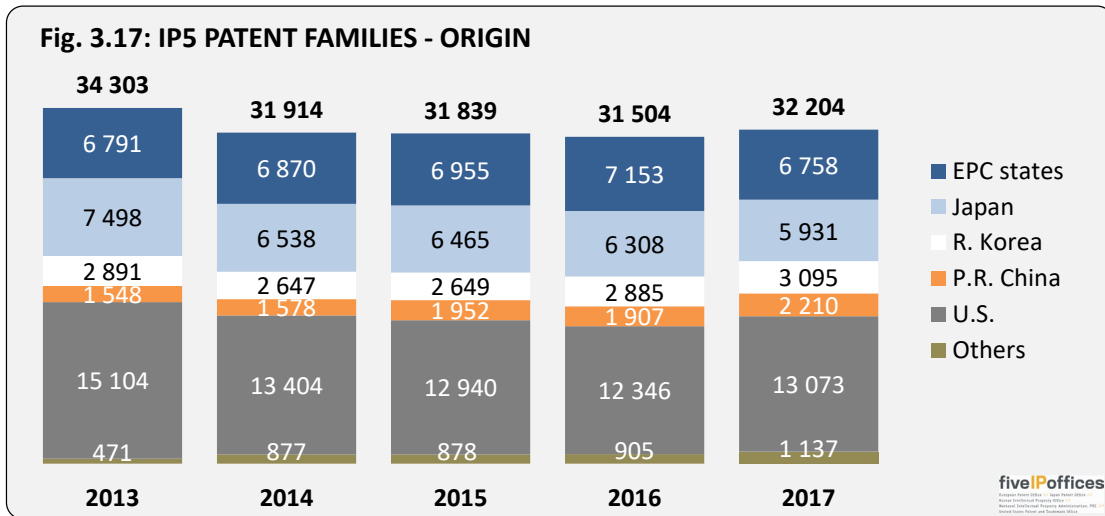
For the first filings in Japan, the largest percentage of subsequent applications is directed to the U.S. (23.1 percent) and P.R. China is the next largest (19.6 percent), while the EPC states is 10.6 percent.

For the first filings in R. Korea, as with the other blocs, the percentage of subsequent applications filed in the U.S. (13.2 percent) is the largest, followed by P.R. China (9.2 percent). The percentage of subsequent applications filed in the EPC member states is 5.4 percent.

For the first filings in P.R. China, the percentage of subsequent applications filed in the U.S. (2.0 percent) is the largest. The percentage filed in the EPC member states is the next largest (1.0 percent), while in the Japan is 0.5 percent. 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 2016 and the 2016 data in Table 3 (23 200 compared to 29 528, respectively).

Among the first filings in the U.S., the highest percentage flows to the EPC member states (26.1 percent). The percentage filed in the P.R. China (22.2 percent) is the next highest, while filings in Japan and R. Korea are at 11.2 percent and 7.8 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 2017 was 32 204 of which 41 percent were from the U.S., 21 percent were from the EPC states, 18 percent were from Japan, 10 percent were from R. Korea, 7 percent were from P.R. China, and 3 percent were from Others.

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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 lag by one year, most of the information that appears here includes data for last year³⁸. 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 applications³⁹. 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](#).

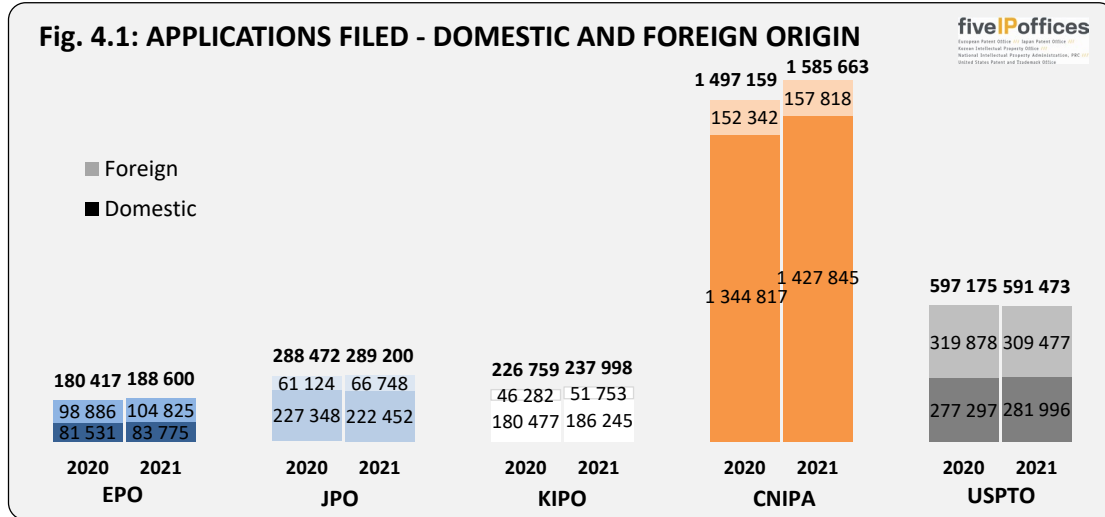
³⁸ The statistical tables file found in the web version of this report includes extended time series for much of the data included in this chapter. www.fiveipoffices.org/statistics/statisticsreports

³⁹ See the section "Guide to figures in Chapter 3" at the beginning of Chapter 3.

PATENT APPLICATIONS FILED

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 2021, a total of 2 892 934 patent applications were filed at the IP5 Offices, an increase of 4 percent from 2020 (2 789 982).

Patent applications increased by 6 percent at the CNIPA, and by 5 percent at the EPO and the KIPO, by less than 1 percent at the JPO, and the USPTO applications decreased by 1 percent.

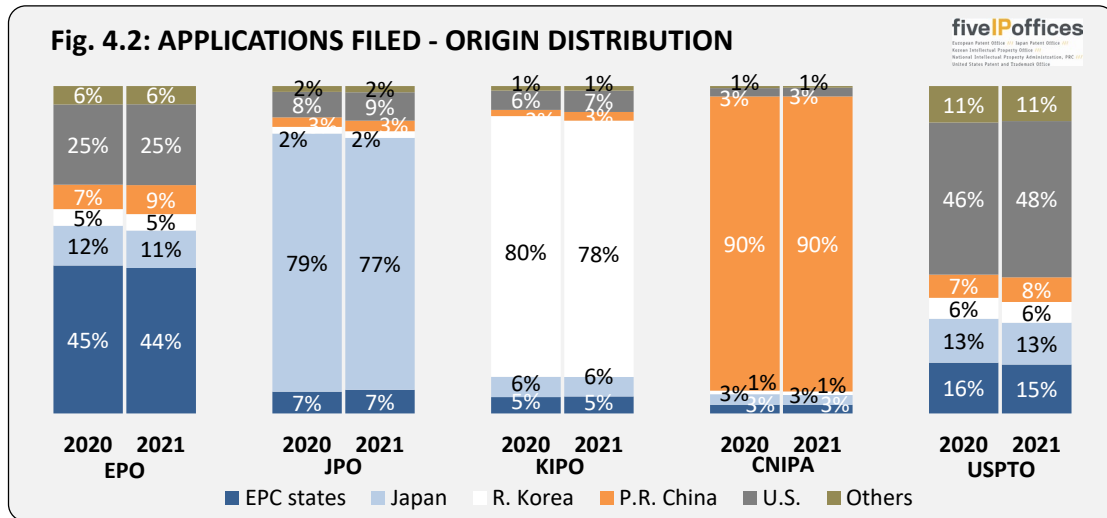
While domestic applications increased at the EPO, CNIPA, KIPO and USPTO by 3, 6, 3 and 2 percent, domestic applications at the JPO decreased by 2 percent. Foreign applications increased at the EPO, CNIPA, JPO and KIPO and decreased at the USPTO.

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 2020.

Table 4.1: 2021 APPLICATIONS FILED – ORIGIN

Office Origin	EPO	JPO	KIPO	CNIPA	USPTO	Total
EPC States	83 775	20 895	12 453	42 548	88 324	247 995
Japan	21 681	222 452	14 165	47 010	75 889	381 197
R. Korea	9 394	5 936	186 245	17 691	37 092	256 358
P.R. China	16 665	9 369	6 300	1 427 845	44 865	1 505 044
U.S.	46 533	24 999	15 508	42 266	281 996	411 302
Others	10 552	5 549	3 327	8 303	63 307	91 038
Total	188 600	289 200	237 998	1 585 663	591 473	2 892 934

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 2020 and 2021.



The shares of patent application filings by bloc of origin vary between Offices, but are generally consistent for 2020 and 2021 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 2021, an application filed at the EPO contained 15.4 claims, (15.1 in 2020) while an application filed at the JPO contained an average of 12.1 claims (11.4 in 2020), and an application filed at the KIPO contained an average of 11.3 claims (11.2 in 2020). At the CNIPA, an application contained an average of 10.1 claims (9.7 in 2020), while one filed at the USPTO had 18.1 claims (17.8 in 2020) on average.

See the annexed statistical tables for longer trends.

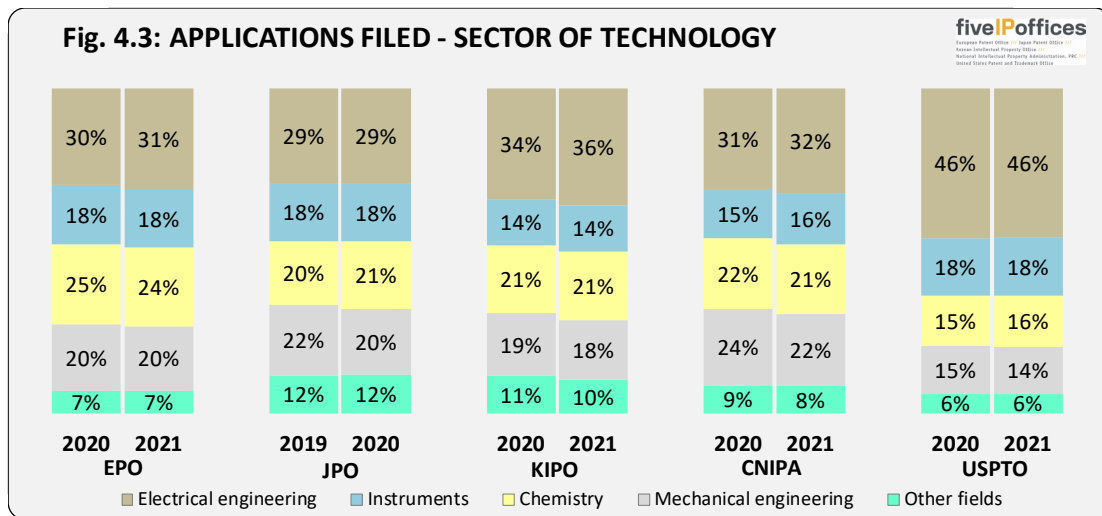
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SECTORS AND FIELDS OF TECHNOLOGY

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 sectors⁴⁰. 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 2020 and 2021, while for the JPO the breakdown is given for the filing years 2019 and 2020⁴¹.



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.

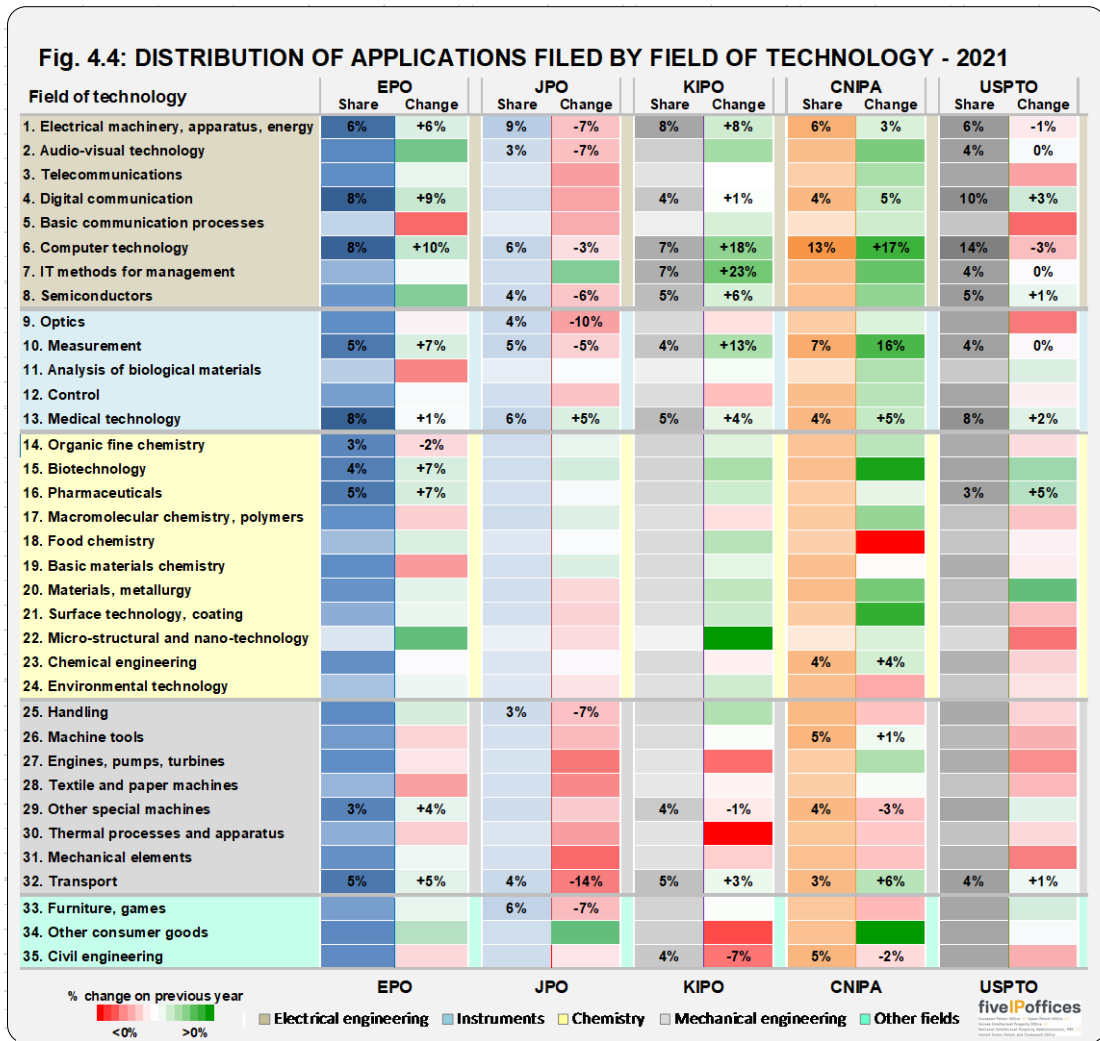
Fig. 4.4 describes the distribution of the 2021⁴² applications by the more detailed fields of technology at each office (left column for each IP5 Office), and the change in application counts compared to 2020 (right column). Actual shares and percentage changes in application counts are shown for the 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.

⁴⁰ 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

⁴¹ JPO data are delayed by 1 year 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 add tot 100 due to rounding.

⁴² In the case of JPO data for 2020 are reported and compared to data for 2019.



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

Six of the leading fields at the USPTO, five of the leading fields at the KIPO and four of the leading fields at CNIPA 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.

The highest shares in a field can be found in 6. *Computer technology* receiving 14 percent of all applications at the USPTO and 13 percent at the CNIPA.

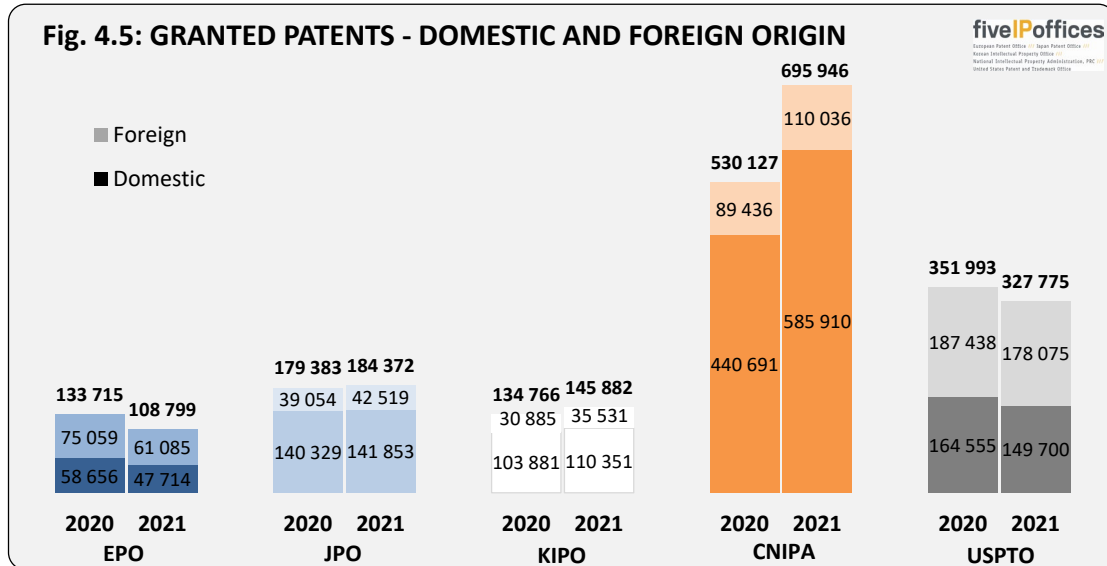
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GRANTED PATENTS

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 1 462 774 patents in 2021. This was 132 790 more than in 2020 and represents an increase of 10 percent.

The numbers of granted patents increased in 2021 at the JPO, the KIPO and the CNIPA by 3, 8 and 31 percent. In contrast, the number of granted patents decreased at the EPO and the USPTO by 19 and 7 percent.

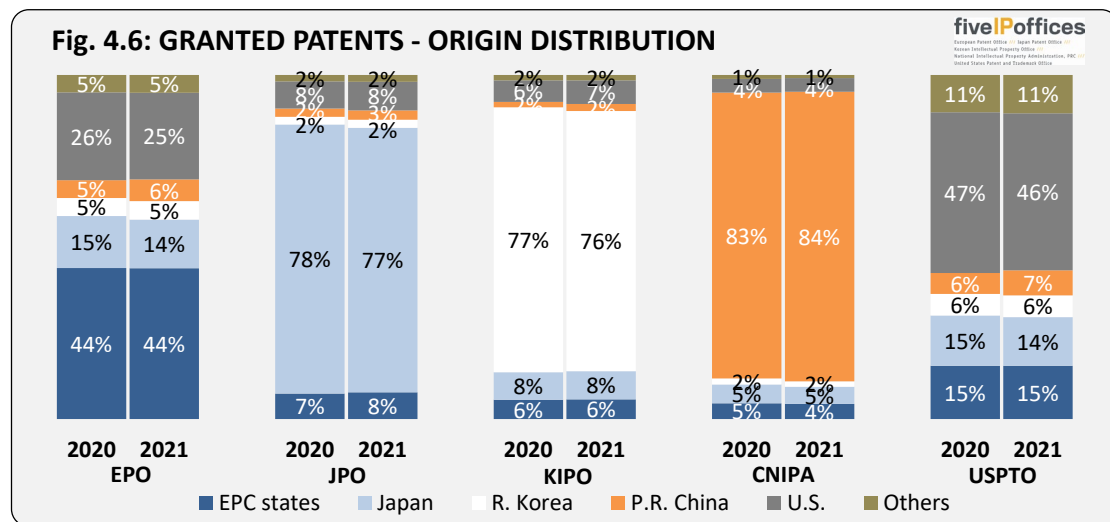
The differences between the IP5 Offices regarding the absolute numbers of granted patents can only be partly explained by differences in the numbers of corresponding applications. These numbers are also affected by differing grant rates and durations to process applications by the IP5 Offices (see the 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 2021.

Table 4.2: 2021 GRANTED PATENTS – ORIGIN

Office Origin	EPO	JPO	KIPO	CNIPA	USPTO	Total
EPC States	47 714	14 297	8 342	30 248	50 603	151 204
Japan	15 395	141 853	11 905	34 853	46 472	250 478
R. Korea	5 806	4 325	110 351	11 086	20 764	152 332
P.R. China	6 864	4 902	2 999	585 910	23 745	624 420
U.S.	27 424	15 347	10 041	27 843	149 700	230 355
Others	5 596	3 648	2 244	6 006	36 491	53 985
Total	108 799	184 372	145 882	695 946	327 775	1 462 774

Fig. 4.6 shows the shares of granted patents by origin (residence of first-named owner or inventor) at each office for 2020 and 2021.



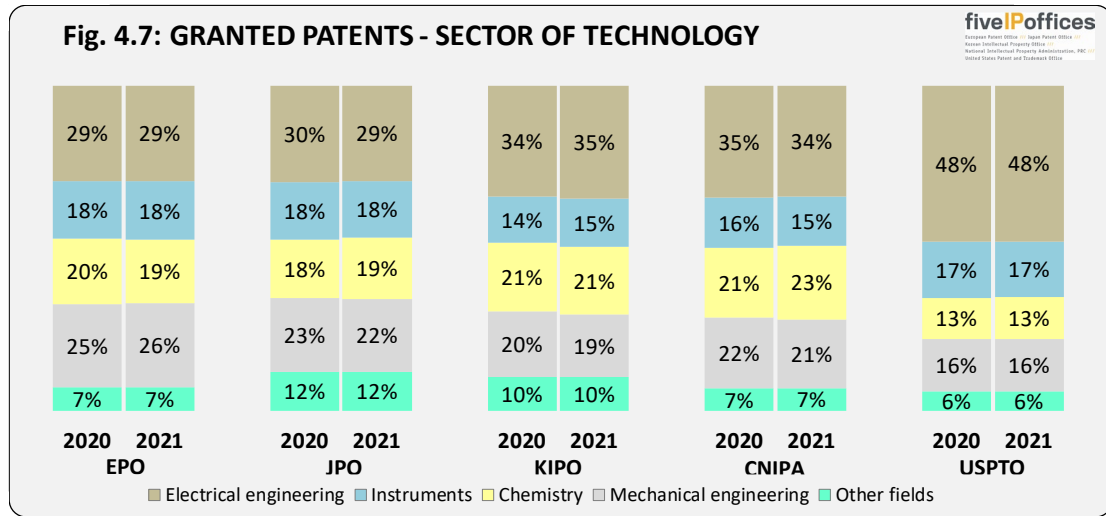
At all offices, the distribution of granted patents is comparable to the distribution of applications that is shown in Fig. 4.2. For CNIPA, the share of domestic patents is slightly lower than the share of domestic applications, which can be partially explained by the strong growth in domestic applications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

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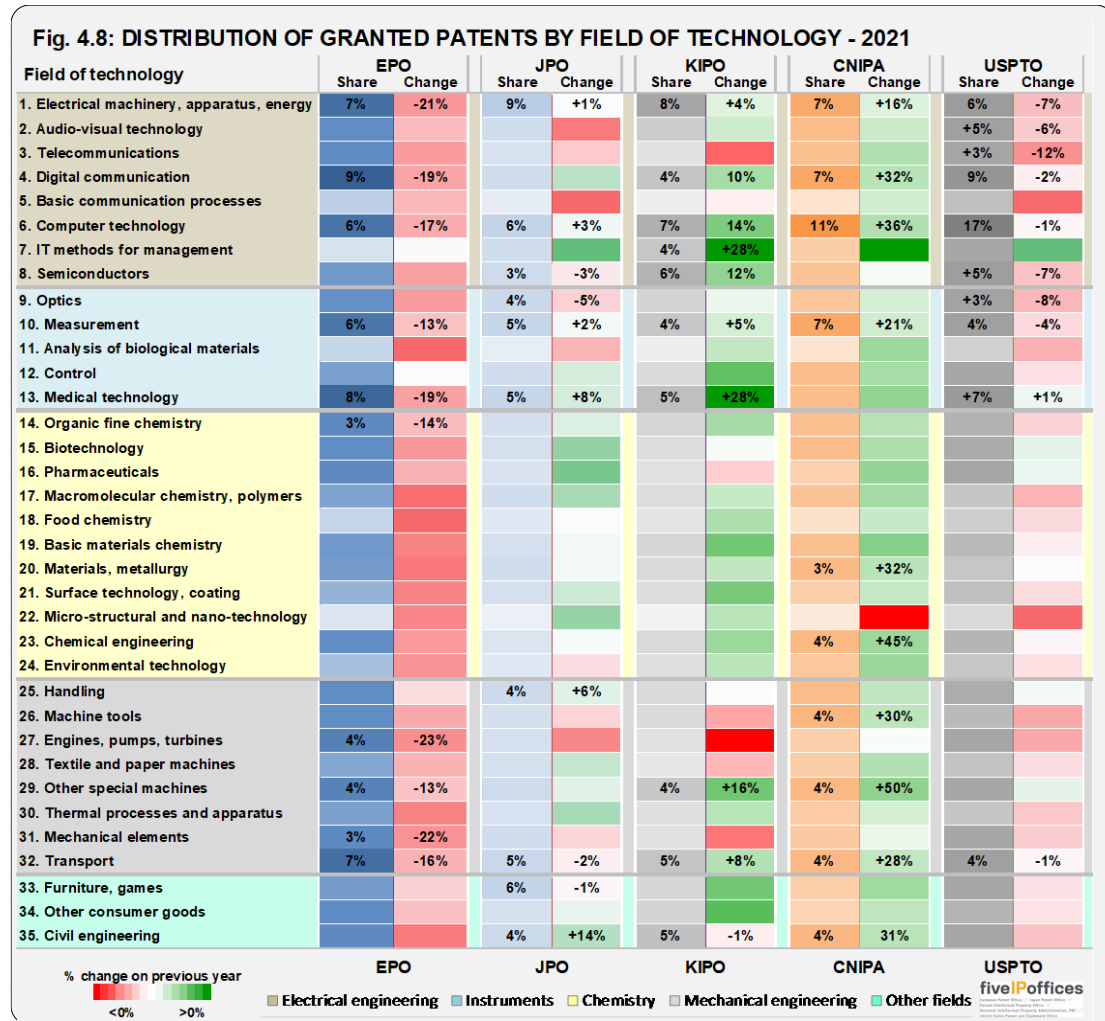
SECTORS AND FIELDS OF TECHNOLOGY

Fig. 4.7 shows the distribution of the granted patents in 2020 and 2021 at each office according to the five main sectors of technology.



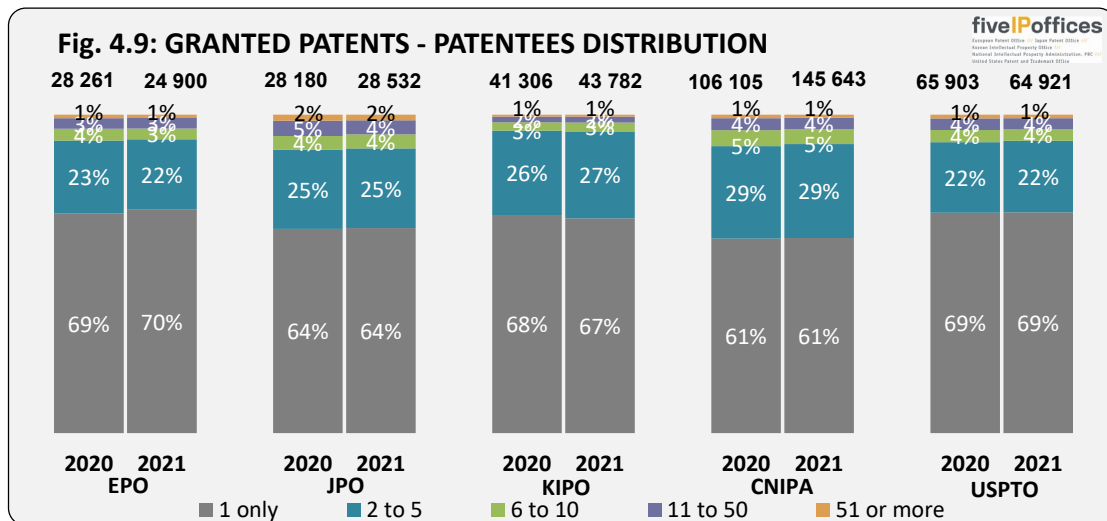
The distribution of granted patents by sectors is fairly consistent with that shown in Fig. 4.3 for applications. At the EPO, the share of Chemistry in granted patents is lower than the share in applications, and the share of Mechanical engineering is higher than in applications.

Fig.4.8 describes the distribution of the 2021 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 2020 (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 31. Mechanical elements 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 the leading fields for granted patents and applications tend to be similar. At the CNIPA, 6. Computer technology, 20. Material, metallurgy 23. Chemical engineering, 26 Machine tools, 32. Transport and 35. Civil engineering are leading fields in granted patents but not in applications. At the USPTO 3. Telecommunications is leading field in granted patents but not in applications.

Fig. 4.9 shows the breakdown of patentees by their numbers of granted patents in 2020 and 2021.



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 2020 and 2021 for each office. See the annexed statistical tables for longer term trends. These distributions are stable over the period.

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 2021, the proportion was between 61 percent (CNIPA) and 70 percent (EPO). The proportion of patentees that received less than six patents was between 89 percent for the JPO and 95 percent for the KIPO. The proportion of patentees receiving 11 or more patents was higher at the JPO (6 percent) than at the USPTO (5 percent), at the EPO (4 percent), at the CNIPA (5 percent), and at the KIPO (3 percent).

In 2021, the average number of granted patents received remained unchanged for most offices when comparing 2021 to 2020. The numbers were four for the EPO, six at the JPO, three at the KIPO, five at the CNIPA, and five at the USPTO. The greatest number of patents granted to a single applicant was 2 179 at the EPO, 3 680 at the JPO, 5 424 at the KIPO, 7 629 at the CNIPA, and 8 672 at the USPTO. This maximum number for 2021 was larger than for 2020 at the KIPO, the CNIPA, and the USPTO.

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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.

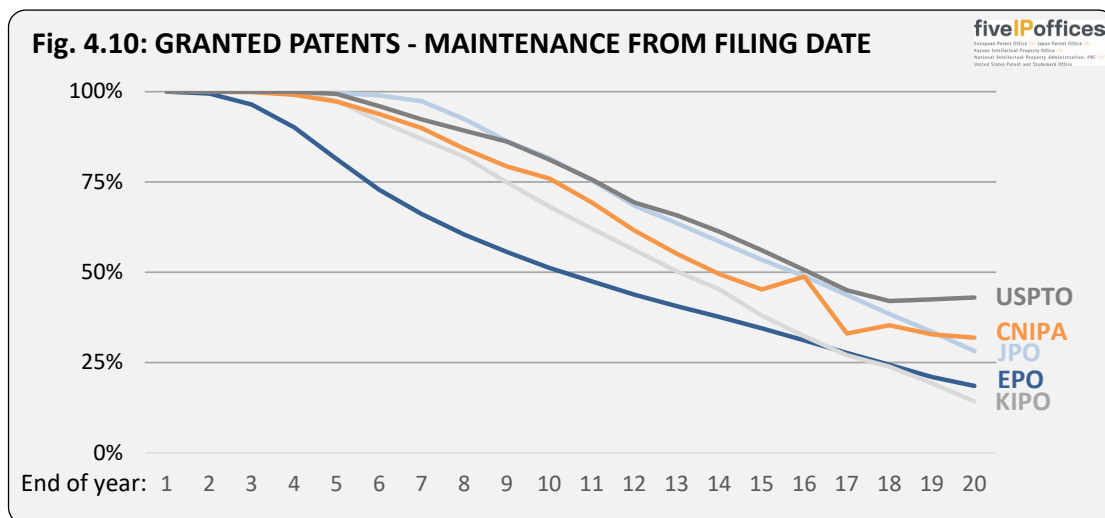
At the EPO, annual renewal fees are payable at the beginning of the year from the third year after filing in order to maintain the application. After the patent has been granted, renewal fees are then paid to the national office of each designated EPC contracting state in which the patent has been registered. 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 states⁴³.



At the USPTO, 43 percent of the granted patents are maintained for a full 20 years from filing. This compared to 28 percent at the JPO, 32 percent at the CNIPA, 18 percent at the EPO, and 14 percent at the KIPO.

More than 50 percent of the USPTO granted patent is maintained for at least 16 years, compared to 15 years at the JPO, 13 years at the CNIPA, 13 years at the KIPO and 10 years at the EPO.

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.

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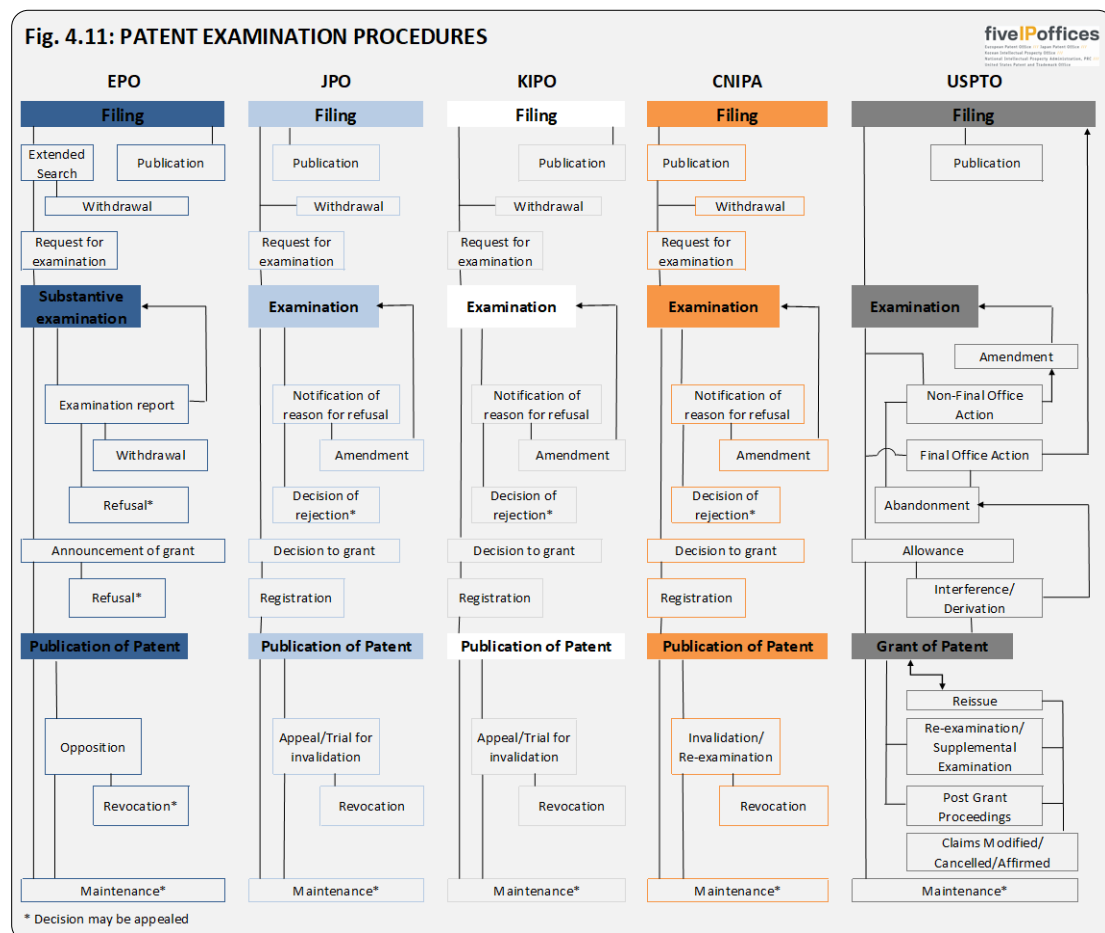
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⁴³ Once granted by the EPO, European patents need to be validated to come into force in the various member states that are designated at the time of grant.

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 page⁴⁴.

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⁴⁴ See www.fiveipoffices.org/statistics/statisticaldata 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 2020 and 2021. 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 measurement begins at the date of initial filing and ends upon completion of either 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 JPO, KIPO, and CNIPA measure from the request for examination. Rather than measuring average pendency, in 2021 the USPTO has transitioned to a compliance rate based on compliance with a 14 month goal between filing and the mailing of the first office action, in accordance with its statutory mandate.
- 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). Rather than measuring average pendency, in 2021 the USPTO has transitioned to a compliance rate based compliance with a 36 month goal between filing and mailing of a final office action, in accordance with its statutory mandate.

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 THE 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	2020	94.3	73.1	84.5	89.1	100.0
	2021	95.1	73.3	85.2	n.a	100.0
Grant	2020	64.5	74.4	72.2	48.9	77.8
	2021	62.7	74.8	74.0	55.0	79.2
Opposition	2020	2.4	0.6	-	-	n.a
	2021	2.5	0.7	-	-	n.a
Appeal on examination	2020	12.3	30.6	4.4	13.0	2.0
	2021	12.3	29.9	4.7	n.a	1.6

Pendency	Year	EPO	JPO	KIPO	CNIPA	USPTO
Awaiting request for examination	2020	100 708	589 694	238 252	207 422	-
	2021	109 920	556 500	192 153	315 652	-
Pending examinations	2020	320 961	179 341	206 957	2 360 652	602 777
	2021	343 667	181 409	252 431	2 650 405	666 206
Pendency first action (months)	2020	4.3	10.1	11.1	14.4	n.a
	2021	4.8	10.1	12.2	12.5	n.a
Pendency final action (months)	2020	23.7	14.8	15.8	20.0	n.a
	2021	23.0	15.3	16.0	18.5	n.a
Pendency invalidaiton (months)	2020	-	12.5	-	5.9	-
	2021	-	14.1	-	5.8	-

n.a = not available; - not applicable

RATES

The examination rate at the USPTO is 100 percent, since filing a non-provisional patent application at the USPTO 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 JPO, the KIPO, The CNIPA and the USPTO increased between 2020 and 2021. At the EPO the grant rate decreased between 2020 and 2021.

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 5.3 million applications were pending (i.e. awaiting request for examination or pending examination) in the IP5 Offices at the end of 2021.

The total number of applications pending at the IP5 Offices increased by 9.6 percent between 2020 and 2021. Pending applications decreased at the JPO and the KIPO, increased at the EPO, the CNIPA and the USPTO between 2020 and 2021.

The pendency to first action decreased at the CNIPA, while it increased at the EPO, and the KIPO and remained stable at the JPO. The pendency to final action decreased at the CNIPA and the EPO and increased marginally.

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.

Unlike the other IP5 offices, the USPTO does not have a request for examination step. As a result, the USPTO does not have pendency metrics that would be comparable to the other IP5 offices. See Fig 4.12 below and [Annex 2](#) for further explanation.

At all IP5 Offices, various options to initiate a faster examination are available.

Fig. 4.12: OFFICES PROCESS TO FIRST AND FINAL ACTIONS

Action	Office	Filing	Formalities	Search Report as 1st Action*	Request for examination	1st Examiner Action	Grant/Abandonment Decision	Remarks
1st action								
	EPO	→		4.8				Standard EP cases (i.e. excl. non-unity, clarification req, incomplete search)
	JPO				→	10.1		
	KIPO				→	12.2		
	CNIPA				→	12.5		
	USPTO	→						
Final action								
	EPO				→	23.0	Grant	Standard cases (i.e. excl. late payment, req for time extension, rescheduled oral proc.)
	JPO				→	15.3	Grant/Aband.	Standard cases (i.e. excl. 2nd notif for refusal, req for time extension...)
	KIPO				→	16.0	Grant/Aband.	
	CNIPA				→	18.5	Grant	
	USPTO	→					Grant/Aband.	
<i>1st action:</i>	<i>1st communication on prior art and opinion on patentability</i>							
<i>Final action:</i>	<i>Examiner decision to grant (or refuse) the granting of a patent</i>							
<u>Time limit to request examination</u>								
EPO	up to 6 months after publication of the search report, or up to 31 months from priority/international filing date for PCT application							
JPO	up to 3 years after filing date at JPO							
KIPO	up to 3 years after filing date at KIPO							
CNIPA	up to 3 years after filing date at CNIPA							
USPTO	no delay, filing = request for examination							

* EPO only

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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 RO for applicants in their respective territories, as ISA and as 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 Database⁴⁵ and the IP5 Offices. The graphs cover five-year periods that include the latest year for which reliable data are available⁴⁶. Data for 2021 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).

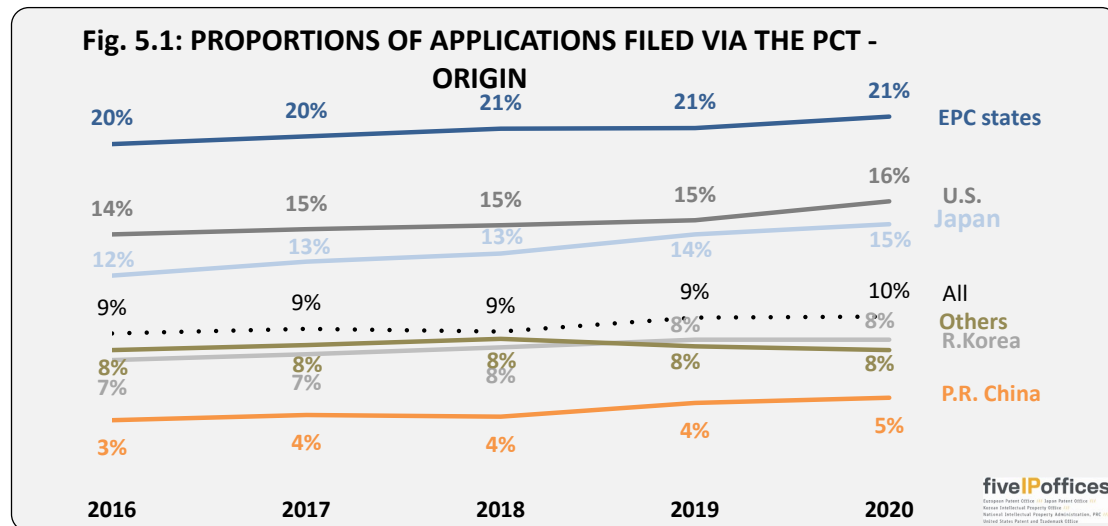
⁴⁵ This edition refers to general patent data as of April 2022, and to PCT international application data as of June 2022, www.wipo.int/ipstats/en/index.html

⁴⁶ 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

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.



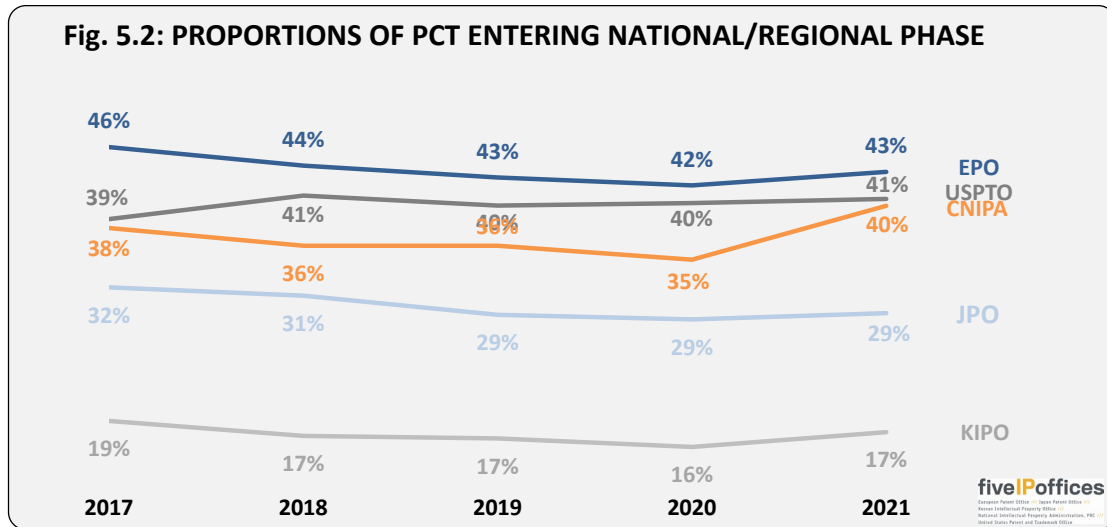
Nine percent of worldwide patent filings were made via the PCT route in 2020.

The proportion of applications filed via the PCT grew marginally over the period. It increased more for Japan, and U.S. The proportion for the EPC states origin applications continue to be higher than for 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 organisations.

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 expired⁴⁷.

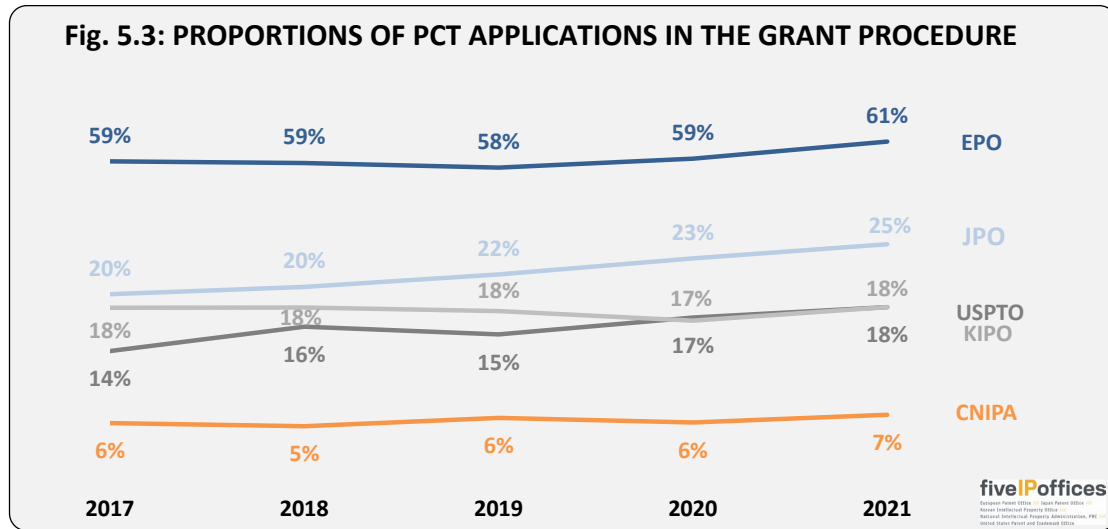


A lower proportion enters the regional phase at the KIPO and JPO than enters the national phase at any of the other IP5 Offices.

⁴⁷ 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 during the period. In 2021 the proportions increased by 1 or 2 percent.

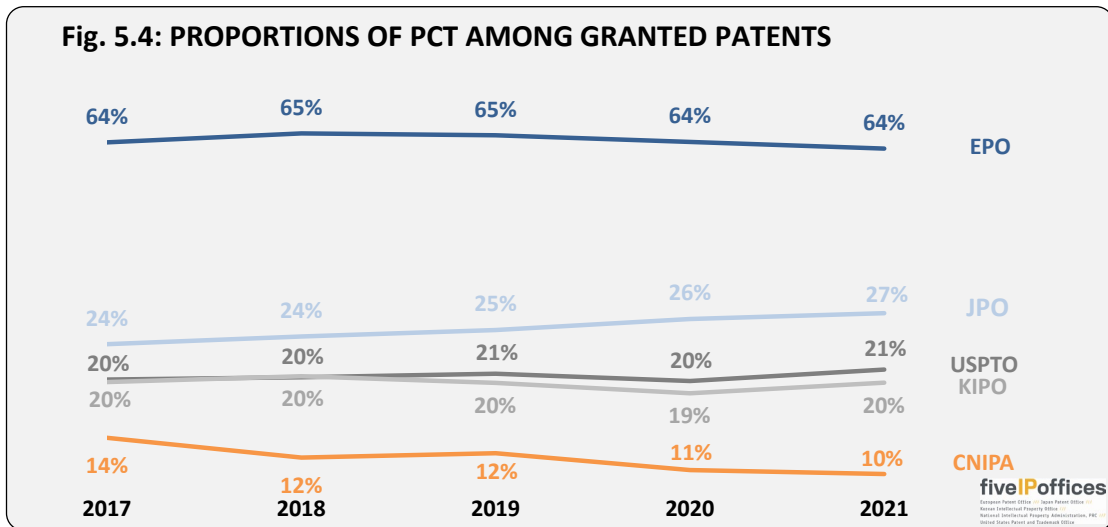
The EPO continues to have much higher proportion of PCT applications, compared to the other IP5 Offices. This can be explained by the fact that, contrary to other IP5 Offices, most of the first filings filed in the EPC states are filed at national offices, resulting in a higher share of PCT at the EPO.

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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 period, the proportion of PCT in patent grants at the EPO, the KIPO and the USPTO remained stable. The proportion increased at the JPO and decreased at the CNIPA. 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. The difference is larger at the EPO.

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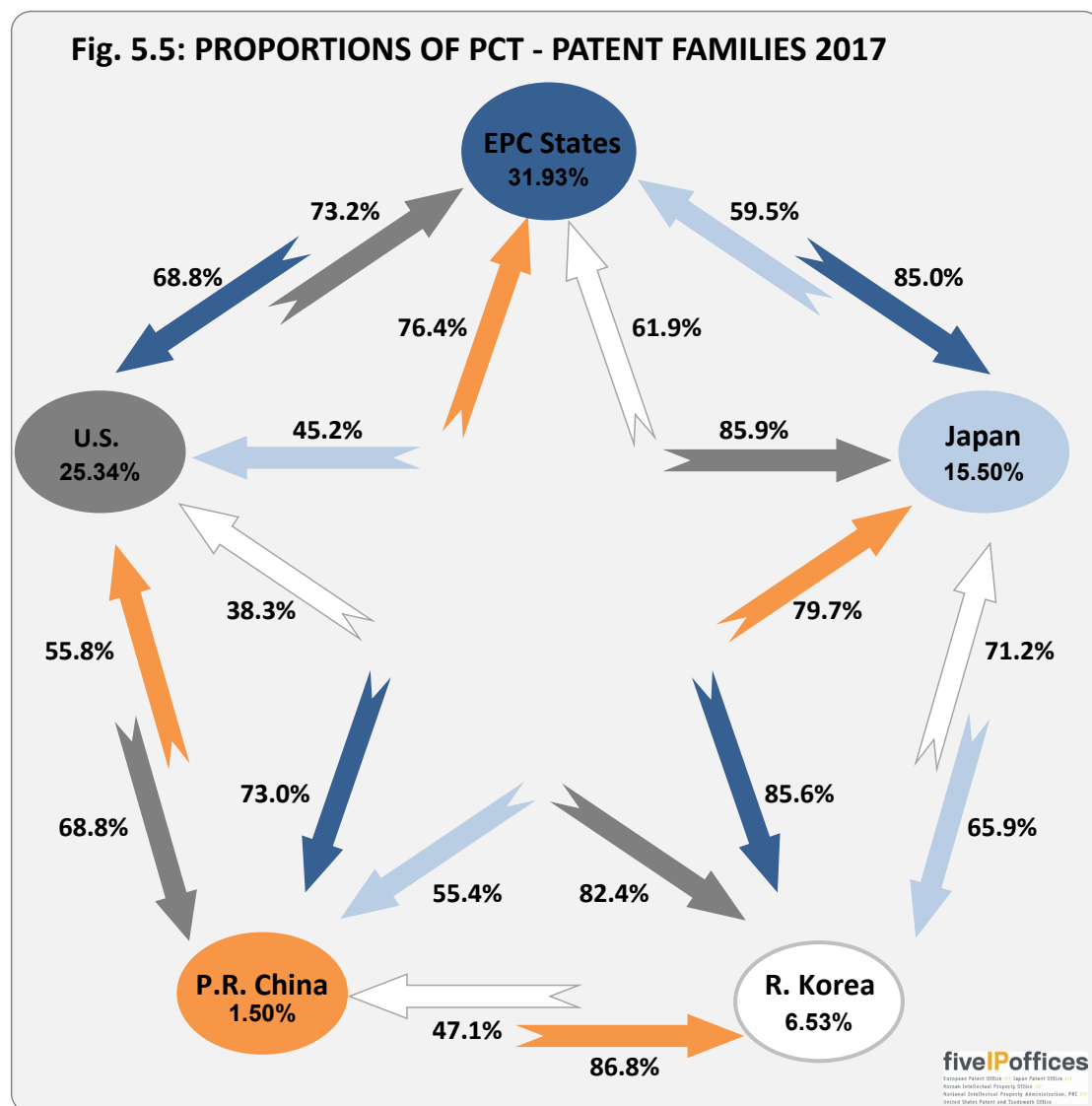
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PATENT FAMILIES AND PCT

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.

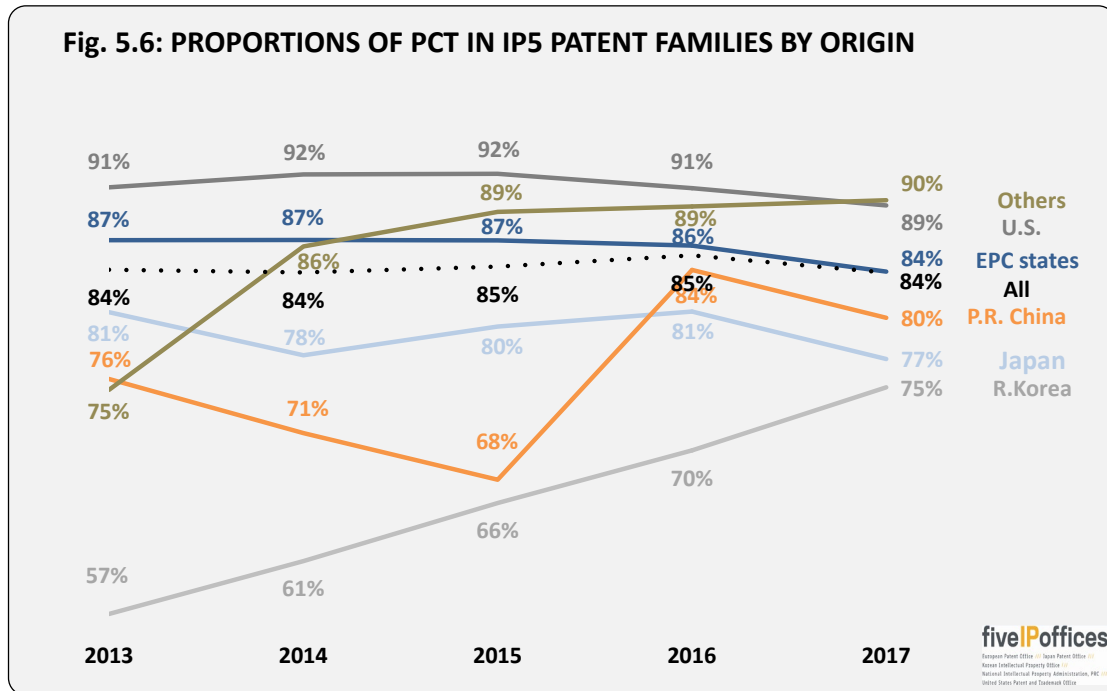
Fig. 5.5 shows the usage of the PCT among patent families for the priority year 2021. Two types of percentages are shown. The first, next to the name of each bloc, is the proportion of the overall number of first filings for the bloc that generated families using the PCT. The second, next to the arrows 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 2021, 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 2017, there was a further increase of usage in R. Korea, reaching a level comparable to other blocs.

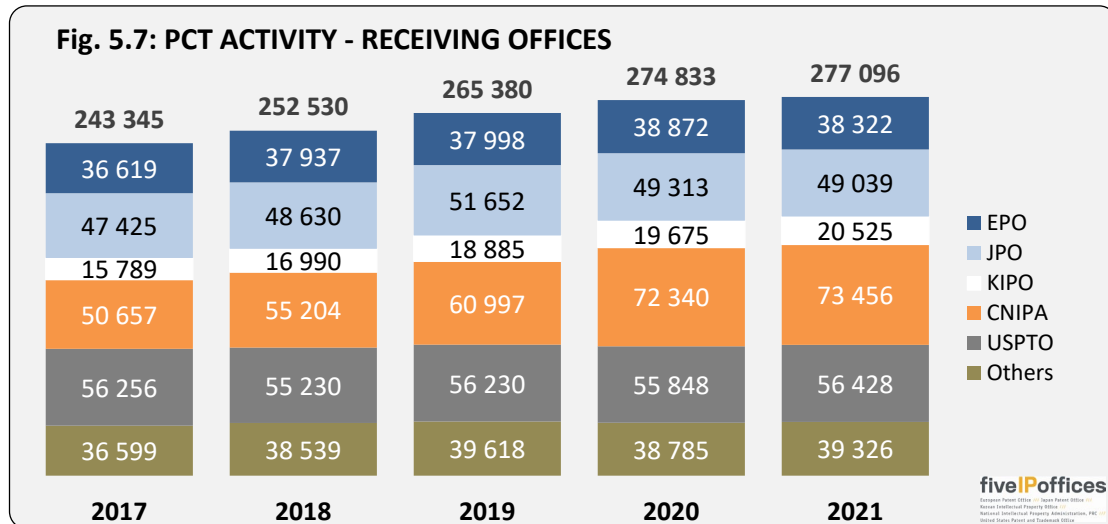
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PCT AUTHORITIES

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 2017 to 2021.

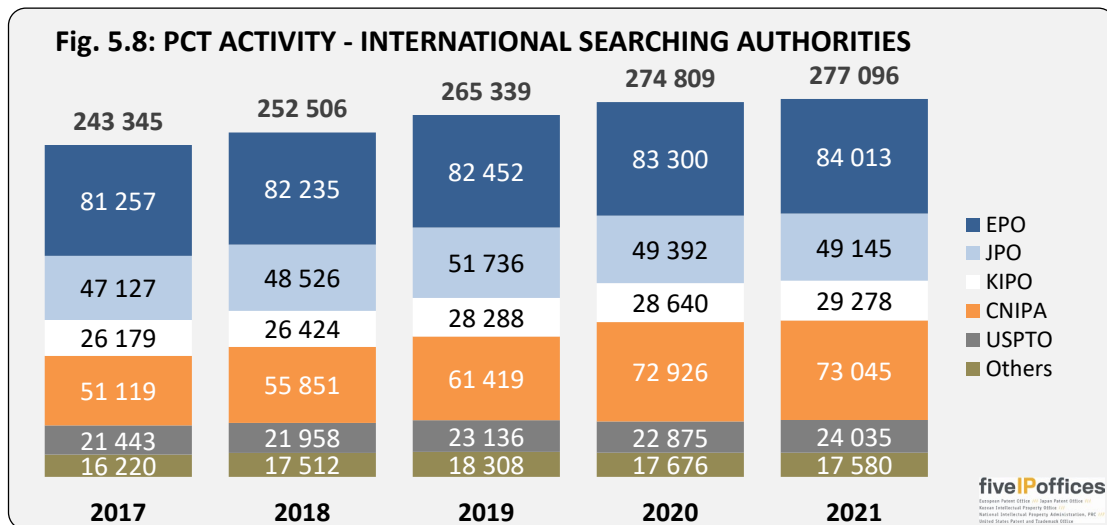
Fig. 5.7 shows the breakdown of PCT international filings by ROs over time.



From 2017 to 2020, the total number of PCT international phase filings grew at average compound annual growth rate 4 percent. It increased by 1 percent in 2021.

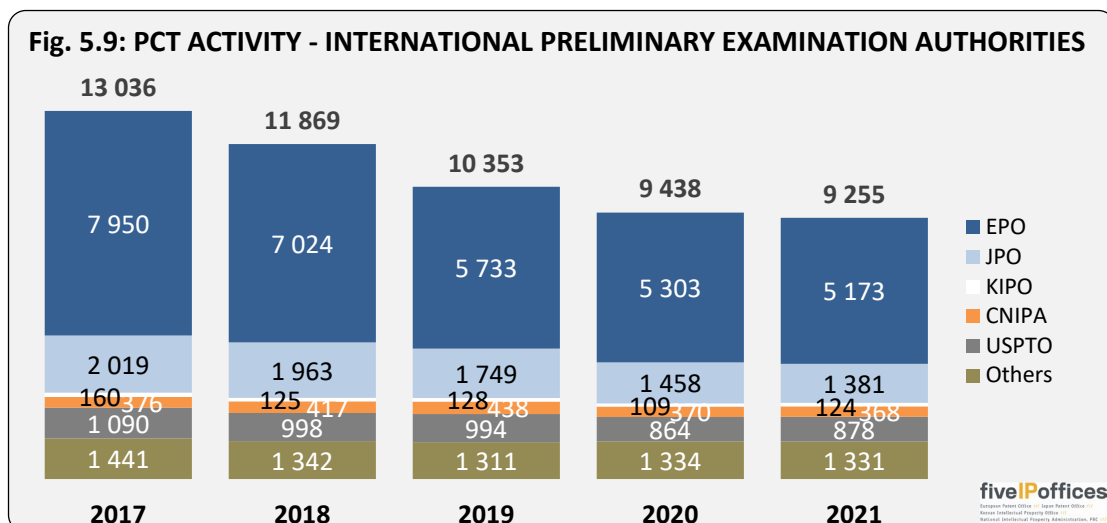
In 2021, KIPO, CNIPA and USPTO saw an increase of PCT international filings compared with 2020. The KIPO had the largest percentage increase of 4 percent. Together the IP5 Offices were RO for 86 percent of the PCT international filings in 2021 (85 percent in 2017).

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 2021, the IP5 Offices received 94 percent of all PCT international search requests, consistent with the previous periods. The EPO continues to receive the largest number of requests, receiving 30 percent of all requests in 2021. In 2021, the number of requests increased at the KIPO by 2 percent and at the USPTO by 5 percent. While, EPO, JPO and CNIPA received stable numbers of requests.

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



From 2020 to 2021, the number of requests for international preliminary examinations decreased 2 percent. Since the changes in the PCT regulations for the international preliminary examination the number of requests is declining. Together, the IP5 Offices were in charge of 86 percent of the IPEA work in 2021. In 2021, the EPO performed 56 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), provisional applications (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 invention⁴⁸, 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).

A provisional application is an unexamined application which allows applicants to secure an early effective filing date without a formal patent claim, oath or declaration, or any information disclosure (prior art) statement.

The numbers of requests received for these types of other work are shown for 2020 and 2021 in Table 6.

Table 6: STATISTICS ON OTHER WORK

Activity	Year	EPO	JPO	KIPO	CNIPA	USPTO
Search for national offices	2020	27 577	-	-	-	-
	2021	27 945	-	-	-	-
Design applications	2020	-	31 752	67 583	770 362	47 537
	2021	-	32 525	64 787	805 710	56 757
Utility model applications	2020	-	6 018	4 981	2 926 633	-
	2021	-	5 239	4 009	2 852 219	-
Plant patent applications	2020	-	-	-	-	991
	2021	-	-	-	-	992
Re-issue applications	2020	-	-	-	-	1 129
	2021	-	-	-	-	997
Trademark applications	2020	-	181 072	257 933	9 347 568	851 333
	2021	-	184 631	285 821	9 450 507	880 416
Provisional applications	2019	-	-	-	-	171 968
	2020	-	-	-	-	152 909

⁴⁸ 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.

In 2021, the number of utility model applications decreased by 13 percent, 20 percent and 3 percent at the JPO, the KIPO and the CNIPA. The number of trademark applications increased by 2 percent at the JPO, by 11 percent at the KIPO and by 3 percent at the USPTO. For design applications, there were increases at the JPO, CNIPA and the USPTO by 2 percent, 5 percent, and 19 percent respectively and decrease by 4 percent at the KIPO.

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Annex 1

DEFINITIONS FOR IP5 OFFICES EXPENDITURES

EPO EXPENDITURES (Fig. 2.7)

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.

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JPO EXPENDITURES (Fig. 2.8)

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
- Patented micro-organisms deposition organization

B. Examination and appeals/trials, etc.

- Infrastructure improvement for examination and appeals/trials
- Disposition of examination and appeals/trials
- Execution of PCT

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 INPIT⁴⁹

H. Others

All other expenses not covered by the above.

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⁴⁹ National Center for Industrial Property Information and Training

KIPO EXPENDITURES (Fig. 2.9)

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.

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CNIPA EXPENDITURES (Fig. 2.10)

A. Administrative Operation

B. Examination

- Patent examination
- Trademark 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.

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USPTO EXPENDITURES (Fig. 2.11)

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.

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Annex 2

DEFINITIONS OF TERMS AND STATISTICS ON PROCEDURES

This annex contains firstly definitions of the main terms used in the report⁵⁰. 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 all the states party to the EPC;
- 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:

⁵⁰ 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 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 filed⁵¹. 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 priority⁵² 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 filings⁵³ 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*.

⁵¹ 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.

⁵² See the Article 4A to 4D of the Paris Convention at the WIPO web site;

www.wipo.int/treaties/en/ip/paris/

⁵³ 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 filed⁵⁴. See the term definition for Domestic Applications for additional details.

GRANTS, COUNTING OF

Grant counts in Chapter 3 are based on the WIPO Statistics Database⁵⁵. 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.

CROSS FILINGS

IP5 cross filings are patent applications filed at the IP5 Offices during the same time period (i.e. calendar year in this report) and claiming the same priority. Such applications can be filed as direct national, direct regional or PCT that entered the national or regional stage during the reporting period. The priority application may have been filed in any patent office in the world. Cross filings are filed in at least two and up to all five IP5 Offices. Counts of cross filings are based on the number of underlying priorities claimed in subsequent patent applications filed in the reporting period.

The counts of cross filings are considered an indicator for shared workload among the IP5 Offices. Cross filings are therefore reported according to the year of the subsequent applications.

Contrary to patent families involving activity in the individual EPC Contracting States, cross filings in Europe are limited to subsequent filings at the EPO. Cross filings are reported according to the year of the subsequent applications while patent families are reported according to the year of the priority applications.

PATENT FAMILIES

A patent family is a group of patent filings that claim the priority of the same initial first filing, including the original priority forming filing itself and any subsequent filings made throughout the world. Utility model applications are excluded.

Contrary to previous editions of the IP5 Statistics Report, the patent family counts are compiled from the EPO's DOCDB database, which is fed with data from patent publications from patent offices worldwide. The numbers of domestic national filings presented in Fig 3.4 are used as measures of first filings. Therefore the numbers of first filings in Table 3 conform to those in Fig. 3.4.

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

⁵⁴ 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.

⁵⁵ www.wipo.int/ipstats/en/statistics/pct/index.html

purposes of this report⁵⁶, IP5 patent families are a filtered subset of patent families for which there is evidence of patenting activity in all IP5 Blocs. Due to the change of source data, differences with counts given in previous editions of the report may occur.

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 parts of this report they are counted in the year of filing in the earlier international phase⁵⁷.

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 priority⁵⁸ 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.

⁵⁶ 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.

⁵⁷ 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.

⁵⁸ 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, the 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, the 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 (the EPO, the JPO, the KIPO, the CNIPA, and the 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 Leahy-Smith America Invents Act (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 2018 relates to applications mainly filed in the years 2014 to 2018.

For the JPO, the period to file a request for examination is three years from filing date. The rate for 2018 relates mainly to applications filed in the year 2015.

For the KIPO, the period to file a request for examination has been changed from 5 years to 3 years from filing date in 2018.

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).

For the USPTO, 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. 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, the 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, the 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 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 average 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. The calculation is based on standard cases (i.e. excluding non-unity, incomplete search and or clarification request cases). The EPO changed their measurement from median to arithmetic mean. The figures for 2018 have been re-compiled based on the new methodology.

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. The pendency time is the number of months in CY 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 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, first office action pendency compliance refers to the percentage of applications with a time from filing to First office Action On Merits (FAOM) within 14 months. A FAOM is generally defined as the first time an examiner either formally rejects or allows the claims in a patent application. The USPTO does not utilize an average pendency measure comparable to the other IP5 Offices. The USPTO has been moving to a compliance based metric, with a set goal of mailing first actions within

14 months of filing in 45 percent of new cases acted upon, and issuing an allowance within 36 months of filing in 80 percent of all allowed cases.

PENDENCY / EXAMINATION / PENDENCY FINAL ACTION

For the EPO, the counts relate to pendency until a final decision by the examining division (decisions to grant) during the reporting year. This is the average 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. The calculation is based on standard cases (i.e. excluding cases with more than one request for extension of time limit or late payment of fees or rescheduling of oral proceeding).

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 a calendar year, 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, filing to issue compliance is calculated by measuring the time from filing to abandonment or issue for all applications that are issued in a year. The percentage of applications that have a compliance within 36 months is presented. This number includes plant patents and reissue patents in addition to utility patents (see above GRANT RATE). The USPTO does not utilize an average pendency measure comparable to the other IP5 Offices.

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.

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Annex 3

ACRONYMS

AI	Artificial Intelligence (30)
AIA	Leahy-Smith America Invents Act (92)
ARIPO	African Regional Intellectual Property Office (36)
CNIPA	China National Intellectual Property Administration (i)
CPC	Cooperative Patent Classification (13)
DOCDB	DOCumentDataBase (12)
EAPO	Eurasian Patent Organization (36)
EPC	European Patent Convention (2)
EPO	European Patent Office (i)
ETSI	European Telecommunications Standards Institute (23)
EUIPO	European Union Intellectual Property Office (13)
DO	Designated Office (16)
FAOM	First Office Action on Merits (96)
FY	Fiscal Year (16)
GCCPO	Gulf Cooperation Council Patent Office (36)
GII	Global Innovation Index (23)
GIPA	Global Intellectual Property Academy (31)
IAM	Intellectual Asset Management magazine (i)
IB	International Bureau of WIPO (iii)
IFRS	International Financial Reporting Standards (14)
INPADOC	International Patent Documentation Center (12)
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)
IEC	International Electrotechnical Commission (23)
IEEE	Institute of Electrical and Electronics Engineers (23)
INPIT	National Center for Industrial Property Information and Training (83)
IPEA	International Preliminary Examining Authority (3)
IPRs	Intellectual Property Rights (21)
ISA	International Searching Authority (3)

ISO	International Organization for Standardization (23)
IT	Information technology (30)
IUT	International Telecommunication Union (23)
JPO	Japan Patent Office (i)
KIPO	Korean Intellectual Property Office (i)
NET/AI	New Emerging Technologies/Artificial Intelligence (i)
OAPI	Organisation African Intellectual Property (36)
PATSTAT	Worldwide Patent Statistical Database (12)
PCT	Patent Cooperation Treaty (iii)
PPH	Patent Prosecution Highway (i)
P.R. China	People's Republic of China (2)
PTA	Patent Term Adjustment (30)
R&D	Research and Development (22)
RCE	Request for Continued Examination (32)
R. Korea	Republic of Korea (2)
RO	Receiving Office (3)
SBA	Small Business Administration (ii)
SEP	Standard Essential Patent (23)
SSO	Standard setting organisation (23)
UP	Unitary patent (11)
U.S.	United States of America (2)
USPTO	United States Patent and Trademark Office (i)
WIPO	World Intellectual Property Organization (iii)

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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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