

# IP5

## STATISTICS REPORT

### 2020 EDITION



# ***IP5 Statistics Report***

## **2020 Edition**



IP5 Statistics Report 2020 Edition

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

Edited by  
JPO, December 2021

## 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).

- At the end of 2019, 14.9 million patents were in force in the world (+6.9 percent). 91 percent of these patents were in force in one of the IP5 Office jurisdictions.
- In 2019, 3.2 million patent applications were filed worldwide, either as direct national, direct regional or international phase PCT applications, of which 94 percent originated from the IP5 Blocs.
- In 2019, 89 percent of the worldwide patent applications were filed as direct national applications. The proportion of applications filed via the PCT remained stable.
- In 2020, 2.8 million patent applications were filed at the IP5 Offices (+2.1 percent).
- Together the IP5 Offices granted 1.3 million patents in 2020 (+6.3 percent).
- At the IP5 offices, there have not been significant delays in their first action pendency and total pendency for patent applications.
- In 2020, the main developments at the IP5 Offices were:
  - IP5: In July, the 13th meeting of the IP5 Heads of Office was held virtually. The IP5 Heads agreed in the meeting to continue to strengthen their co-operation in the area of intellectual property (IP), including tackling challenges posed by the COVID-19 pandemic and providing better services for users and the public. They confirmed that the five offices would continue to pursue IP5 initiatives to advance cooperation in new emerging technologies and artificial intelligence and enhance harmonization of practices and procedures.
  - EPO: In 2020, the EPO successfully tackled a slightly higher workload than in 2019, while also achieving steady improvements in timeliness. To support staff in mastering the incoming workload, the EPO also leveraged digital tools to improve efficiency. Despite the difficult conditions, the EPO reduced its overall stock and reduced pendency in examination while maintaining pendency in search at 4.5 months.
  - 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 2020, the JPO received 288,472 patent applications, and the total pendency and the first action (FA) pendency were 14.8 and 10.1 months on average, respectively. Furthermore, the number of international search reports the JPO prepared under the PCT has been increasing in recent years and reached 50,338.
  - KIPO: The annual average first office action pendency period was 11.1 months for patents and utility models. KIPO received a preliminary total of 557,256

applications for Intellectual Property Rights (IPRs) including patents and utility models in 2020. The number of PCT applications filed from Korea increased by 4.2 percent from 18,885 in 2019 to 19,675 in 2020, which is the fourth largest amount by country of origin.

- CNIPA: In 2020, 1.12 million invention patent applications, 2.63 million utility model patent applications and 770,000 industrial design patent applications were examined by the CNIPA. The average examination pendency for high-value invention patents and invention patents in general was reduced to 14 and 20 months respectively.
- USPTO: In 2020, the USPTO hosted the inaugural meeting for the National Council for Expanding American Innovation (NCEAI) (known now as the Council for Inclusive Innovation or CI<sup>2</sup>) in September. The goal of the CI<sup>2</sup> is to work with the USPTO in developing a comprehensive national innovation strategy that builds a diverse and inclusive ecosystem encouraging, empowering, and supporting all future innovators. The USPTO successfully met its pendency goals despite the challenges of moving to a mandatory telework posture due to the COVID-19 pandemic.

## 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 2020 data report that was made earlier in 2021. The latest reports, along with other data exchanges and information about the Group, can be found at the IP5 Offices homepage [www.fiveipoffices.org](http://www.fiveipoffices.org).

In July 2020, the CNIPA hosted the 13th IP5 Heads of Office meeting in virtual format. During the meeting, the IP5 Heads of Office took stock of the measures put in place by each of the five offices to mitigate the effects of the COVID-19 pandemic on applicants and to promote innovation that is instrumental in winning the battle against this virus. These include providing assistance and relief to those affected by the outbreak, and continuing to facilitate access to patent information, which presents a wealth of technological knowledge related to the detection, prevention and treatment of COVID-19. They stressed that, through all of these measures, the five offices continue to support inventors and researchers everywhere with high-quality IP rights that help them to attract investment, enter new markets, and foster technology transfer. The five offices will continue the co-operation with the WIPO and support its activities to uphold and strengthen balanced intellectual property systems around the world.”

According to the World Economic Outlook<sup>1</sup> of the International Monetary Fund (IMF), the global economy is projected to grow at 5.9 percent in 2021 and grow at 4.9 percent in 2022, the growth projections imply global economic recovery is continuing, even as the Covid-19 pandemic resurges. Advanced economy output is forecast to exceed pre-pandemic medium-term projections. By contrast, persistent output losses are anticipated for the emerging market and developing economy group due to slower vaccine rollouts and generally less policy support compared to advanced economies.

At the IP5 Offices in 2020, the applications increased 3.6 percent at the KIPO, 0.7 percent at the CNIPA, while they decreased by 0.1 percent at the EPO, 6.3 percent at the JPO and 4.0 percent at the USPTO. The data showed annual growth 1.9 percent for overall applications at the IP5 Offices (See Chapters 2 and 4 of this report).

Political and technological factors also influence the levels of patent filings. Globalization of markets and production continues to be a key business trend. There is a worldwide tendency to harmonize patent laws with common international standards and to facilitate filing of applications across borders. Common vehicles for applying across different jurisdictions have also appeared, such as the PCT system, the validation agreements with the EPO and the Patent Prosecution Highway (PPH). These factors have had a positive impact on worldwide patent growth over recent years.

While applications are user driven, grants show the production capacity of the offices. The IP5 Offices hope that this report provides useful information to the readers. The IP5 Offices will continue to improve and refine the report to better serve expectations

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<sup>1</sup> World Economic Outlook October 2021:  
<https://www.imf.org/en/Publications/WEO/Issues/2021/10/12/world-economic-outlook-october-2021>

and objectives of the public. Definitions related to the terminology used in the report are given in Annexes [1](#) and [2](#) at the end.

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

Materials from this report can be freely reproduced in other publications, but we request that this should be accompanied by a reference to the title and the web site location of this report, (<https://www.fiveipoffices.org/statistics>) Please also note the links to statistics at each Office (<https://www.fiveipoffices.org/resources/annualreports>)

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

EPO, JPO, KIPO, CNIPA, and USPTO  
With cooperation of WIPO  
December 2021

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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”<sup>2</sup>, 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 Invention<sup>3</sup>. It is notable that the activity of patents for invention is recognised throughout the world as a useful indicator of innovative activity.

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

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

Each country and region maintains its own patent procedures in order to encourage innovative activities and to optimise the regional benefits of innovation. Enhanced international cooperation led to the establishment of different regional and international patenting procedures. But the patent laws vary from country to country. The scope of an individual patent application can also differ according to location. These factors limit the degree to which the patenting activity in different countries and regions can be directly compared.

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

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<sup>2</sup> See also, World Intellectual Property Organization, “What is Intellectual Property?” <https://www.wipo.int/about-ip/en/> and World Intellectual Property Indicators – 2020, <https://www.wipo.int/publications/en/details.jsp?id=4528>

<sup>3</sup> 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 only after grant do they fall under national (post grant) regulations. PCT applications are handled at first by the appointed offices during the international phase. Up to about 30 months after the first filing, the PCT applications enter the national/regional phase to be treated as national or regional applications according to the regulations of each designated office.

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

- The European Patent Convention (EPC) contracting states (EPC states in this report) corresponding to the territory of the 38 states party to the EPC at the end of 2020
- Japan (Japan in this report)
- Republic of Korea (R. Korea in this report)
- People's Republic of China (P.R. China in this report)
- United States of America (U.S. in this report)
- The rest of the world (Others in this report)

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

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

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

Together with this report, there is an annex including a glossary of patent-related terms and a statistical table file that includes extended time series and graphs of much of the data found in this report<sup>4</sup>.

## **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,

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<sup>4</sup> <https://www.fiveipoffices.org/statistics>

firstly in terms of the flows of applications between the IP5 Blocs, and then in terms of patent families<sup>5</sup>.

The statistics are mainly derived from the WIPO Statistics Database<sup>6</sup>, 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)<sup>7</sup>.

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

To illustrate the similarities as well as the differences in the granting procedures at the IP5 Offices, characteristics and statistics of the five patent granting procedures are given in the last part of the chapter.

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

In Chapter 5, the influence of the PCT on patenting activities is displayed through worldwide activities broken down by geographical blocs and IP5 Offices, particularly in terms of proportions of patent filings that use the PCT, proportions of PCTs from the international phase that then enter the national/regional phase, the share of PCTs among applications, the share of PCTs among grants and the proportions of PCT usage within patent families. As with Chapter 3, statistics are derived primarily from the WIPO Statistics Database, that includes data collected from each country and region. Statistics are also included to describe the PCT related activities of the IP5 Offices including activities as Receiving Office (RO), International Searching Authority (ISA) and International Preliminary Examining Authority (IPEA).

#### **Chapter 6 – Other Work**

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

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

<sup>6</sup> This edition refers to general patent data as of April 2021, and to PCT international phase application data as of May 2021, <https://www.wipo.int/ipstats/en/index.html>

<sup>7</sup> <https://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.

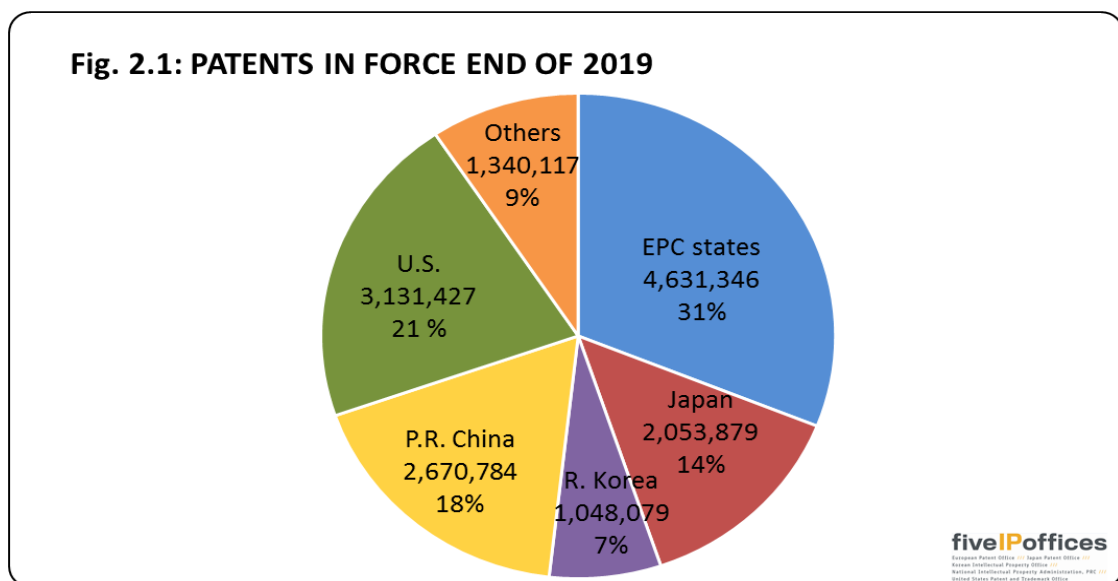
## Chapter 2

# THE IP5 OFFICES

This chapter details developments at each of the IP5 offices<sup>8</sup>.

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

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 2019. The data are based on worldwide patent information available from the WIPO Statistics Database<sup>9</sup>.

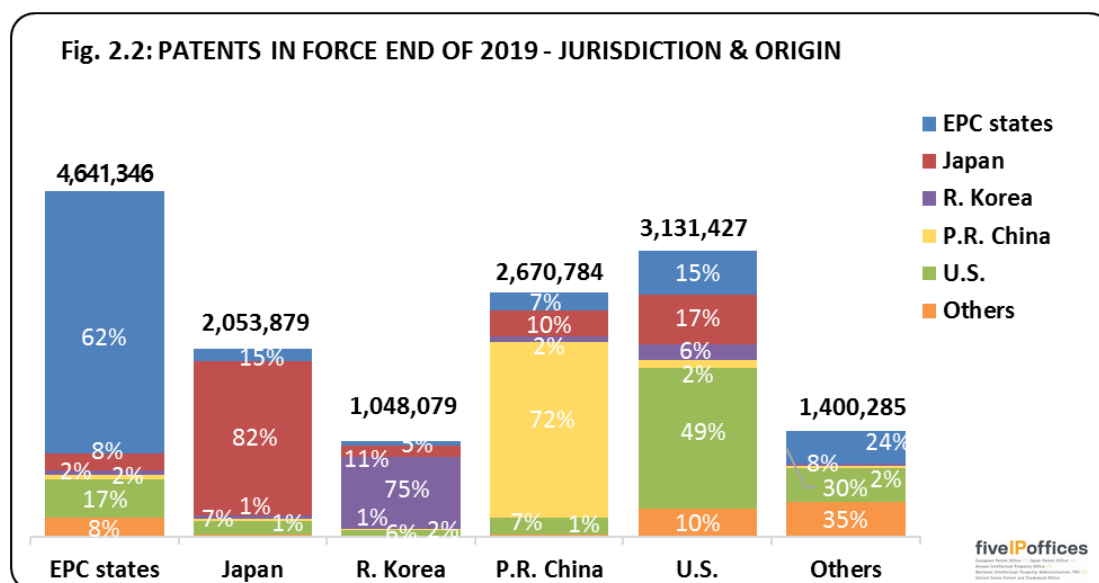


At the end of 2019, 91 percent of the 14.9 million patents that were in force were valid in one of the IP5 Offices jurisdictions. This demonstrates the prominent role that is played by the IP5 Offices.

<sup>8</sup> 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. <https://www.fiveipoffices.org/statistics/statisticsreports>

<sup>9</sup> <https://www.wipo.int/ipstats/en/index.html> Data for patents in force for 2019 are missing for some countries in the WIPO data. Where available, the most recent previous year's data were substituted for missing 2019 data. Data for 2020 are not yet available from WIPO.

Fig. 2.2 shows the residence of the holders of the patents in force at the end of 2019 in the regions of the IP5 Offices.



At the end of 2019, of the 14.9 million patents in force, 31 percent were valid in the EPC states, 21 percent in the U.S., 18 percent in P. R. China, 14 percent in Japan, and 7 percent in R. Korea.

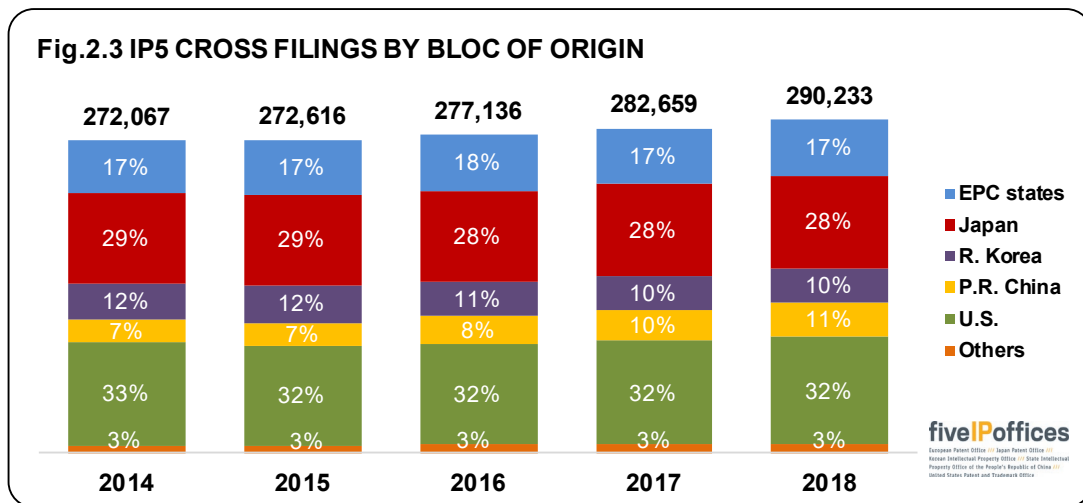
In 2019, while 82 percent of the patents valid in Japan originated in Japan<sup>10</sup>, 49 percent of the U.S. patents had a U.S. origin. For EPC States, the corresponding shares was 62 percent, it was 75 percent for R. Korea, and 72 percent for P.R. China.

It is estimated that each year more than 250,000 first filings from the IP5 Offices result in subsequent patent applications to at least one other IP5 Office, accounting for over 500,000 applications including the resulting duplicates for the same inventions. To address the issue of the backlogs that can build up as a result of this, the IP5 Offices are working together to try to reduce the amount of repetition of similar work that takes place between offices for these patent applications.

<sup>10</sup> Patent origin is based on the patent's first-named inventor or applicant.



Figure 2.3 shows the development of the number of cross filings between the IP5. Offices over the period 2014 to 2018 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 2018 are not yet complete.

## EUROPEAN PATENT OFFICE

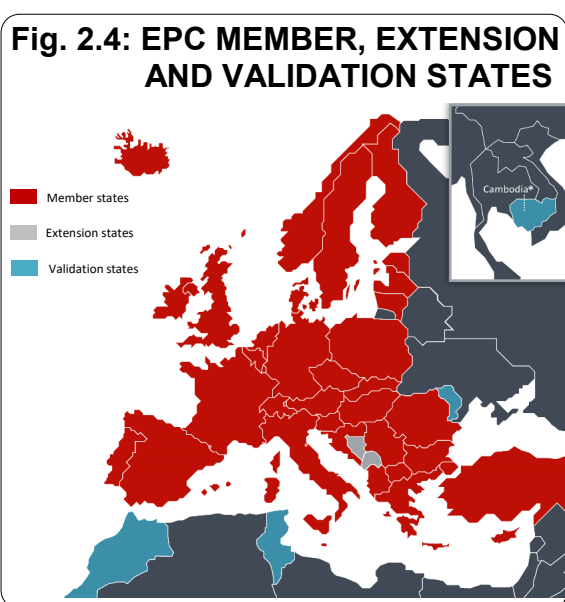
The EPO's mission is to deliver high-quality patents and efficient services that foster innovation, competitiveness and economic growth. Its main task is to grant European patents according to the EPC. Under the PCT, the EPO also acts as a receiving office, as well as a searching and examining authority. A further task is to perform, on behalf of the patent offices of several member states (Belgium, Cyprus, France, Greece, Italy, Latvia, Lithuania, Luxembourg, Malta, Monaco, the Netherlands and San Marino), state-of-the-art searches for the purpose of national procedures. The EPO 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.

At the end of 2020, the 38 members of the EPO 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		



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

Moldova, Morocco and Tunisia have agreements to validate European patents in their territories. Similar agreements with other states are under negotiations.

The national patent offices of all the above states also grant patents. After grant, a European patent becomes a bundle of national patents to be validated in the states that were designated at grant. The 44 countries for which European patents provide protection represent a population of around 730 million people.

## Highlights of 2020

Demand for patents remained high in 2020, despite the pandemic. The EPO received 180,250 European patent applications last year, which was just 0.7 percent below the 2019 figure.

Rising to the multiple challenges created by the pandemic, the EPO continued to perform strongly in 2020. In fact, it successfully tackled a slightly higher workload than in 2019, while achieving steady improvements in timeliness. By the end of the year, the examination stock (80 percent of total stock) was 4 percent lower than in 2019 and the pending workload represented 11.7 months of work, while overall stock levels fell by 1 percent compared with 2019. Overall, the EPO published some 133,700 European patents in 2020, or 3 percent lower than the 2019 figure.

This was largely possible thanks to the digitalisation of tools and workflows, a process that is deeply embedded in the EPO's Strategic Plan 2023 launched in July 2019, but was significantly accelerated by the pandemic. As part of the drive to go digital, 5 800 laptops were rapidly rolled out to staff to facilitate remote working, and new digital tools introduced into the patent granting process. To maximise effective workload rebalancing, the EPO also launched two new digital platforms: the Digital File Marketplace to facilitate file exchange between examiner teams; and the Digital Talent Marketplace, which makes it easier for examiners to switch specialist fields and acquire new expertise.

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 2020, with the mean time for search completion reaching 4.5 months. The mean time for issuing the intention to grant was 25.4 months from the valid examination request, while 75 percent of intentions to grant were issued within 36 months. The overall time to grant for EP first filings was 44.8 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 97 percent in 2020.

In terms of sustainability, digitalisation also delivered tangible benefits in 2020. The EPO's total annual paper consumption, for example, plummeted by 47.5% percent last year, dropping by 58.6 million to 65 million sheets of paper. These savings, equivalent to the carbon dioxide offset by 14,000 fully grown trees, were largely due to printing on demand and the launch of new digital workflows. Carbon emissions also fell by 20% last year, or 600 tonnes, which is equivalent to the carbon captured by 50 hectares of forest. This was partly due to lower emissions from heating, but also thanks to video conferencing and the fact that the EPO replaced all business travel with virtual meetings as of March. Overall, last year saw a significant reduction in the EPO's environmental footprint, with further improvements targeted for 2021.

## 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 2019 and 2020.

**Table 2.1: EPO PRODUCTION INFORMATION**

<b>EPO PRODUCTION FIGURES</b>	<b>2019</b>	<b>2020</b>	<b>Change</b>	<b>%Change</b>
<b>Patent applications (Euro-direct &amp; Euro-PCT regional phase)</b>	181,532	180,250	-1,282	- 0.7%
<b>Searches carried out</b>				
European (including PCT supplementary)	123,722	122,804	- 918	+ 0.7%
PCT international	83,960	85,186	+1,226	+1.5%
On behalf of national offices	25,380	27,577	+2,197	+ 8.7%
<b>Total production search</b>	<b>233,062</b>	<b>235,567</b>	<b>+ 2,505</b>	<b>+ 1.1%</b>
<b>Examination-Opposition (final actions)</b>				
European	177,872	158,955	- 18,917	- 10.6%
PCT Chapter II	6,339	5,619	-720	- 11.4%
Oppositions	3,977	1,855	-720	-53.4%
<b>Total final actions examination- opposition</b>	<b>188,188</b>	<b>166,429</b>	<b>-21,759</b>	<b>-11.6%</b>
<b>European granted patents</b>	<b>137,784</b>	<b>133,715</b>	<b>- 4 069</b>	<b>- 3.0%</b>

### 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 literature in the world. The total number of records in the EPO worldwide bibliographic database (DOCDB) recently passed the 130 million patent publications mark; and EPO worldwide legal event data (INPADOC) features over 330 million publications.

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. In 2020, over three million users per month accessed the EPO's broad range of patent information services, marking a 10% increase in uptake versus 2019.

The EPO's [Patent Index 2020](#) 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 our online [Statistics & Trends Centre](#).

In 2020 the EPO started realising its ambition to go a step further and help users to turn its raw data into patent knowledge that can give them a competitive edge in their respective markets. The EPO's goal is to take users on a journey that starts with patent information and ends with in-depth IP knowledge, while enabling them to take informed IP-related decisions with confidence at every step of the way.

As part of this endeavour, 2020 saw the launch of the PATLIB 2.0 project aimed at revamping the EPO's network of over 300 patent information centres. The project will incentivise all PATLIB centres to provide a broader, enhanced range of services and play their role in supporting Europe's innovators and promoting technology transfer. In 2020, an in-depth survey of the network was completed, along with a study of Europe's technology transfer offerings.

Last year the EPO also 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.

As a result of co-operation with patent offices worldwide, full-text patent collections in languages such as Chinese, Japanese, Korean and Russian are being added. Patent Translate is the EPO's free online machine translation service. Integrated into the EPO's Espacenet worldwide patent database and European publication server, it provides translations for a total of 32 different languages. There are currently approximately 20,000 translation requests per working day on Patent Translate from around the globe.

Despite the difficult circumstances 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 successfully organised several high-level online events in 2020, including the European Inventor Award, EPO Tech Day, conferences on 3D printing and artificial intelligence, together with a whole range of online seminars and meetings. Its major online events attracted a total of almost 20,000 viewers worldwide in 2020.

### **International and European Cooperation**

High-level bilateral and multilateral interactions proliferated in 2020, thanks to virtual exchanges facilitated by the widespread use of video conferencing. The EPO also continued to expand its geographical reach by signing a reinforced partnership agreement with the Superintendence of Industry and Commerce of Colombia in November.

The EPO's geographical coverage has grown substantially since June 2019, increasing to a total of 1.965 billion inhabitants by the end of 2020 through 38 Member States, 2 extension states, 4 validation states and 9 reinforced partnerships.

Another milestone was reached on 1 December 2020, when the EPO and the China National Intellectual Property Administration (CNIPA) officially launched a two-year pilot, which enables Chinese applicants filing their international applications in English (with the CNIPA or the World Intellectual Property Organization (WIPO) as receiving Office) to select the EPO as their International Searching Authority (ISA). This makes

the EPO the first patent office outside of China that can be designated as an ISA for Chinese applicants.

Within the framework of the Cooperative Patent Classification (CPC) with the United States Patent and Trademark Office, a major new harmonisation exercise was launched in 2020. At the same time, the CPC revision backlog was brought down to virtually zero and a streamlined CPC revision process was also defined. This reduced the time from request to publication to just nine months. The number of patent offices classifying in the CPC increased to 30 in 2020 with the addition of the Romanian office. By the end of the year, around 61 million patent documents were classified in the CPC, of which 9.5 million were classified by the publishing offices themselves.

The EPO's Patent Prosecution Highway (PPH) network, which comprises 16 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.

To date EPO PPH working arrangements with twelve partner offices are operating on a non-trial basis. This includes the offices of Canada, China, EAPO, Israel, Japan, Korea, Malaysia, Mexico, the Philippines, Russia, Singapore and the USA. The remaining four trials, i.e. with Australia, Brazil, Colombia and Peru, are expected to be completed and exit pilot phase in the course of the coming years.

The EPO also hosts the Common Citation Document (CCD), which encompassed some 390 million citations from 39 patent offices worldwide in 2020. The CCD currently contains enriched citation data from 23 patent offices, including the EPO, CNIPA, JPO, KIPO, USPTO and WIPO. This enriched data indicates the claims to which the citation is relevant in the patent application for which the search was done and the pertinent passage in the cited document.

### **Economic studies**

To demonstrate the value of patent information, the EPO's Chief Economist Unit published four studies in 2020 covering a diverse range of cutting-edge technologies and exploring the economic impact of patents. Three of those studies document recent technology trends in additive manufacturing; batteries and electricity storage technologies; and technologies of the Fourth Industrial Revolution. The study on batteries (published in September) was the first EPO study produced in collaboration with the International Energy Agency, with which the EPO signed a memorandum of understanding in 2020. The other two studies were launched to mark EPO conferences in July and December. The last study, published in November 2020, was a Patent Commercialisation Scoreboard for universities and public research organisations, showing that these institutions commercialise around one third of their European patents. All of these studies can be consulted online on the [EPO website](#).

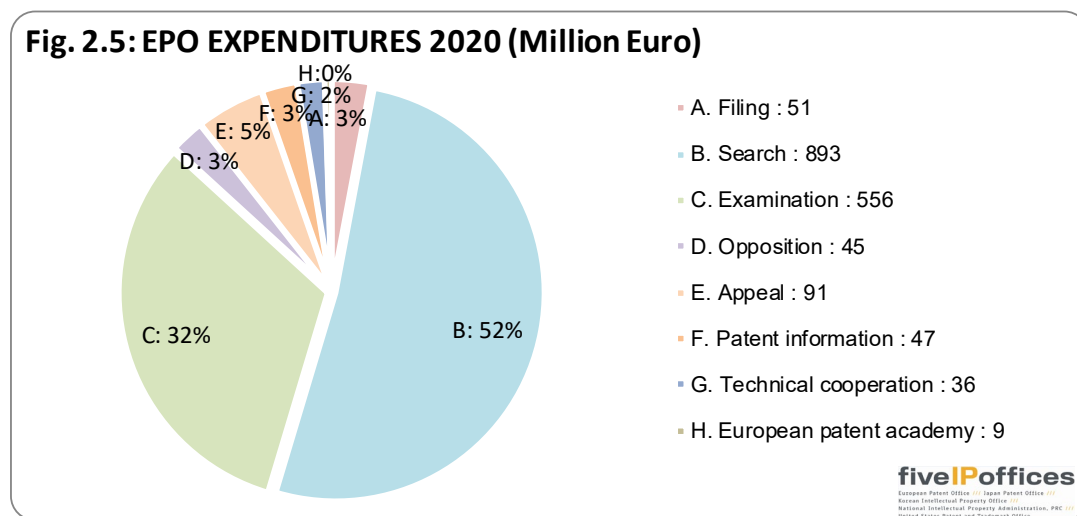
### **EPO budget**

The EPO is financially autonomous and does not receive any subsidies from the Contracting States of the Organisation. Its expenses are therefore mainly covered by revenue from fees paid by applicants and patentees. In 2020, the EPO budget amounted to 2.5 billion euros

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

On the expenses side, the EPO not only pays for staff salaries and allowances, but also finances other social expenses such as pensions, healthcare insurance and long-term care fees, as well as contributing to the education costs of its employees' children. The EPO community currently consists of around 23,500 persons (active staff, pensioners, and their respective family members).

Fig. 2.5 shows EPO expenses<sup>11</sup>, based on the International Finance Reporting Standards (IFRS) by category in 2020.



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

## EPO Staff

At the end of 2020, the EPO's staff totalled 6,403 employees (-3.1 percent) from 35 different European countries<sup>12</sup>. This figure includes 4,099 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.

<https://www.epo.org>

<sup>11</sup> The EPO uses the word “expenses” in accordance with the IFRS reporting approach.

<sup>12</sup> For more details, see the 2020 EPO social report at [www.epo.org/about-us/annual-reports-statistics.html](https://www.epo.org/about-us/annual-reports-statistics.html)

## 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, there is a need to shorten total pendency, and the JPO has been engaging in initiatives to speed up examinations.

### 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. An 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 entities, etc.

In 2020, first action pendency from request for accelerated examination was 2.7 months on average. Furthermore, 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).

### 3) Quality Management Initiatives

Under the “Quality Policy on Patent Examination”, which constitutes the JPO’s fundamental principles of quality management, and the “Quality Management Manual for Patent Examination” (Quality Management Manual), the JPO has been engaging in the following initiatives in order to realize the utmost quality of patent examinations in the world.<sup>14</sup>

#### Quality Assurance

Before sending applicants and agents documents by examiners regarding notices and decisions, etc., managers in the examination office check substantive and formal aspects of such documents for all cases. Examiners consult with other examiners in order to share search know-how and knowledge, etc., in order to curb search and decision discrepancies among examiners.

#### Quality Verification

Decisions and notices, etc. prepared by examiners are audited by quality management officers to check compliance and validity in terms of content and format before sending official documents to applicants and agents. In order to ascertain various user needs, the JPO conducts interviews at informal meetings with businesses, accepts information provided in relation to individual cases, and user satisfaction surveys.

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<sup>14</sup> For more details about Quality Management Initiatives, please visit the following:  
<https://www.jpo.go.jp/e/introduction/hinshitu/shinsa/index.html>



#### 4) International Cooperation on Examination

##### Patent Prosecution Highway (PPH)

The PPH is a framework that allows an application determined to be patentable by the Office of Earlier Examination (OEE) to undergo, at the request of the applicant, accelerated examination with simplified procedures at the Office of Later Examination that is a PPH partner of the OEE. The world's first PPH, advocated by the JPO, and was launched between Japan and the U.S. in July 2006 as a pilot program.

- As of January 2021, the number of IP offices participating in the PPH has increased to 55.
- As of January 2021, the JPO has been implementing the PPH with 45 IP offices, including new PPH collaboration with the National Institute of Industrial Property (Institut national de la propriété industrielle (INPI)) of France from January 2021.
- With regard to the PPH program between the JPO and the National Institute of Industrial Property (INPI) of Brazil, the INPI relaxed the maximum annual number of PPH requests to the INPI in January 2021.
- The PPH Portal Site provides one-stop access to the PPH implementation status and statistical information of participating IP offices.<sup>15</sup>
- The JPO serves as the secretariat of the "Global Patent Prosecution Highway (GPPH)", a multinational framework launched in January 2014.
- In the GPPH, all types of PPH, including PPH-MOTTAINAI and PCT-PPH,<sup>16</sup> are available among the participating IP offices.
- In July 2020, the National Institute of Industrial Property (INAPI) of Chile joined the GPPH framework, bringing the number of IP offices participating in the GPPH to 27.

##### Patent Prosecution Highway Plus (PPH Plus)

PPH Plus is a framework that enables accelerated right for a patent application of the same invention which has already been granted in Japan, by utilizing the examination results by the JPO. The JPO is currently implementing this framework with the Brunei Intellectual Property Office (BrUIPO). While the ordinary PPH is a framework for mutual sharing of examination results between the IP offices, PPH plus is intended to allow applicants that have requested PPH plus to acquire rights in an accelerated manner in Brunei by using the JPO's examination results, but the request for PPH cannot be filed with the JPO based on BrUIPO's examination results.

##### Cooperation for facilitating Patent Grant (CPG)

CPG is a framework that accelerates patent grant without conducting substantial examination, for an application of the same invention which is already granted a patent in Japan. The JPO is currently implementing this framework with the Ministry of

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<sup>15</sup> The PPH Portal Site provides one-stop access to the PPH implementation status and statistical information for participating IP offices.

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

<sup>16</sup> PPH-MOTTAINAI is a framework that enables an applicant to request PPH for an application determined to be patentable by the OEE, regardless of which of the two partner offices first receives the patent application. PCT-PPH is a framework that enables an applicant to request PPH for an application whose patentability is positively assessed in a written opinion or international preliminary examination report at the PCT international phase.

Industry, Science, Technology and Innovation of Cambodia, and the Department of Intellectual Property, Ministry of Science and Technology of Lao PDR.

#### 5) Recent Trends in Artificial Intelligence (AI)-related Inventions

Taking into account recent advances in AI technology centering on deep learning, the JPO studied the status of patent applications for AI-related inventions in Japan and overseas and updated the report and previous data in July 2020.<sup>17</sup>

This study covered “AI-related invention”<sup>18</sup> as (1) AI core technologies and (2) inventions in which AI has been applied to various technical fields. An overview of the study findings is as follows.

- Domestic patent applications for AI-related inventions have increased rapidly since 2014 due to the impact of the third AI boom.
- Applications for AI-related inventions referring to deep learning have increased rapidly since 2014. In 2018, nearly half of domestic patent applications for AI-related inventions referred to deep learning.
- For AI-applied areas, applications stand out in the fields of image processing, information retrieval and recommendation, business-related and control and robotics. This year's study shows a particular increase in application of AI to the field of medical diagnosis. Applications related to AI core technology are on the rise, both to the IP5 Offices and PCT. Among them, the number of applications to the USPTO and the CNIPA is particularly high. In particular, the number of applications to the CNIPA has continued to grow.

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<sup>17</sup> For more information on Accelerated Examination System, please visit the JPO website [https://www.jpo.go.jp/e/system/patent/gaiyo/ai/ai\\_shutsugan\\_chosa.html](https://www.jpo.go.jp/e/system/patent/gaiyo/ai/ai_shutsugan_chosa.html)

<sup>18</sup> The above definition of “AI-related invention” is used only in this research, and does not represent an official definition by the JPO.

## JPO Production information

Table 2.2 shows production figures for applications, examinations, grants, appeals or trials and PCT activities in the Japanese procedure in 2019 and 2020.

**Table 2.2: JPO PRODUCTION INFORMATION**

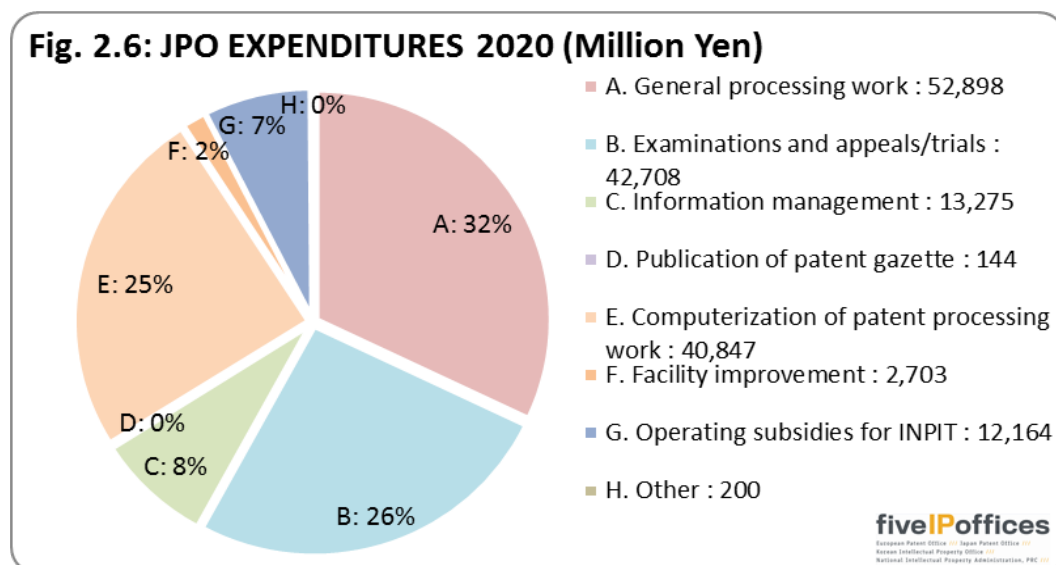
JPO PRODUCTION FIGURES	2019	2020	Change	%Change
<b>Applications filed (by Origin of Application)</b>				
Domestic	245,372	227,348	-18,024	- 7.3%
Foreign	62,597	61,124	- 1473	- 2.4%
<b>Total</b>	<b>307,969</b>	<b>288,472</b>	<b>- 19,497</b>	<b>- 6.3%</b>
<b>Applications filed (by Type of Application)</b>				
Divisional <sup>19</sup>	27,665	26,827	838	- 3.1%
Converted <sup>20</sup>	92	59	- 33	- 35.9%
Regular	280,212	261,586	18,626	- 6.7%
<b>Total</b>	<b>307,969</b>	<b>288,472</b>	<b>-19,497</b>	<b>- 6.3%</b>
<b>Examination</b>				
Requests	235,182	232,215	-2,967	+ 1.3%
First Actions	227,293	222,344	-4,949	- 2.2%
Final Actions	224,375	221,486	-2,889	- 1.3%
<b>Grants</b>				
Domestic	140,865	140,322	-543	- 0.4%
Foreign	39,045	39,061	+16	+ 0.0%
<b>Total</b>	<b>179,910</b>	<b>179,383</b>	<b>-527</b>	<b>- 0.3%</b>
<b>Appeals/Trials</b>				
Demand for Appeal against refusal	16,699	16,899	+ 200	+ 1.2%
Demand for Trial for invalidation	113	121	+8	- 7.1%
<b>PCT Activities</b>				
International searches	51,666	50,383	-1,328	- 2.6%
International preliminary examinations	2,000	1,806	- 194	- 9.7%

<sup>19</sup> 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.

<sup>20</sup> 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. 2.6 shows JPO expenditures by category in 2020.



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

## JPO Staff Composition

As of the end of FY 2020, the total number of staff at the JPO was 2,789.

Examiners		
Patent / Utility model		1,666
Design		50
Trademark		161
Appeal examiners		380
General staff		532
Total		2,789

## More information

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

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

## KOREAN INTELLECTUAL PROPERTY OFFICE

### Overview

As the Korean governmental agency primarily responsible for overseeing IPRs, the KIPO strives to 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 aims to provide fast, high-quality, and customer-oriented examination services by continuing to improve examination systems, raise the quality of IP administration, and reduce first action pendency.

The average first office pendency in 2020 was 11.1 months for patents and utility models, 8.9 months for trademarks, and 4.6 months for industrial designs.

### IP Competitiveness

In 2020, the KIPO received a preliminary total of 557,256 applications filing for patents, utility models, industrial designs, and trademarks. Out of that number, 79,054 applications were filed by residents of foreign countries.

### PCT Applications

The number of PCT applications from Korea has continually grown every year. We have the fourth largest amount of PCT applications by country of origin. There were 19,675 PCT applications in total for 2020 which is a 4.2 increased from 18,885 applications in 2019.

The Korean language is also the fifth most commonly used language as an official PCT publication language

## PROVIDING IP SERVICES

### 1. Response to COVID-19 : Adjustment of Examination & Trial Services

#### 1) Patent Fee Reduction for Special Disaster Zones

In the R. Korea, early cluster outbreaks of COVID-19 had severely affected specific regions such as Daegu City and Gyeongsangbuk-do Province. As the Korean government designated these regions as special disaster zones on March 15, 2020, the KIPO declared a one-year patent fee reduction for residents of these regions until March 14, 2021.

More specifically, individuals and businesses with their resident address in these special disaster zones were eligible for a reduction of their patent fees. A 30 percent fee reduction was provided for trial requests, registration for establishment of rights, annual registrations and applications for patents, utility models, and designs. Also, a 75 percent fee reduction was provided for the international search requested by SMEs filing international patent applications under the PCT.

### 2) Ex Officio Extension for Patent Document Submission

Considering the global impact the epidemic, it was anticipated that domestic and overseas applicants would have difficulties meeting the submission deadline of patent applications designated by KIPO. Under the Korean Patent Act, KIPO was able to *ex officio* extended document submission deadlines for 82,795 cases in total.

Initially, any deadline for document submission falling within March 31 to April 29, 2020 was *ex officio* extended to April 30, 2020. Afterwards, any deadline falling within April 30 to May 30, 2020 was again extended to May 31, 2020 for a second time. These particular extensions did not require applicants or agents to file for the extension nor to pay the fees arising therefrom. By alleviating this burden, applicants were able to proceed with their IPR acquisition. The same arrangement was extended to patent applications from overseas where the spread of COVID-19 was severe, such as Europe and the U.S.

### 3) Additional measures for Court Proceedings in response to COVID-19

In response to the new challenges of the COVID-19 pandemic, KIPO adopted additional measures so that cases can continue to be heard in a safe environment. Previously, the Intellectual Property Trial and Appeal Board (IPTAB) of KIPO only allowed videoconference oral hearings in which parties needed to be physically present in the videoconference oral hearing rooms in Seoul or Daejeon. However, KIPO has implemented telephonic hearings to prevent parties and representatives from having to physically attend oral proceedings and instead participate by telephone, a measure that accommodates social distancing in the effort to contain the pandemic. Telephonic hearings could potentially provide benefits in situations where Internet access is not secure. Furthermore, online interviews were introduced in order to enable parties to participate remotely from their home or offices via Internet ([vc.on-nara.go.kr](http://vc.on-nara.go.kr)).

## 2. Cutting-edge Technology Used to Create Mobile e-filing, the World's First for Trademark Applications

The e-filing website of KIPO, *Patent-ro* ([www.patent.go.kr](http://www.patent.go.kr)), was upgraded in 2020 with focus on enhancing user access and functionality. It is now possible to carry out a wide range of services through a mobile device from filing trademark applications to receiving notifications, paying fees, viewing examination progress, obtaining registration certificates, etc. Also, users are able to customize their homescreen for quick access to their most used features.

Additionally, the website allows a simple authentication process through browser-embedded authorization certifications or “Digital Onepass,” which is a system that

gives access to a wide range of Korean government services through a single username and verification tool. Furthermore, by utilizing a blockchain-based proxy service to distribute and share filing data, users can benefit from a 24/7 uninterrupted submission services for their IPR application.

### **Promoting IP Creation and Utilization**

#### **1. Korean Patent Big Data Center Opened**

In June 2020, KIPO and the Ministry of Trade, Industry and Energy launched the "National Patent Big Data Center" under the Korea Intellectual Property Strategy Agency (KISTA). Multilateral analysis of patent big data will allow examination of patent competitiveness each by company and by country as well as identify future technologies to guide direction of R&D. Furthermore, it is expected that the utilization of patent big data in the IP market will extend even to the private sector, such as patent consultations for companies.

#### **2. IP Finance Surpasses KRW 2 trillion in the R. Korea**

Soon after reaching KRW 1 trillion in 2019, the total amount of Korea's IP-backed financing transactions rapidly increased by 52.8 percent to record KRW 2.064 trillion by 2020. Loans collateralized by IP accounted for KRW 1.093 trillion and loans guaranteed by IP accounted for KRW 708.9 billion. IP-based investment, which is the investment in companies that own outstanding IP rights or a direct investment for IP rights, accounted for KRW 262.1 billion.

### **Establishing Global IP Cooperation**

#### **1. RCEP Signing among Nations of the Asia-Pacific Region**

The representatives of fifteen countries including the R. Korea, Australia, China, Japan, and New Zealand and the ten countries of the ASEAN region gathered virtually on November 15, 2020 to witness the signing of the Regional Comprehensive Economic Partnership (RCEP) during the fourth RCEP Summit.

The partnership will create a foundation for IPR protection in a considerable market that accounts for 2.26 billion people or 30 percent of the world's population, USD 26.3 trillion or 30 percent of the world's GDP, and USD 5.4 trillion or 28.7 percent of global trade. The Agreement contains 20 Chapters, 17 annexes and 54 schedules of commitments of which specifically defines a total of 83 provisions with respect to trademarks, patents, and designs.

#### **2. 10-Year Vision for Trilateral IP Cooperation**

KIPO, CNIPA and JPO have come together to establish a trilateral cooperation on IP, called the TRIPO cooperation, with the goal of facilitating exchange and utilization of patent examination information, harmonizing patent examination practices, and establishing international norms. In celebration of the 20th anniversary of the TRIPO

cooperation, a 10-year vision for trilateral IP cooperation was established with a view to adopting it at a next trilateral Summit Meeting.

Under the new vision, the TRIPO will make concerted efforts for joint responses to address new challenges, such as digital transformation and the spread of pandemic, by improving relevant laws, examination practices and systems for facilitating the creation and protection of innovative technologies. Also, they will cooperate to improve public access and encourage utilization of patent information by the private sector and to expand cooperation to include other countries or regions, thereby supporting other countries' endeavours to achieve technological development and innovation-driven growth. Furthermore, the meeting was especially meaningful in that each country shared information on their respective cooperative programs implemented with ASEAN countries. The TRIPO cooperation will continue to advance the range and depth of cooperation based on mutual trust.

### KIPO Production information

Table 2.3 shows production figures for applications, examinations, grants, appeals or trials and PCT activities for 2019 and 2020.

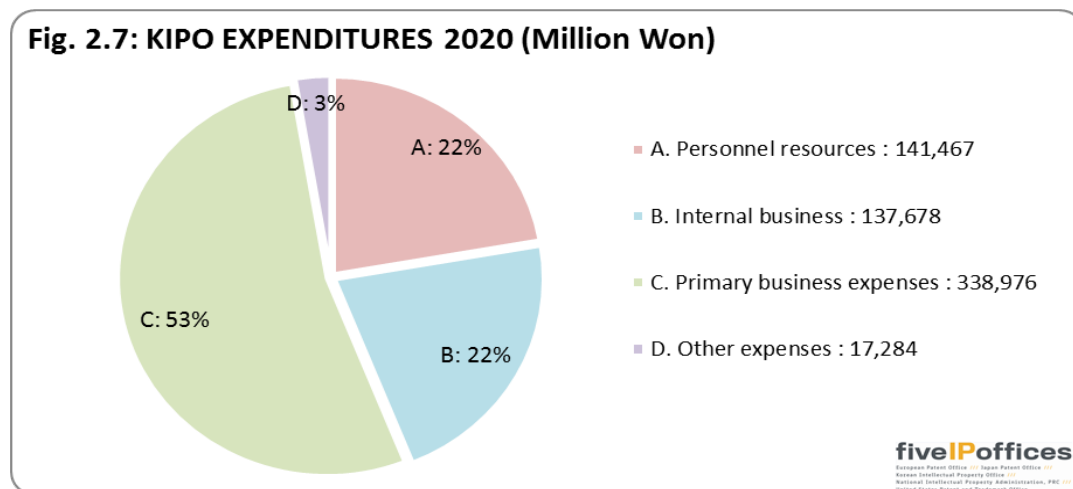
**Table 2.3: KIPO PRODUCTION INFORMATION**

<b>KIPO PRODUCTION FIGURES</b>	<b>2019</b>	<b>2020</b>	<b>Change</b>	<b>%Change</b>
<b>Applications filed (by Origin of Application)</b>				
Domestic	171,603	180,477	+ 8,874	+ 5.2%
Foreign	47,372	46,282	- 1,090	- 2.3%
<b>Total</b>	<b>218,975</b>	<b>226,759</b>	<b>+ 7,784</b>	<b>+ 3.6%</b>
<b>Examination</b>				
Requests	183,816	223,842	+ 40,026	+ 21.8%
First Actions	172,371	186,495	+ 14,124	+ 8.2%
Final Actions	170,160	177,556	+ 7,396	+4.3%
<b>Grants</b>				
Domestic	94,852	103,881	+ 9,029	+ 9.5%
Foreign	30,809	30,885	+76	+ 0.3%
<b>Total</b>	<b>125,661</b>	<b>134,766</b>	<b>+ 9,105</b>	<b>+ 7.2%</b>
<b>Appeals/Trials</b>				
Demand for Appeal against refusal	2,820	2,110	- 710	- 25.2%
Demand for Trial for invalidation	477	383	- 94	- 19.7%
<b>PCT Activities</b>				
International searches	27,154	28,536	+ 1,382	+ 5.1%
International preliminary examinations	131	100	-31	- 23.7%



## KIPO budget

Fig. 2.7 shows KIPO expenditures by category in 2020



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

## KIPO Staff Composition

At the end of 2020, the KIPO had a total staff 1,819. The breakdown is as follows.

Examiners	
Patents and Utility Model	932
Designs and Trademarks	197
Appeal examiners	107
Other staff	583
Total	1,819

## More information

Further information can be found on KIPO's Homepage:

<https://www.kipo.go.kr/en/MainApp>

## **China National Intellectual Property Administration**

### **Statistical Overview of 2020**

#### **1) Patent Applications in 2020**

In 2020, a total of 1,497,159 invention patent applications were filed in China, as increased by 6.9 percent compared with the previous year. Among them, 1,344,817 were domestic invention patent applications, with an annual increase of 8.1 percent, while 152,342 originated from abroad, with a year-on-year decrease of 3.0 percent. Up to 66.8 percent of domestic invention patent applications were filed by enterprises.

In 2020, 2,926,633 utility model patent applications and 770,362 design patent applications were filed in China, with annual increase of 29.0 percent and 8.3 percent respectively.

#### **2) Patents Granted in 2020**

In 2020, 530,127 invention patents were granted, a year-on-year increase of 17.1 percent, among which 440,691 were granted to domestic patentees. In 2020, 2,377,223 utility model patents and 731,918 design patents were granted, with a year-on-year increase of 50.2 percent and 31.5 percent respectively.

#### **3) Valid invention patents in 2020**

As of the end of 2020, invention patents granted and maintained valid totalled 3,057,844, a year-on-year increase of 14.5 percent. Among them, 2,279,123 were domestic invention patents, accounting for 74.5 percent of the total, an increase of 18.3 percent; the number of foreign invention patents in force in China was 778,721, accounting for 25.5 percent of the total, an increase of 4.6 percent. By the end of 2020, the number of invention patents in force per 10,000 persons in China (HKSAR, MSAR, and Taiwan Province of China not included) was 15.8.

### **CNIPA production information**

Table 2.4 shows production figures of patent applications, examination, grants, re-examination and invalidation, and PCT activities in the years 2019 and 2020. The data in table 2.4 concentrate only on patents for invention.

**Table 2.4: CNIPA PRODUCTION INFORMATION**

<b>CNIPA PRODUCTION FIGURES</b>	<b>2019</b>	<b>2020</b>	<b>Change</b>	<b>% Change</b>
<b>Applications filed</b>				
Domestic	1,243,568	1,344,817	+101,249	+ 8.1%
Foreign	157,093	152,342	-4,751	- 3.0%
<b>Total</b>	<b>1,400,661</b>	<b>1,497,159</b>	<b>+ 96,498</b>	<b>+ 6.9%</b>
<b>Examination</b>				
First actions	1,069,288	1,177,540	+ 108,252	+ 10.1%
Final actions	1,023,221	1,093,942	+ 70,721	+ 6.9%
<b>Grants</b>				
Domestic	360,919	440,691	+ 79,772	+ 22.1%
Foreign	91,885	89,436	-2,449	- 2.7%
<b>Total</b>	<b>452,804</b>	<b>530,127</b>	<b>+ 77,323</b>	<b>+ 17.1%</b>
<b>Re-examination and invalidation</b>				
Re-examination requests	44,138	49,988	+ 5,850	+ 13.3%
Invalidation request	1,403	1,442	+ 39	+ 2.8%
<b>PCT activities</b>				
International searches	55,776	70,068	+14,292	+ 25.6%
International preliminary examinations	527	456	-71	-13.5%

#### 4) Examination Period

The CNIPA adopted time-sliced segment management (where the whole procedure was monitored and managed by divided time point and period) in the whole examination procedure for examination period management by objectives to ensure well-distributed and reasonable examination period. In 2019, the pendency period for the granting of invention patents was approximately 22.2 months.

#### Information and Documentation

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

##### 1) Patent Information Public Service System

In 2019, the CNIPA completed the catalogue on basic IP Information, developed a management system, issued the Measures for the Management of IP Basic Information and Data. The CNIPA made the IP basic data further available, continued to improve the patent data service test system, and added five types of data resources, such as the status of the Chinese laws, invalidation, and re-examination. The types of data available for the public to download rose to 34 with the download bandwidth

doubled, and the paper agreements were replaced by electronic protocols. In 2019, the number of registered users of the patent data service test system reached 15, 000, with an increase of 10 percent, and the total amount of data downloaded accumulatively by users exceeded 478TB, with an increase of 59 percent. The international data exchange and the data sharing among domestic ministries and commissions were actively advanced.

### **1) Examination Period**

In 2020, the average examination pendency for invention patents was shortened to 20 months, and the examination pendency for high-value patents was shortened to 14 months. Throughout the year, over 4,520,000 patent applications were examined and concluded, with a year-on-year increase of twenty percent, among which there were about 1,120,000 cases of examination on patent applications for invention.

## **Information and Documentation**

### **1) Information service**

CNIPA has improved the public IP information service system. As of the end of 2020, public IP information service agencies were set up in 28 provinces (autonomous regions and municipalities) and 15 sub-provincial cities, and comprehensive IP information public service agencies were set up in 27 percent of prefecture-level cities. The Implementation Measures for Recordation of National Public Intellectual Property Information Service Centers was issued. A total of 102 WIPO Technology and Innovation Support Centers (TISCs) have been selected and certified in 4 batches, achieving full coverage in 31 provinces, municipalities, and autonomous regions.

#### **Information infrastructure construction was strengthened.**

The National IP Public Service Platform was launched for trial operation to provide one-stop services, including application, payment, information inquiry, search and download for trademarks, patents, geographical indications, and layout designs of integrated circuits. The new-generation local patent search and analysis system was enhanced, with the bibliographic items publicly available for download increased from 7 to 29, and the service scope expanded to the whole country.

#### **Information dissemination and utilization was facilitated.**

CNIPA has been promoting the access and sharing of basic IP data while strengthening data management. The Plan for Coordination and Integration of Basic Intellectual Property Information and Resource Platforms was formulated, and the catalogue management system for basic IP information was developed. The Standard for Basic Intellectual Property Information Data (Version 2020 for Trial Implementation) was compiled, which increased the types of accessible basic patent data from 29 to 34.

### **2) Documentation service**

Throughout the year, a total of 150 types of documentation resources were allocated, including 6 types of patent resources and 144 types of non-patent resources, which provides basic guarantees for patent examination, public patent information services and related research. 2,435 patent documents and 25,000 non-patent literatures were provided to examiners throughout the year. CNIPA continued to exchange

patent documentation with IP offices and international organizations of 31 countries (regions), and donated Chinese patent documentation to 6 PCT ISAs and IPEAs. As of the end of 2020, CNIPA has possessed cumulatively 540 types of patent document resources. Among them, the bibliographic data, the full-text image data and the full-text data covered 104, 103, and 36 countries (regions) or international organizations respectively. The total volume of CNIPA's patent documentation exceeded 135 million.

### **3) Service facilitation reform**

More facilitated services were provided to applicants. 230 local counters that receive trademark applications and 34 local receiving offices for patent applications were set up nationwide, so as to facilitate nearby applicants. A green channel was opened for trademark examination; the mechanisms for priority examination and fast-track examination of patents were improved; and a system was established for delayed patent examination upon request. Patent certificates could be claimed in 33 local receiving offices nationwide.

### **International Cooperation**

In 2020, faced with challenges brought by the COVID-19 pandemic, CNIPA took innovative measures proactively for international cooperation on mitigating the impact of the pandemic. CNIPA is committed to promoting international IP cooperation and competition, participating actively in the global IP governance, advancing the adjustment of international IP norms, and deepening pragmatic IP cooperation with major countries and regions, in an effort to build a comprehensive international IP paradigm featuring coordinated progress in bilateral, plurilateral and multilateral levels and in collaboration with neighbouring countries.

### **PPH network kept expanding.**

CNIPA launched PPH pilot programs with its counterparts of Norway and Saudi Arabia, signed an updated PPH cooperation agreement with Brazil, extended PPH pilot programs with Malaysia, the Czech Republic and Chile, and extended the IP5 PPH pilot program for three years. By the end of 2020, CNIPA has networked with 30 PPH partners, including 16 IP offices in countries and regions along the Belt and Road.

### **Work sharing programs progressed steadily.**

The evaluation of the PCT Collaborative Search and Examination Pilot (PCT CS&E) and the China-Korea Joint Search Pilot (CSP) started orderly, following the completion of run phase. Pursuant to users' demand for information on overseas patent application procedures, outreach and training activities were launched to introduce international work sharing programs and their outcomes to the public via multiple channels.

### **Patent examination exchanges went on smoothly.**

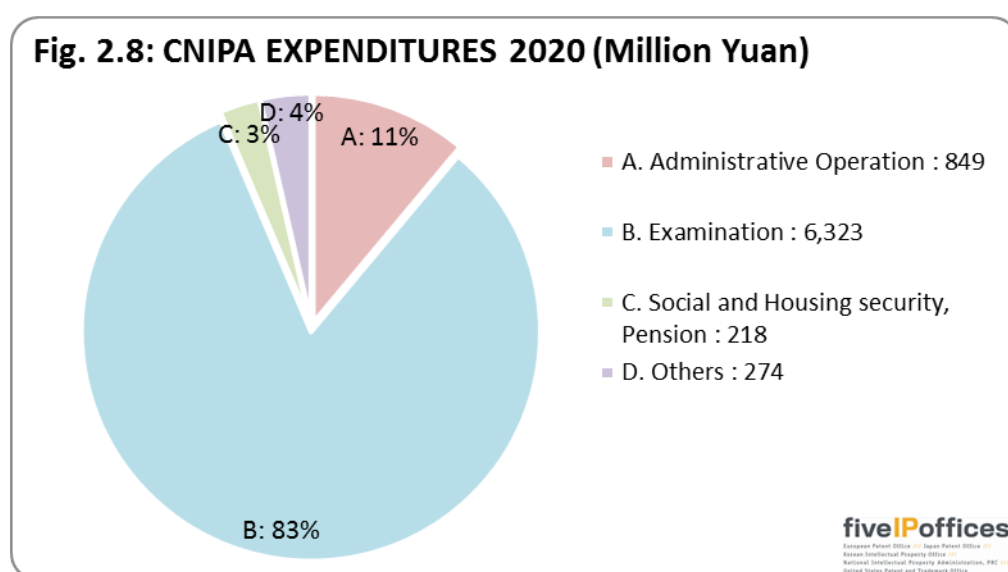
The China-EU expert videoconference on patent examination quality was held for in-depth exchanges on quality management and patent examination standards in the field of new emerging technologies. The China-Japan examiner exchange program (Phase I) was carried out via video conferences and yielded evident results.

## Patent documentation cooperation was further strengthened.

International cooperation programs on patent documentation were carried out online in 2020. CNIPA took an active part in revising international patent classifications, with 3 proposals approved by WIPO, 11 proposals put forward at the IP5 platform, and another 1 proposal in regard to new emerging technologies presented to WIPO for consideration. China-EU documentation cooperation was further deepened, and bilateral videoconferences were held on documentation resource management, patent information services, and CPC task forces. Three China-EU CPC online training sessions were held, attended by nearly 120 classifiers and examiners.

## The CNIPA budget

Fig 2.8 shows CNIPA expenditures by category in 2020.<sup>21</sup>



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

## The CNIPA Staff Composition

By the end of 2019, the CNIPA has 8 functional departments (vice bureau level).

## More information

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

<sup>21</sup> Percentages may not total 100 due to rounding.

## UNITED STATES PATENT AND TRADEMARK OFFICE

### Mission Statement

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

Fostering innovation, competitiveness and job growth in the United States by conducting high quality and timely patent and trademark examination and review proceedings in order to produce reliable and predictable intellectual property rights; guiding intellectual property policy, and improving intellectual property rights protection; and delivering intellectual property information and education worldwide.

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

The USPTO provides valuable products and services to its customers in exchange for fees 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. (collectively “the public advisory committees”).The USPTO operates with two core business units, Patents and Trademarks.

The USPTO’s Strategic Plan for Fiscal Years (FY)<sup>22</sup> 2018-2022 sets forth the Agency's three mission-focused strategic goals and one mission support 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.
- Mission Support Goal: Deliver Organizational Excellence.

### Agency News

In response to the global COVID-19 pandemic, the USPTO smoothly transitioned the workforce to mandatory telework, provided temporary relief for patent and trademark applicants affected by the pandemic, and actually improved the quality and efficiency of patent and trademark examination.

With the authority provided by the Coronavirus Aid, Relief, and Economic Security Act (CARES Act), the USPTO temporarily extended deadlines for filing many patent and

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<sup>22</sup> The USPTO’s Fiscal Year is October 1 to September 30.

trademark documents and paying certain fees. The USPTO did not receive an appropriation from Congress to support this relief; it was financed by the use of operating reserves and a number of spending adjustments to extend and target relief throughout the remainder of FY 2020.

Another way the USPTO worked to provide relief during the pandemic was to launch the COVID-19 Prioritized Patent Examination Pilot Program and the COVID-19 Prioritized Trademark Examination Program. These programs enabled the USPTO to, without payment of the typical fees associated with other prioritized examination, grant requests for prioritized examination to qualifying patent applicants and to accept petitions to advance the initial examination of applications for trademarks used to identify qualifying COVID-19 medical products and services. Since the programs' enactment in May 2020 for patents and June 2020 for trademarks, 272 patent requests for prioritized patent application examination have been granted, resulting in 46 patents being allowed or granted, and 130 trademark petitions have been granted, resulting in 14 trademark registrations being issued during the 2020 calendar year. More than half of the patent applications granted prioritized examination were directed to medical treatments, vaccines, and diagnostic technology. The balance of the applications were directed to ventilators, personal protective equipment (PPE), and other technology related to COVID-19. Almost half of the trademark petitions granted are for items designed to detect and treat COVID-19. The other half are for PPE and medical goods, as well as medical services related to COVID-19. To support research related to COVID-19, the USPTO also launched the Patents 4 Partnerships website, which provides a repository of patents and applications related to COVID-19 and creates a platform for connecting patentees and potential licensees.

To enhance patent quality, the USPTO implemented the first phase of updates to improve the examination process. These included an increase to the base time patent examiners are allotted to examine each application, as well as additional time for applications that contain particular attributes; the introduction of a new patent search system that provides examiners with increased access to prior art, in part, aided by AI; and enhanced classification efforts with the use of an auto-classification system that uses machine learning and AI to assign CPC symbols on patent documents and identifies whether CPC symbols are associated with the specific claimed subject matter, thereby improving consistency of classification practices and facilitating international harmonization.

For patent timeliness, the USPTO is focusing on Patent Term Adjustment (PTA) goals based on the statutory requirements laid out in The American Inventor's Protection Act (AIPA, 1999). Under the AIPA, specific time frames for the Office to act on applications at various stages of prosecution were set, with failure to meet these time frames possibly increasing the patent term. Shifting to PTA goals will provide increased accountability, consistency, and certainty throughout the examination process. For FY 2020, total PTA Compliance for all mailed actions (defined as all actions mailed by the USPTO 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 for all remaining inventory (defined as all cases awaiting any action by the USPTO 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 88 percent.

The Trademarks organization also had an impressive year with several new milestones, despite the challenges of a global pandemic. As a result of greater electronic processing of applications, efficiency gains throughout the application cycle enabled Trademarks to exceed pendency and quality targets in a year where trademark



applications increased by 9.6 percent and as COVID-19 forced a dramatic shift in agency operations. Trademarks also advanced a number of initiatives to mitigate suspicious filings, fraudulent filings and specimens, and counterfeit products.

Also in 2020, the USPTO launched an important initiative aimed at expanding invention and entrepreneurship in the United States: the National Council for Expanding American Innovation (NCEAI). The NCEAI was born out of a recommendation in the USPTO's 2018 SUCCESS Act and is tasked with helping the USPTO develop a long-term, comprehensive national strategy to build a more diverse and inclusive innovation ecosystem by increasing participation demographically, geographically, and economically. The NCEAI is committed to increasing the opportunities for all Americans to participate in innovation and will be an important catalyst for increasing opportunity and fuelling the United States' innovation economy.

### **International Cooperation and Work Sharing**

The USPTO continued to develop and provide international in-person and virtual programs to improve IP systems in countries around the world. Participants included foreign officials with IP-related responsibilities, including judges, prosecutors, and IP office administrators. In all, the USPTO worked with over 4,800 foreign government officials representing 121 countries and intergovernmental organizations. The USPTO worked throughout FY 2020 to improve IP protection and enforcement for U.S. stakeholders globally through its network of overseas IP attachés and U.S.-based IP specialists.

In FY 2020, the USPTO conducted 130 training programs through its Global Intellectual Property Academy (GIPA), serving over 10,688 individuals. Approximately 40 percent of all attendees were stakeholders representing 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 policymakers from the U. S. and 121 other countries. From 2017 to mid-2020, GIPA and the Office of Policy and International Affairs' China Team conducted China IP Road Shows in 29 cities and six related webinars on China IP topics.

The USPTO continues to be a global leader in developing worksharing programs that result in efficiencies for patent applicants and patent examiners as well as enhance the efficiency of the global patent system. In October 2021, the USPTO and Cambodian Ministry of Industry, Science, Technology & Innovation signed a worksharing agreement by which U.S. patent holders will now be able to request issuance of a corresponding patent in Cambodia without undergoing a substantive examination of their application. Also, early in FY 2020, the USPTO and Brazil's National Institute for Industrial Property put into effect a new PPH agreement that significantly expands on a prior agreement, allowing for applications for more industries and for higher annual caps. The USPTO and the Mexican Institute of Industrial Property (IMPI) signed a memorandum of understanding to implement a parallel patent grant framework that allows IMPI to leverage USPTO search and examination results when granting a corresponding Mexican patent, thereby furthering commitments made in the United States-Mexico-Canada Agreement. In July 2020, based on the success of a bilateral PPH with the USPTO, the National Institute of Industrial Property of Chile (INAPI) became the third Latin American office to join the Global PPH. As of the end of the fiscal year, a cumulative total of 68,099 applications with petitions had been filed under the PPH, with 60,221 applications granted

## 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 2019 and 2020.

**Table 2.5: USPTO PRODUCTION INFORMATION**

USPTO PRODUCTION FIGURES	2019	2020	Change	% Change
<b>Applications filed</b>				
Utility (patents for invention) <sup>23</sup>	621,453	597,175	- 24,278	- 3.9%
Domestic	292,998	277,297	-15,701	-5.3%
Foreign	328,455	319,878	-8,577	-2.6%
Plant	1,134	976	- 158	- 14%
Reissue	1,110	1,171	+ 61	+ 5.5%
<b>Total utility, plant &amp; reissue</b>	<b>623,697</b>	<b>599,322</b>	<b>- 24,375</b>	<b>- 4.0%</b>
Design	46,847	47,838	+ 991	+ 2.1%
Provisional	170,089	172,052	+ 1,963	+ 1.2%
<b>Total</b>	<b>840,633</b>	<b>819,212</b>	<b>- 21,421</b>	<b>- 2.6%</b>
Request for continued examination (RCE) <sup>24</sup>	170,568	154,731	- 15,837	- 9.3%
<b>PCT Chapter I searches</b>	<b>22,465</b>	<b>22,723</b>	<b>+ 258</b>	<b>+ 1.1%</b>
<b>PCT Chapter II examinations</b>	<b>1,003</b>	<b>1,035</b>	<b>+ 32</b>	<b>+ 3.2%</b>
<b>First actions (utility, plant, reissue)</b>	<b>600,057</b>	<b>573,920</b>	<b>- 26,137</b>	<b>- 4.4%</b>
<b>Grants (total)</b>	<b>354,430</b>	<b>351,993</b>	<b>- 2,437</b>	<b>- 0.7%</b>
U.S. residents	167,115	164,555	- 2,560	- 1.5%
Foreign	187,315	187,438	+ 123	+ 0.1%
Japan	53,542	51,619	- 1,923	- 3.6%
EPC states	55,638	54,377	- 1,261	- 2.3%
R. Korea	21,684	21,977	+ 293	+ 1.4%
P.R. China	19,209	21,428	+ 2,219	+ 12%
Others	37,242	38,037	+ 795	+ 2.1%
<b>Applications in appeal and interference proceedings (includes utility, plant, and reissue)</b>				
Ex-parte cases received	6,889	6,676	- 213	- 3.1%
Ex-parte cases disposed	11,353	7,767	- 3,586	- 31.6%
Inter-partes cases received	10	4	- 6	- 60%
Inter-partes cases disposed	19	15	- 4	- 21.1%
<b>Patent cases in litigation</b>				
Cases filed	682	684	+ 2	+ 0.3%
Cases disposed	778	716	- 62	- 8.0%
Pending cases (end of calendar year)	561	535	- 26	- 4.6%

<sup>23</sup> 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).

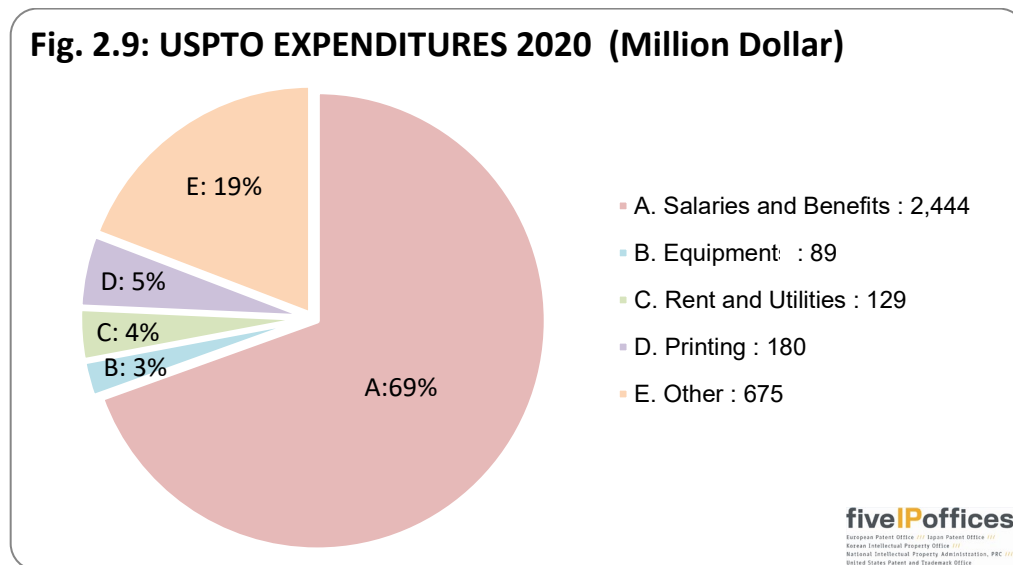
<sup>24</sup> A Request for Continued Examination is a USPTO procedure under which an applicant may obtain continued examination of an application by filing a submission and paying a specified fee, even if the application is under a final rejection, appeal, or a notice of allowance.

## 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 2020, USPTO expenditures totalled \$3.516 billion. Agency-wide, 18.0 percent of expenditures were allocated to IT security and associated IT costs.

Goal 1 – Optimize Patent Quality and Timeliness	\$ 3.105 billion
Goal 2 – Optimize Trademark Quality an Timeliness	\$ 344.3 million
Goal 3 – Provide Domestic and Global Leadership to Improve IP Policy, Protection and Enforcement Worldwide	\$ 66.2 million

Fig. 2.9 shows USPTO expenditures by category in 2020<sup>25</sup>



A description of the items in Fig. 2.9 can be found in Annex 1

## USPTO Staff Composition

At the end of FY 2020, the USPTO work force was composed of 12,928 federal employees. Included in this number are 8,230 Utility, Plant, and Reissue patent examination staff and 204 Design examination staff; 622 Trademark examining attorney staff, and 3,872 managerial, policy, legal, administrative and technical support staff.

## More information

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

<sup>25</sup> Percentages may not total 100 due to rounding.



## Chapter 3

# WORLDWIDE PATENTING ACTIVITY

Patenting activity is recognized as an indicator of innovation. This chapter examines worldwide patent activities in terms of patent applications and grants. The statistics mostly cover the five-year period from 2015 to 2019<sup>26</sup>.

Hereafter, the counts of applications and filings are by the calendar year of filing and grants by the calendar year of grant. Statistics are derived primarily from the WIPO Statistics Database<sup>27</sup>, 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.

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<sup>26</sup> The statistical tables file found in the web version of this report includes extended time series for much of the data included in this chapter, [www.fiveipoffices.org/statistics/statisticsreports.html](http://www.fiveipoffices.org/statistics/statisticsreports.html)

<sup>27</sup> This edition refers to general patent data as of April 2021, and to PCT international phase application data as of May 2021, <https://www.wipo.int/ipstats/en/index.html>. For some statistics on 2020, 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, OAPI<sup>28</sup>), 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.

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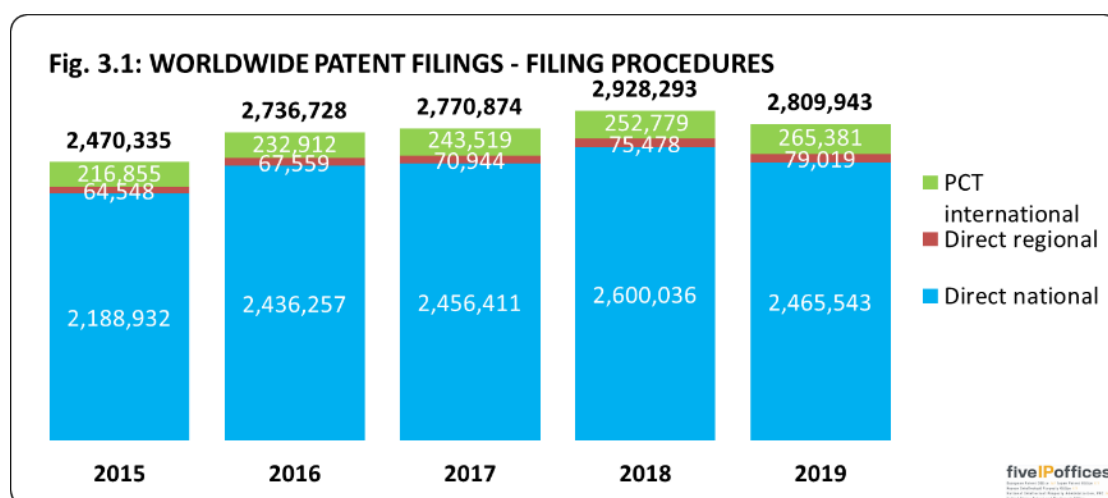
<sup>28</sup> The ARIPO is the African Regional Intellectual Property Office. The EAPO is the Eurasian Patent Organization. The GCCPO is the Gulf Cooperation Council Patent Office. The OAPI is the Organisation African Intellectual Property.

## 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.

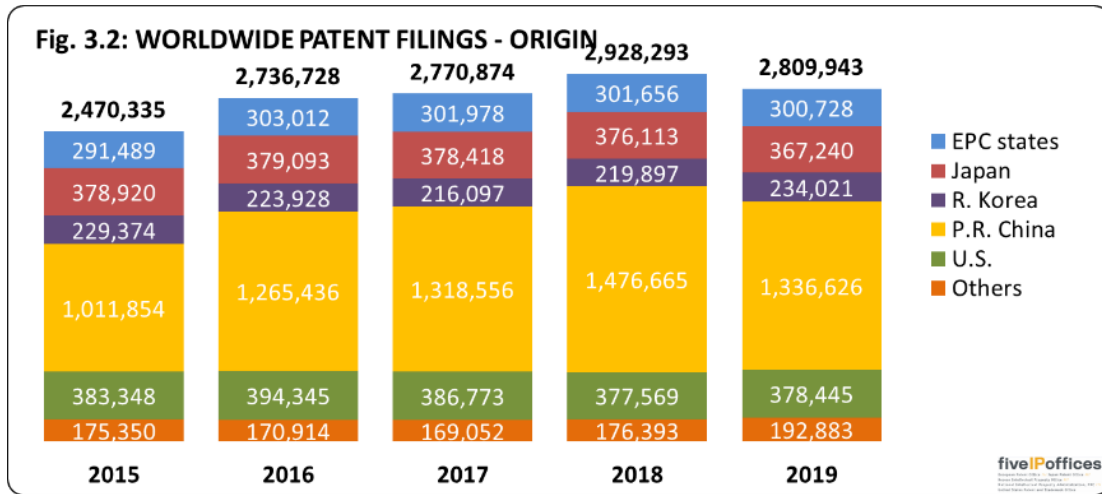


In 2019, the number of patent filings decreased by 4 percent to 2.8 million. The number of direct national filings decreased by 5 percent, while both direct regional and PCT international phase filings increased by roughly 5 percent. Overall, 88 percent of the filings were made according to direct national procedures.

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

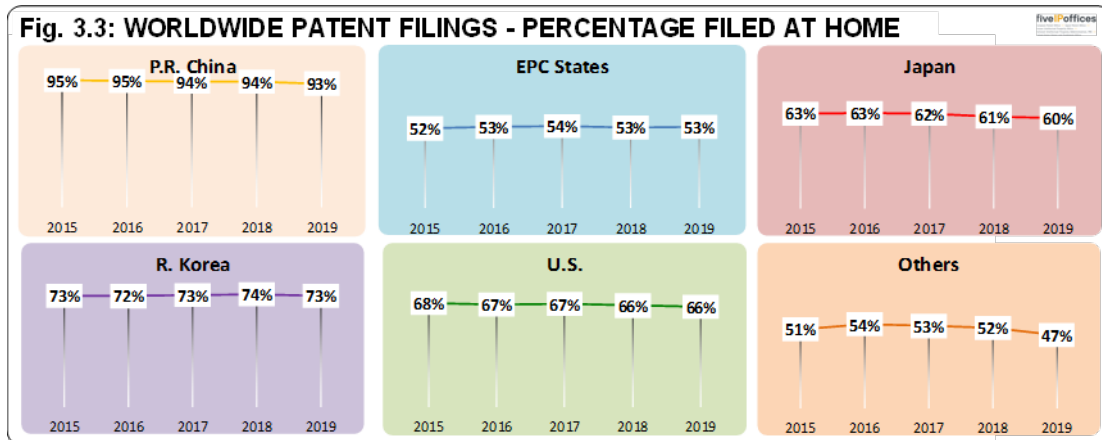


Fig. 3.2 shows the worldwide patent filings of Fig. 3.1 broken down by blocs of origin (residence of first-named applicant or inventor).



From 2015 to 2019, the IP5 Bloc's annual share increased slightly from 93 percent to 94 percent. In 2019, the number of patent filings decreased by 4 percent. The number of patent filings that originated from and U.S. and R. Korea increased by 10 percent and 6 percent respectively. Whereas, those originating from EPC states Japan and P.R. China decreased by 1 percent, 2 percent and 7 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 2019 with 93 percent. Among the IP5 blocs, the EPC states had<sup>29</sup> the lowest proportion with 53 percent in 2019.

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

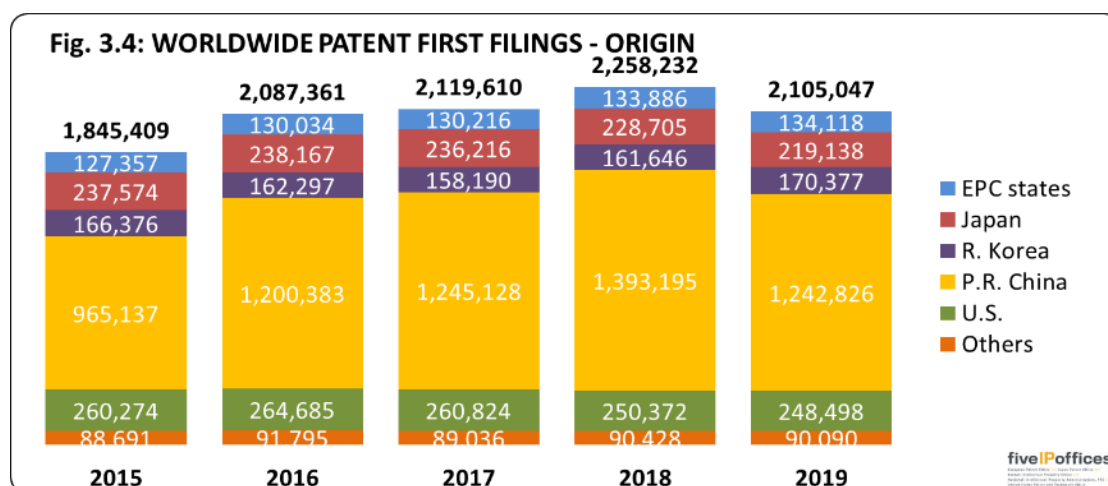
<sup>29</sup> For the purpose of reporting statistics for the EPC states considered as a bloc, a filing by a resident in an EPC state to another EPC state or to the EPO is considered to be filed within the bloc of origin. See the EPO section of Chapter 2 for a listing of the EPC states.

## 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 decreased by 6 percent from 2018 to 2019. P.R. China recorded 1,393,195 first filings in 2018, whereas in 2019, it sharply decreased by 11 percent. Despite the increase of first filings in EPC states, R. Korea, the drop of the first filing at the P. R China became a factor to the decrease of worldwide patent first filings.

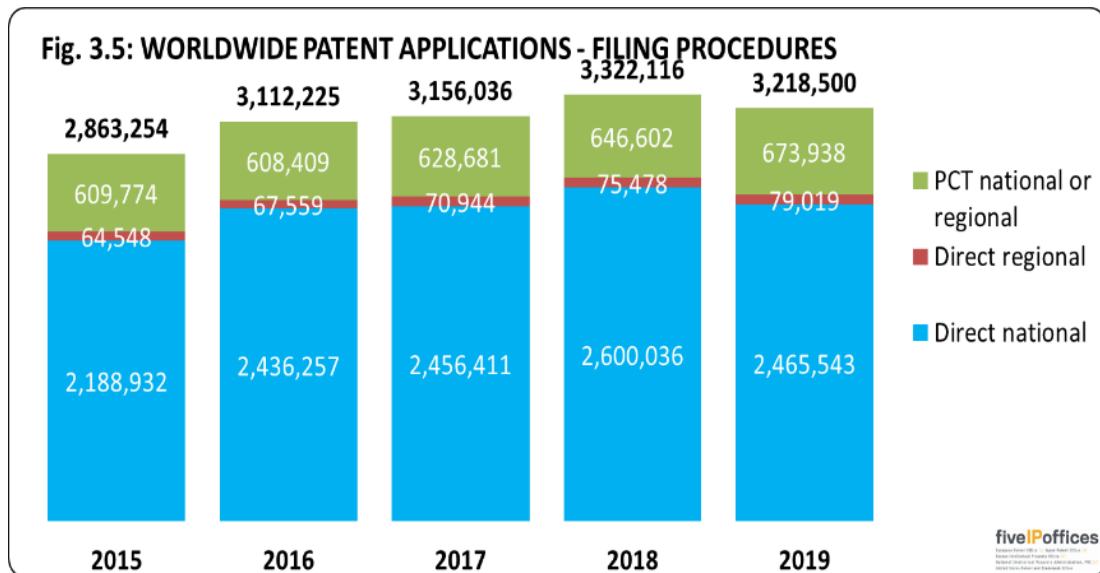
Comparison of Fig. 3.2 and 3.4 enables an evaluation of the numbers of subsequent filings, where the first filing for an invention at one office leads on to further filings, either elsewhere or at the same office. From the difference in the total for 2019 between Fig. 3.2 and Fig. 3.4, it can be estimated that there are 704,843 subsequent filings, meaning that on average there were 0.31 subsequent filings per first filing made in 2018, assuming a one year delay ( $704,843 / 2,258,232 = 0.31$ ).

## PATENT APPLICATIONS

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

Figs. 3.5, 3.6 and 3.7 describe the development of the numbers of patent applications in terms of requests for patents that entered a grant procedure. Note that direct national and direct regional applications enter a grant procedure when filed while, in the case of PCT applications, the grant procedure is delayed to the end of the international phase<sup>30</sup>. 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.

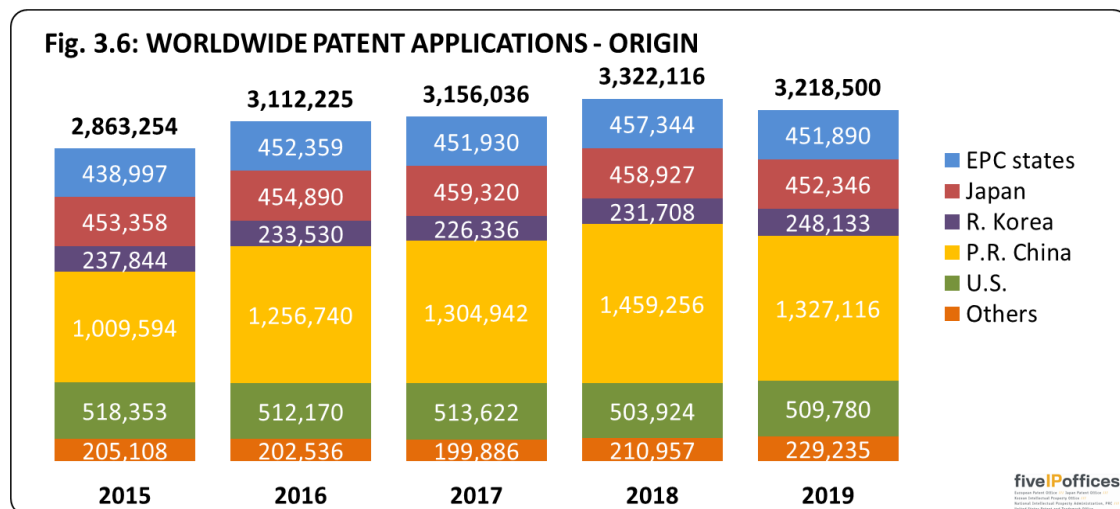


In 2019, 3.2 million patent applications were filed worldwide. This represents 3 percent decrease compared to 2018.

The number of direct national applications decreased by 5 percent, while number of PCT national/regional applications increased by 5 percent.

<sup>30</sup> 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.

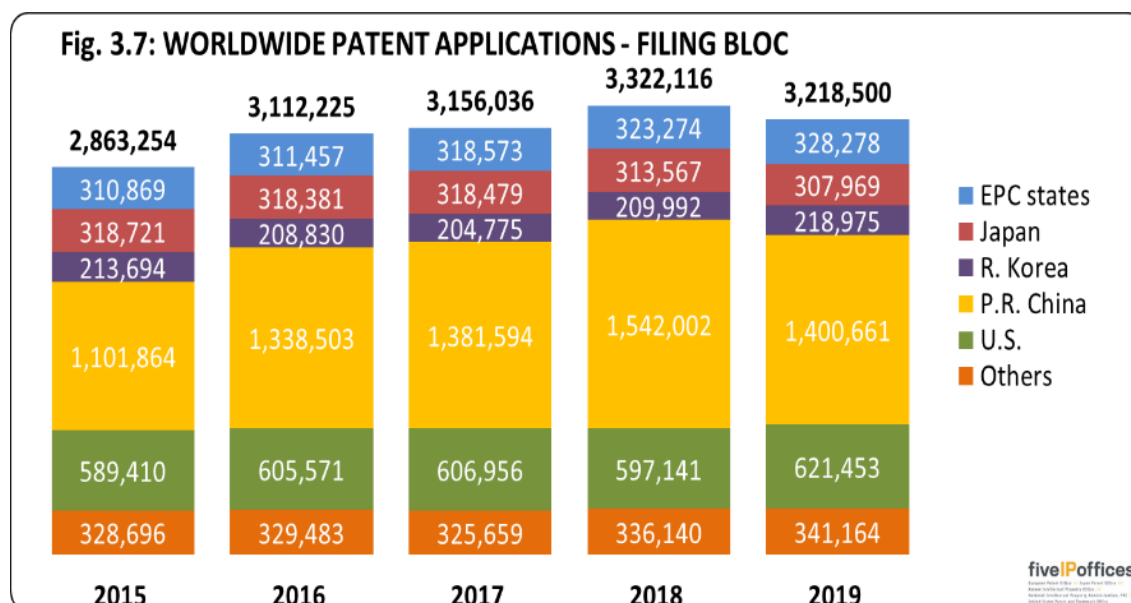
Fig. 3.6 shows the origins (residence of first-named applicants or inventors) of the worldwide patent applications of Fig. 3.5 entering a national or regional grant procedure.



In 2019, the largest share of applications in the IP5 Bloc originated from P.R. China. P.R. China also had the largest percentage decrease in applications by origin in 2019 (8 percent). Also, the numbers of applications from the EPC states and Japan decreased by 1 percent, while the numbers from U.S. and R. Korea increased by 9 percent and 7 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 2019, applications decreased by 9 percent in P.R. China, by 2 percent in Japan. The EPC states, KIPO and U.S. the number of patent applications increased 1 percent, 4 percent and 4 percent respectively.

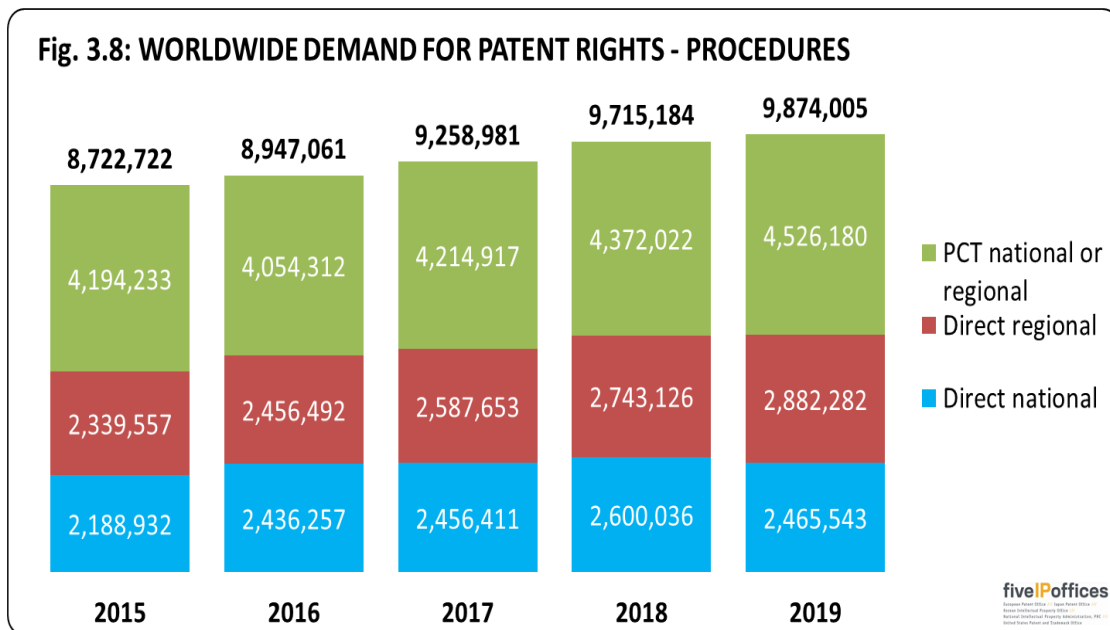
## DEMAND FOR NATIONAL PATENT RIGHTS

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 systems<sup>31</sup>.

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

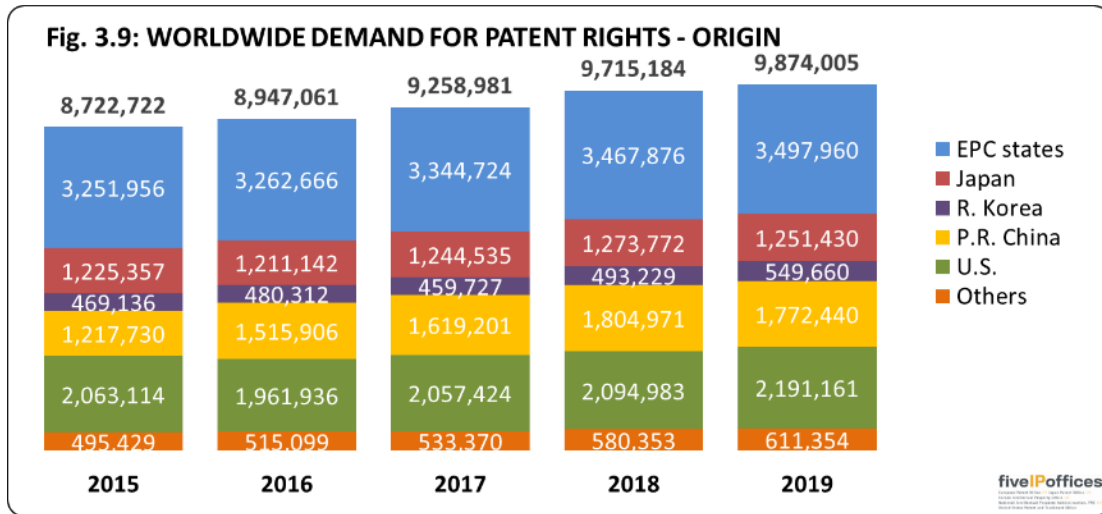


From 2018 to 2019, the worldwide demand for patent rights increased by 2 percent. In 2019, there was an increase in the use of direct regional and PCT national or regional filing procedures noted in Figure 3.8, while the use of the direct national procedures decreased by 5 percent.

Centralized filing procedures (PCT and direct regional) made up about 75 percent of the total demand in 2019. 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.

<sup>31</sup> At the end of 2019, 88 states were party to a regional patent system, ARIPO 19, EAPC 8, EPC 38, GCCPO 6 and OAPI 17. This compares to 87 states at the beginning of 2014. Also at the end of 2019, 153 states were party to the PCT, compared to 148 states at the end of 2015. In addition, national patents can also be created in other states that have extension or validation agreements with the EPO (see Chapter 2).

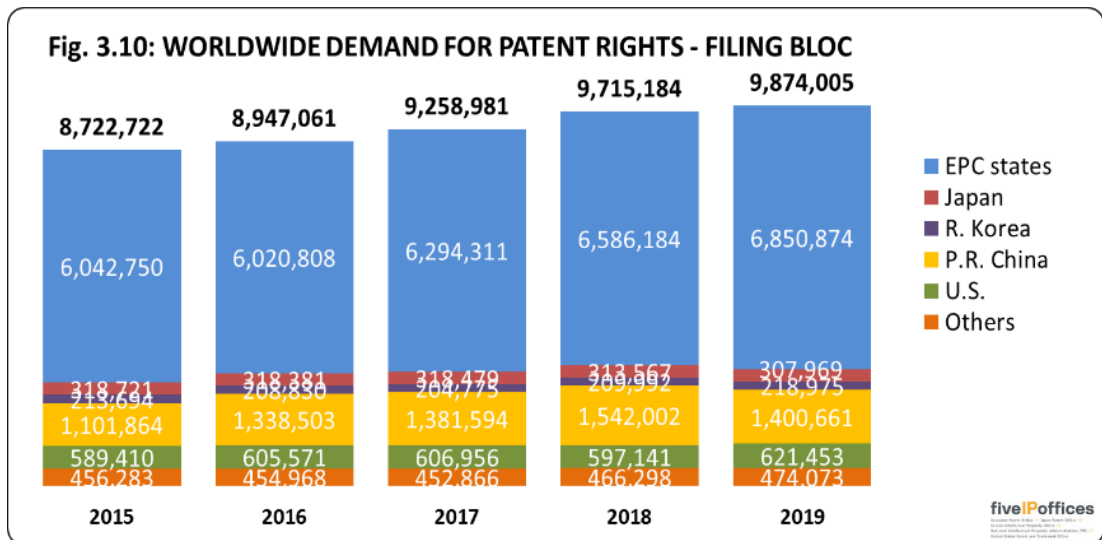
Fig. 3.9 shows the demand for national patent rights by blocs of origin (residence of first-named applicants or inventors) and is based on the same data as Fig. 3.8.



From 2018 to 2019, the worldwide demand for patent right increased by 2 percent. Demand from EPC states, R. Korea and U.S. increased by 1 percent, 11 percent and 7 percent. P.R. China and Japan decreased by 9 percent, and 2 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.

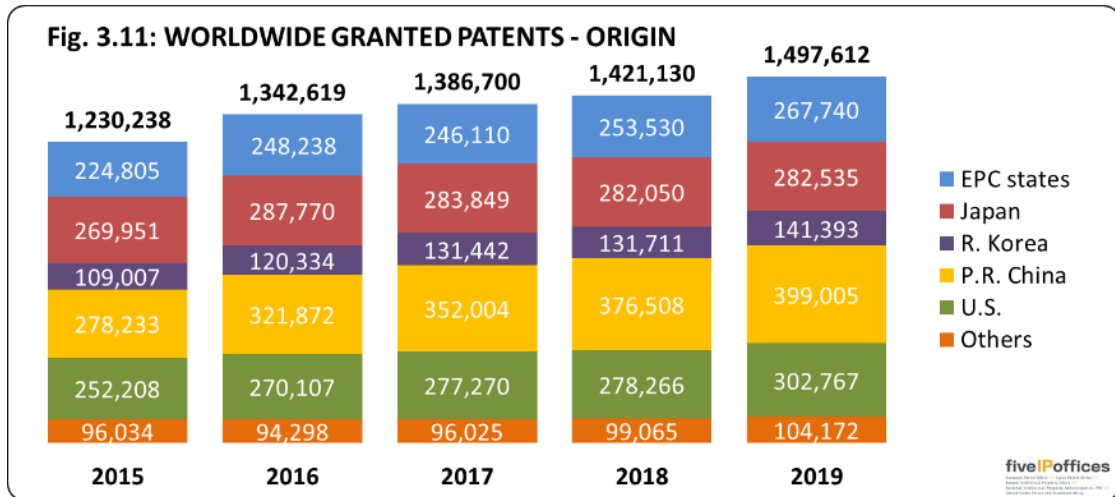


This chart illustrates the influence of regional patent systems. In 2019, the demand for national patent rights increased in EPC states, Japan, R. Korea and U.S by 4 percent, 17 percent, 4 percent and 4 percent respectively while that of in P.R China decreased by 9 percent.

## GRANTED PATENTS

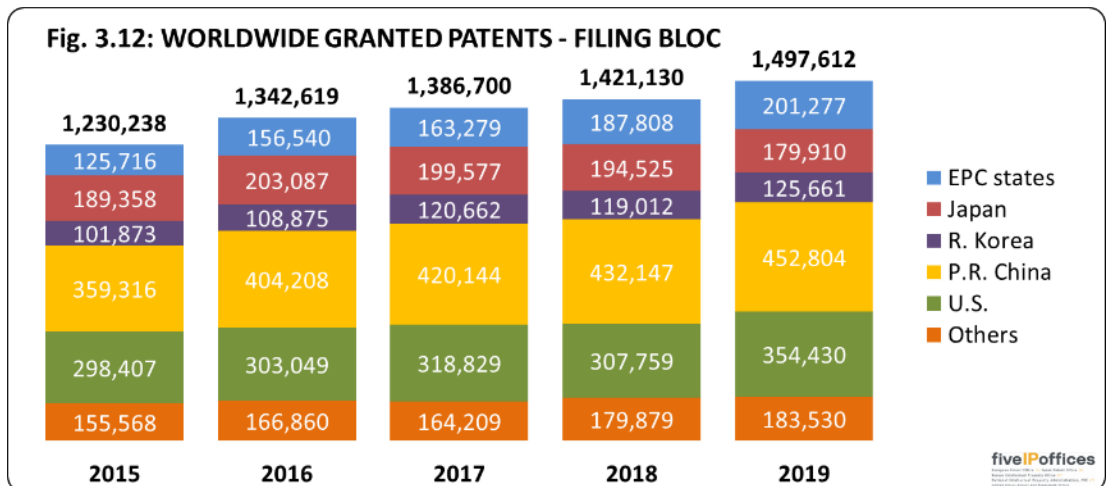
The development of the use of patents is shown in this section in terms of grants.

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 5 percent in 2019. Granted patent increased by 5 percent in EPC states, 7 percent in R. Korea, 7 percent in P.R. China and 9 percent in U.S respectively. In Japan it was almost stable.

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



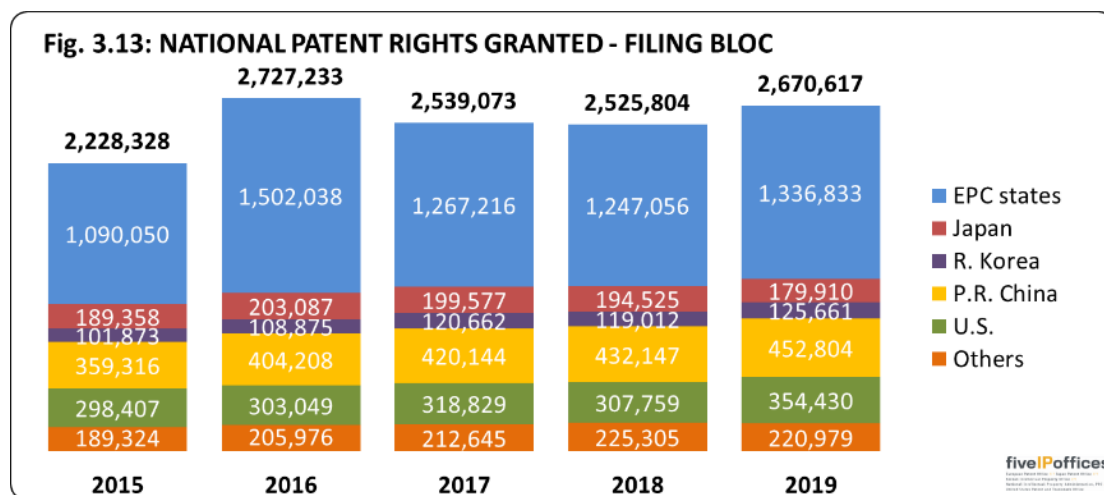
The U.S. had the largest percentage increase at 15 percent. The numbers of granted patents in EPC member states, R. Korea and P.R. China increased by 7 percent, 6 percent and 5 percent respectively. While in Japan, it decreased by 8 percent.

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 2019, more than 2.6 million patent rights were granted, which represents a 5 percent increase compared to 2018.

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 increased by 2 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.



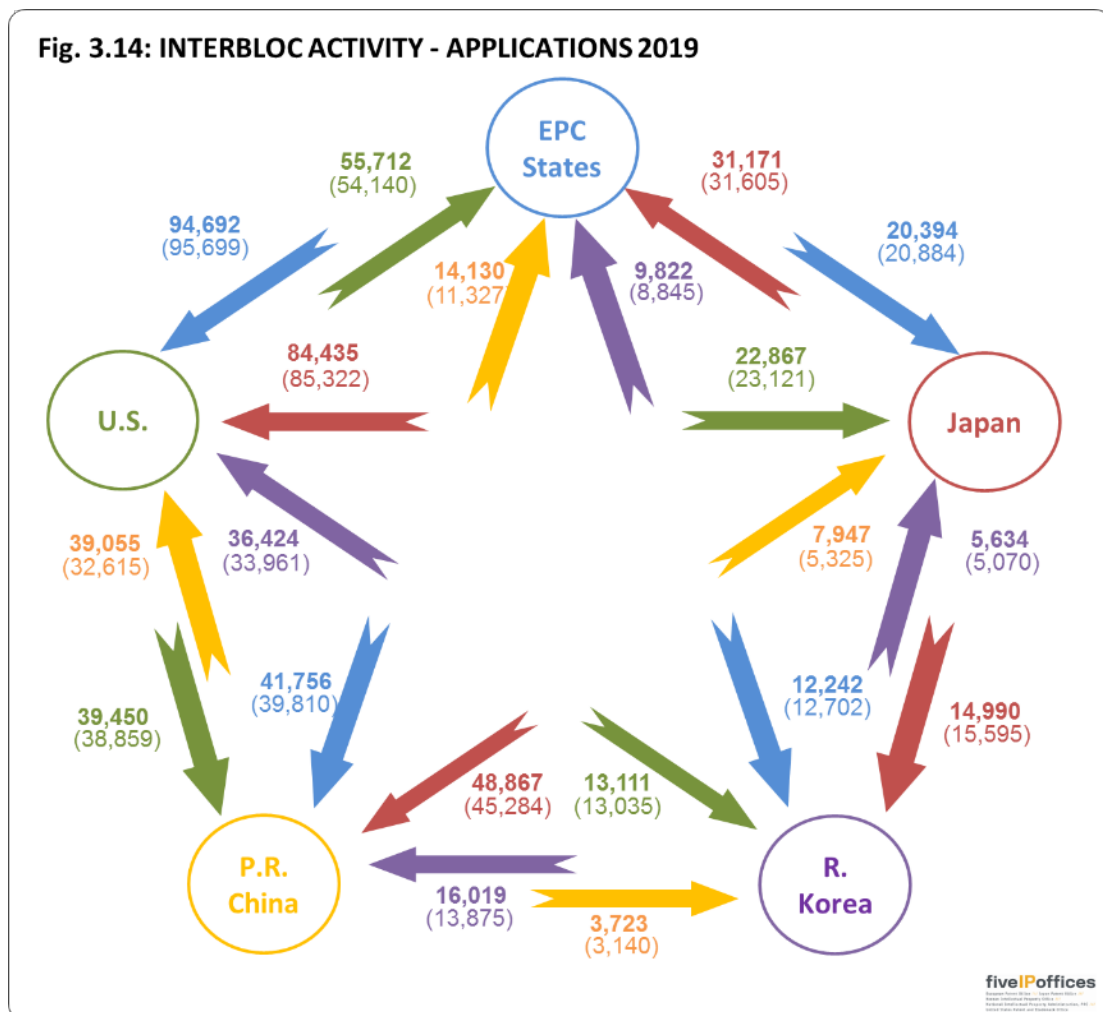
## INTER-BLOC ACTIVITY

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 2019, with 2018 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 2019, six of the twenty inter-bloc flows decreased to some extent. Flows from EPC states and Japan to U.S. decreased by 1 percent. Flows from EPC states and U.S. to Japan as well as from EPC states and Japan to R. Korea decreased.

The other fourteen of the twenty inter-bloc flows increased. In particular all flows starting from P.R. China increased markedly.

## 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)<sup>32</sup> 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 2015 and 2016. 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: 2015

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	127,357	51,703 (40.6%)	50,353 (39.5%)		16,228 (12.7%)	9,992 (7.8%)	32,463 (25.5%)	45,479 (35.7%)	14,631 (11.5%)	6,937 (5.4%)
Japan	237,574	65,951 (27.8%)	64,127 (27.0%)	25,163 (10.6%)		14,832 (6.2%)	39,296 (16.5%)	54,530 (23.0%)	13,563 (5.7%)	6,453 (2.7%)
R. Korea	166,376	26,855 (16.1%)	26,605 (16.0%)	8,408 (5.1%)	4,945 (3.0%)		14,276 (8.6%)	24,033 (14.4%)	2,698 (1.6%)	2,644 (1.6%)
P.R. China	965,137	22,553 (2.3%)	20,679 (2.1%)	8,135 (0.8%)	4,160 (0.4%)	2,940 (0.3%)		19,143 (2.0%)	5,610 (0.6%)	1,950 (0.2%)
U.S.	260,274	84,512 (32.5%)	76,795 (29.5%)	63,785 (24.5%)	29,083 (11.2%)	20,087 (7.7%)	52,398 (20.1%)		37,899 (14.6%)	12,932 (5.0%)
IP5 blocs subtotal	1,756,718	251,574 (14.3%)	238,559 (13.6%)	105,491 (6.0%)	54,416 (3.1%)	47,851 (2.7%)	138,433 (7.9%)	143,185 (8.2%)	74,401 (4.2%)	30,916 (1.8%)
Others	88,691	17,887 (20.2%)	17,747 (20.0%)	6,276 (7.1%)	2,846 (3.2%)	1,526 (1.7%)	6,276 (7.1%)	14,666 (16.5%)		877 (1.0%)
Globla total	1,845,409	269,461 (14.6%)	256,306 (13.9%)	111,767 (6.1%)	57,262 (3.1%)	49,377 (2.7%)	144,709 (7.8%)	157,851 (8.6%)	74,401 (4.0%)	31,793 (1.7%)

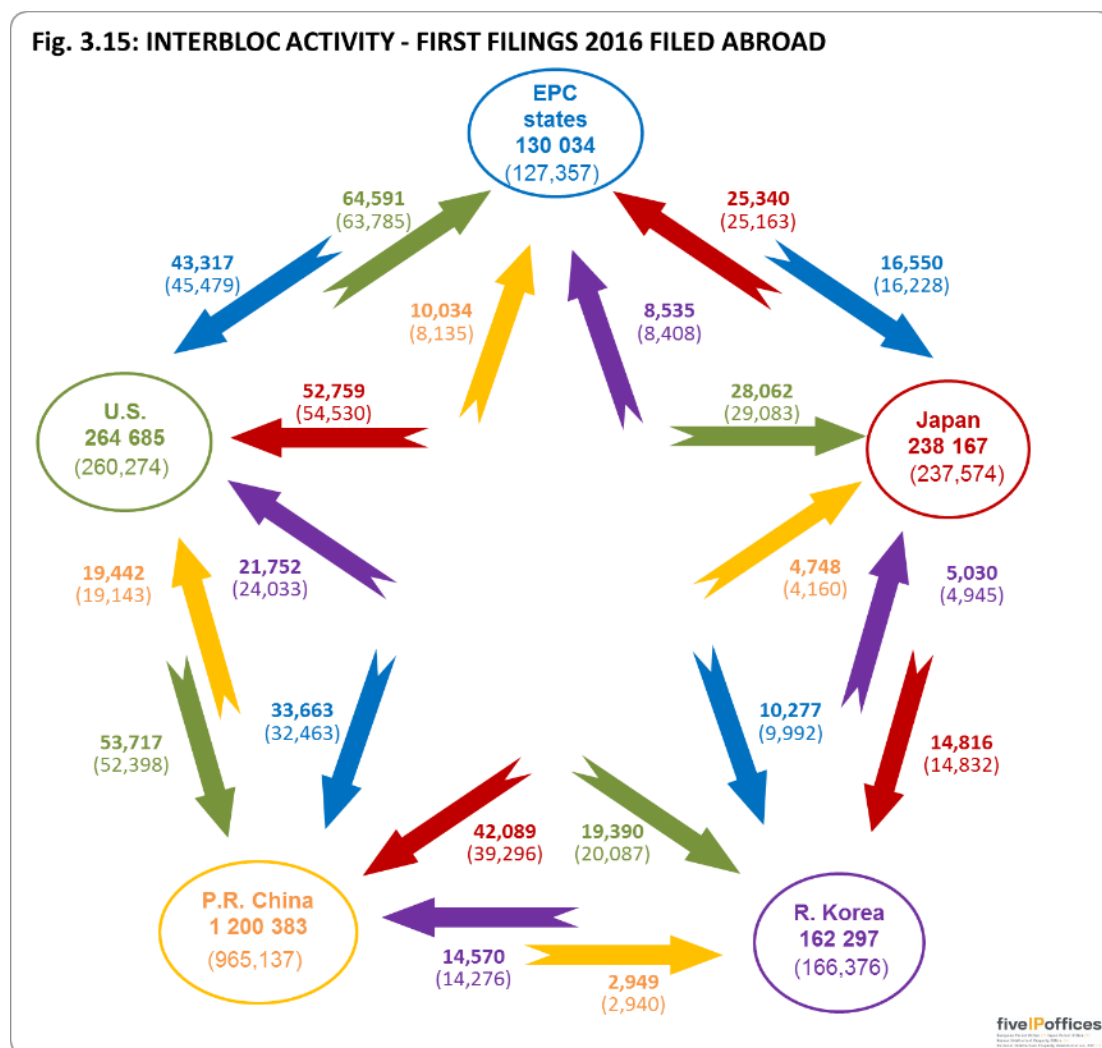
Year of priority: 2016

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	51,602 (39.7%)	50,286 (38.7%)		16,550 (12.7%)	10,277 (7.9%)	33,663 (25.9%)	43,317 (33.3%)	13,912 (10.7%)	6,731 (5.2%)
Japan	238,167	67,069 (28.2%)	65,315 (27.4%)	25,340 (10.6%)		14,816 (6.2%)	42,089 (17.7%)	52,759 (22.2%)	13,530 (5.7%)	5,947 (2.5%)
R. Korea	162,297	25,050 (15.4%)	24,748 (15.2%)	8,535 (5.3%)	5,030 (3.1%)		14,570 (9.0%)	21,752 (13.4%)	2,664 (1.6%)	2,793 (1.7%)
P.R. China	1,200,383	24,332 (2.0%)	22,579 (1.9%)	10,034 (0.8%)	4,748 (0.4%)	2,949 (0.2%)		19,442 (1.6%)	5,261 (0.4%)	1,615 (0.1%)
U.S.	264,685	85,452 (32.3%)	77,823 (29.4%)	64,591 (24.4%)	28,062 (10.6%)	19,390 (7.3%)	53,717 (20.3%)		38,535 (14.6%)	12,346 (4.7%)
IP5 blocs subtotal	1,995,566	253,505 (12.7%)	240,751 (12.1%)	108,500 (5.4%)	54,390 (2.7%)	47,432 (2.4%)	144,039 (7.2%)	137,270 (6.9%)	73,902 (3.7%)	29,432 (1.5%)
Others	91,795	17,905 (19.5%)	17,713 (19.3%)	6,406 (7.0%)	2,964 (3.2%)	1,471 (1.6%)	6,924 (7.5%)	14,461 (15.8%)		903 (1.0%)
Globla total	2,087,361	271,410 (13.0%)	258,464 (12.4%)	114,906 (5.5%)	57,354 (2.7%)	48,903 (2.3%)	150,963 (7.2%)	151,731 (7.3%)	73,902 (3.5%)	30,335 (1.5%)

Source: EPO DOCDB Database

<sup>32</sup> DOCDB is the EPO master documentation database of patent publications, with worldwide coverage containing bibliographic data, abstracts and citations (but not the full text of the applications).

Fig. 3.15 shows the flows of patent families from first filings (at the patent offices of the specified IP5 Bloc) to subsequent filings among the IP5, with application counts based on the bloc of the patent office from which the claimed priority was filed. The number given for each bloc is the total number of first filings in 2016. The flow figures between blocs of origin and target blocs indicate the numbers of 2016 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 2016 (1,995,566), 12 percent formed patent families that included at least one of the remaining IP5 Blocs (240,751). Proceeding to a higher degree of selectivity, only 2 percent of all first filings in the IP5 Blocs in 2016 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 2016 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. 4.7 percent, Japan 2.5 percent, R. Korea 1.7 percent, P.R. China 0.1 percent and for Others 1.0 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 2016 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.

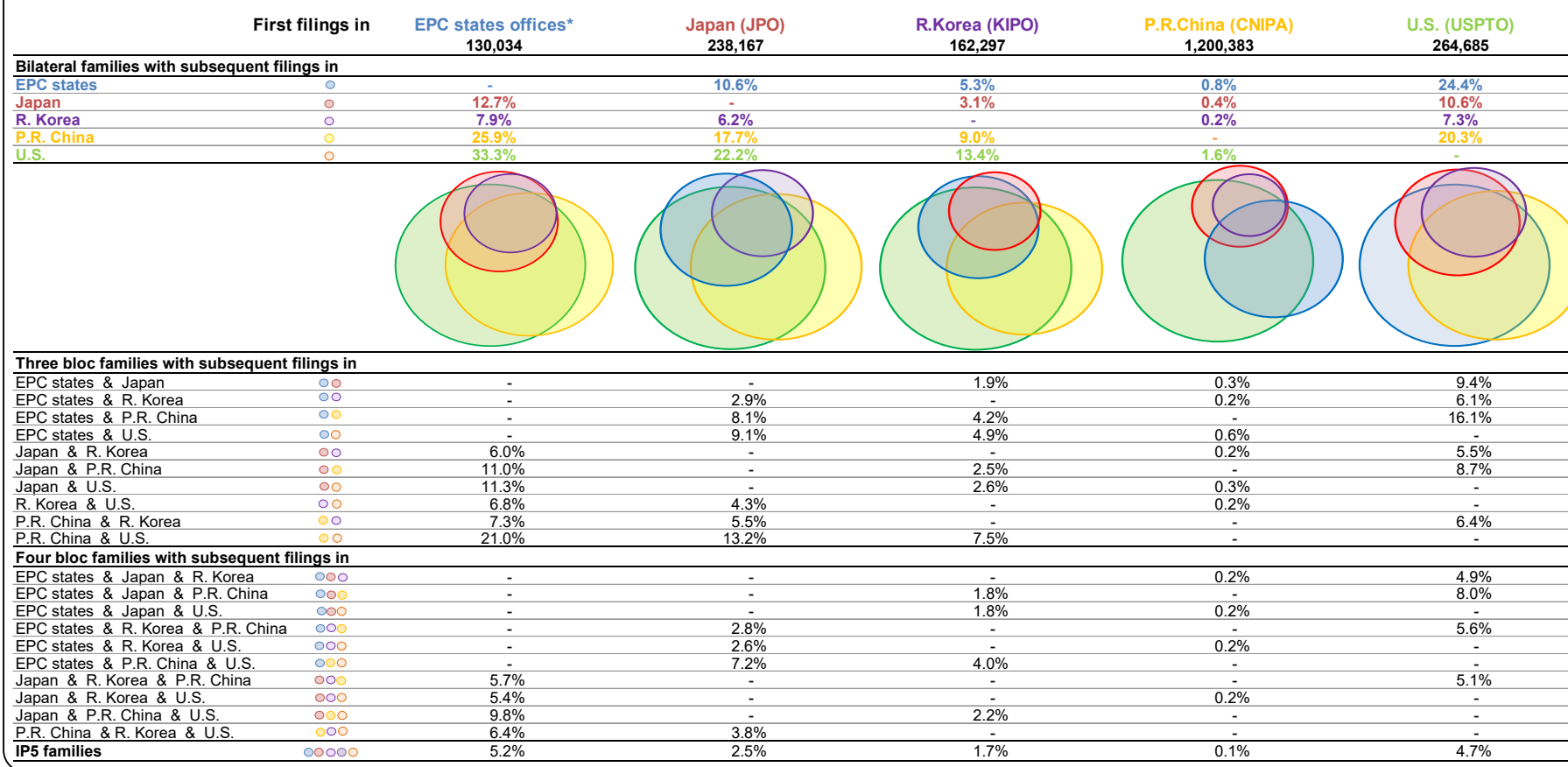
Above each diagram appears the total number of first filings that were received in each of the IP5 Blocs in 2016. Then the proportions of those first filings that led on to subsequent filings in each other bloc are shown. Some of these percentages also appear in the lower part of Table 3.

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

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

**Fig. 3.16: 2016 PATENT FAMILIES - PERCENTAGES OF FIRST FILINGS WITH SUBSEQUENT FILINGS IN OTHER IP5 BLOCS**



\* EPO or EPC states national offices

From Fig. 3.16 and Table 3, the 2016 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. (33.3 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.

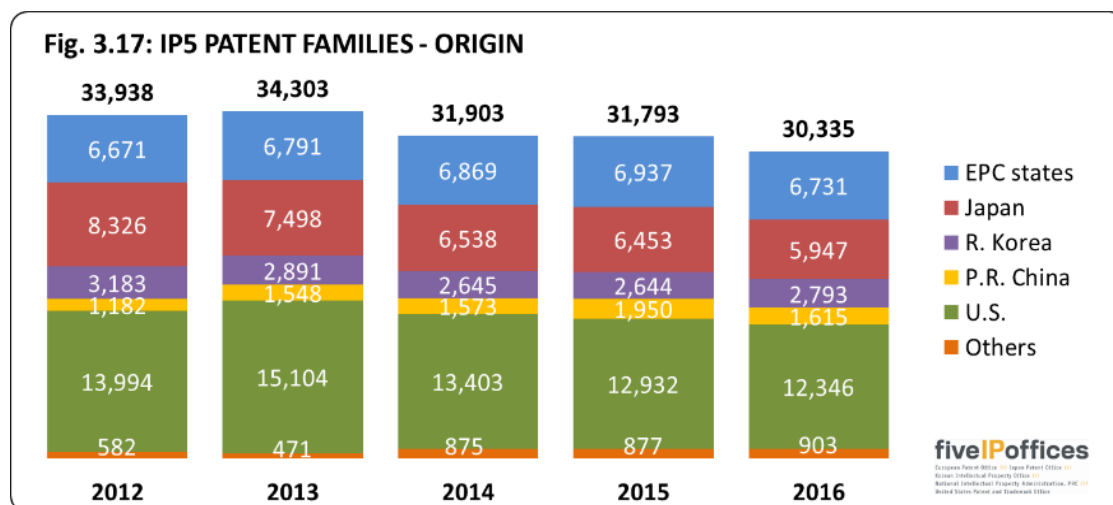
For the first filings in Japan, the largest percentage of subsequent applications is directed to the U.S. (22.2 percent) and P.R. China is the next largest (17.7 percent), while the EPC states is 10.6 percent.

For the first filings in R. Korea, as with the other blocs, the percentage of subsequent applications filed in the U.S. (13.4 percent) is the largest, followed by P.R. China (9.0 percent). The percentage of subsequent applications filed in the EPC member states is 5.3 percent.

For the first filings in P.R. China, the percentage of subsequent applications filed in the U.S. (1.6 percent) is the largest. The percentage filed in the EPC member states is the next largest (0.8 percent), while in the Japan is 0.4 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 2015 and the 2016 data in Table 3 (20,679 compared to 22,579, respectively).

Among the first filings in the U.S., the highest percentage flows to the EPC member states (24.4 percent). The percentage filed in the P.R. China (20.3 percent) is the next highest, while filings in Japan and R. Korea are at 10.6 percent and 7.3 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 2016 was 30,335 of which 41 percent were from the U.S., 22 percent were from the EPC states, 20 percent were from Japan, 9 percent were from R. Korea, 5 percent were from P.R. China, and 3 percent were from Others.



## Chapter 4

# PATENT ACTIVITY AT THE IP5 OFFICES

This chapter presents trends in patent application filings and grants at the IP5 Offices only, including also some breakdowns by technologies. While in Chapter 3 the latest data were for 2019, most of the information that appears here includes data for 2020<sup>33</sup>. 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 applications<sup>34</sup>. 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.

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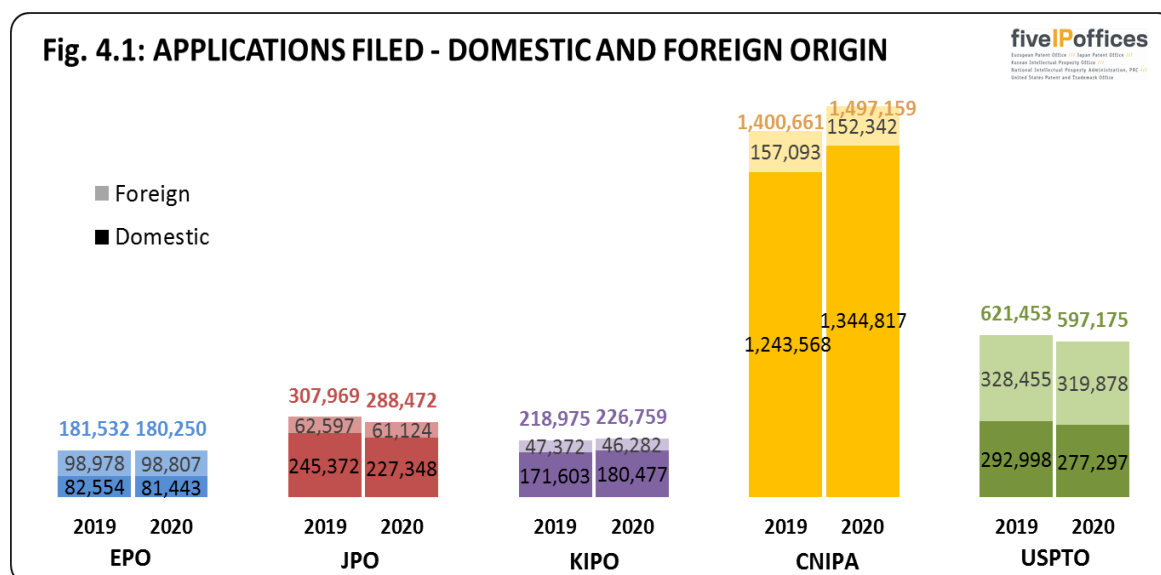
<sup>33</sup> The statistical tables file found in the web version of this report includes extended time series for much of the data included in this chapter. <https://www.fiveipoffices.org/statistics/statisticsreports.html>

<sup>34</sup> 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 2020, a total of 2,789,815 patent applications were filed at the IP5 Offices, an increase of 2 percent from 2019 (2,730,590).

Patent applications increased by 0.7 percent at the CNIPA, and by 4 percent at the KIPO, whereas, at the EPO the JPO, and the USPTO applications decreased by 0.1 percent, 6 percent and 4 percent respectively.

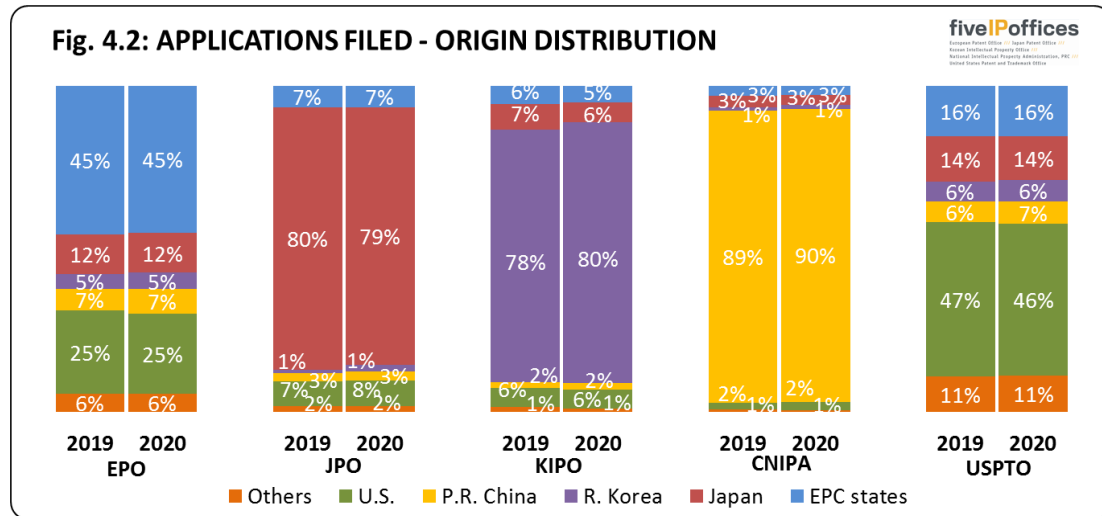
While at the CNIPA and KIPO, domestic applications increased by 8 and 5 percent, at the EPO, JPO and USPTO it decreased by 0.1 percent, 7 percent and 5 percent. Foreign applications decreased at the IP5 Offices.

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 2019.

**Table 4.1: 2020 APPLICATIONS FILED – ORIGIN**

Office Origin	EPO	JPO	KIPO	CNIPA	USPTO	Total
EPC States	81,443	19,272	11,450	40,521	92,746	245,432
Japan	21,841	227,348	14,026	47,862	80,029	391,106
R. Korea	9,106	5,881	180,477	16,725	38,314	250,503
P.R. China	13,432	8,406	4,282	1,344,817	42,115	1,413,052
U.S.	44,293	22,451	13,326	37,880	277,297	395,247
Others	10,135	5,114	3,198	9,354	66,674	94,475
<b>Total</b>	<b>180,250</b>	<b>288,472</b>	<b>226,759</b>	<b>1,497,159</b>	<b>597,175</b>	<b>2,789,815</b>

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 2019 and 2020.



The shares of patent application filings by bloc of origin vary between Offices, but are generally consistent for 2019 and 2020 within each Office.

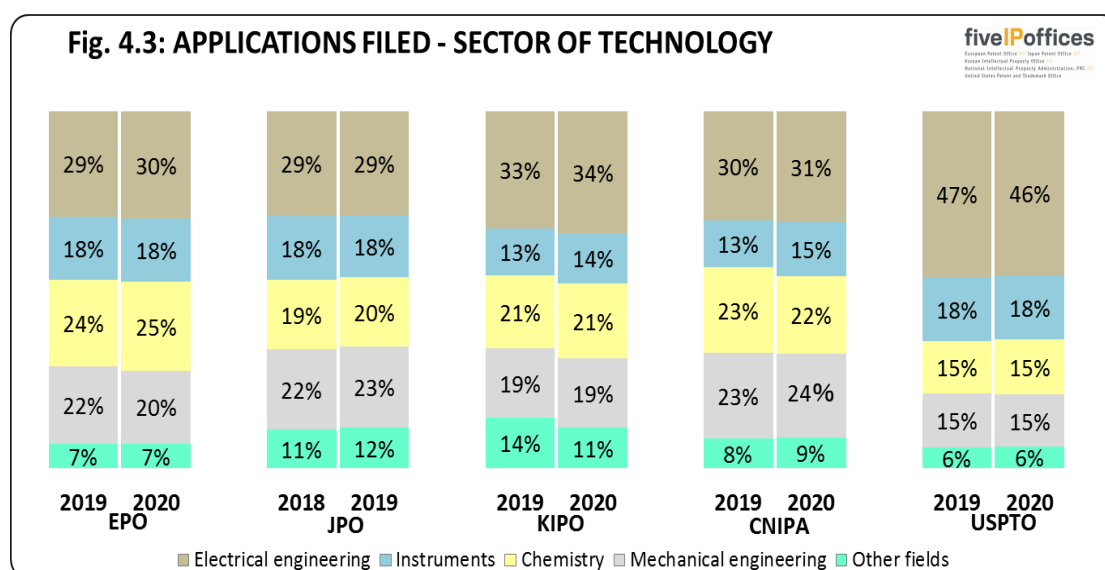
Caution should be used when comparing the numbers of applications between the IP5 Offices, due to the fact that the average number of claims contained in individual applications varies significantly. On average, in 2020, an application filed at the EPO contained 15.1 claims, (15.0 in 2019) while an application filed at the JPO contained an average of 11.4 claims (11.0 in 2019), and an application filed at the KIPO contained an average of 11.2 claims (11.1 in 2019). At the CNIPA, an application contained an average of 9.7 claims (9.5 in 2018), while one filed at the USPTO had 17.8 claims (17.8 in 2019) on average.

See the annexed statistical tables for longer trends.

## SECTORS AND FIELDS OF TECHNOLOGY

Patents are classified by the IP5 Offices according to the IPC. This provides for a hierarchical system of language independent symbols for the classification of patents and utility models according to the different areas of technology to which they pertain. The WIPO established a concordance table to link the IPC symbols with thirty-five fields of technology grouped into five sectors<sup>35</sup>. 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 2018 and 2019, while for the JPO the breakdown is given for the filing years 2017 and 2018<sup>36</sup>.

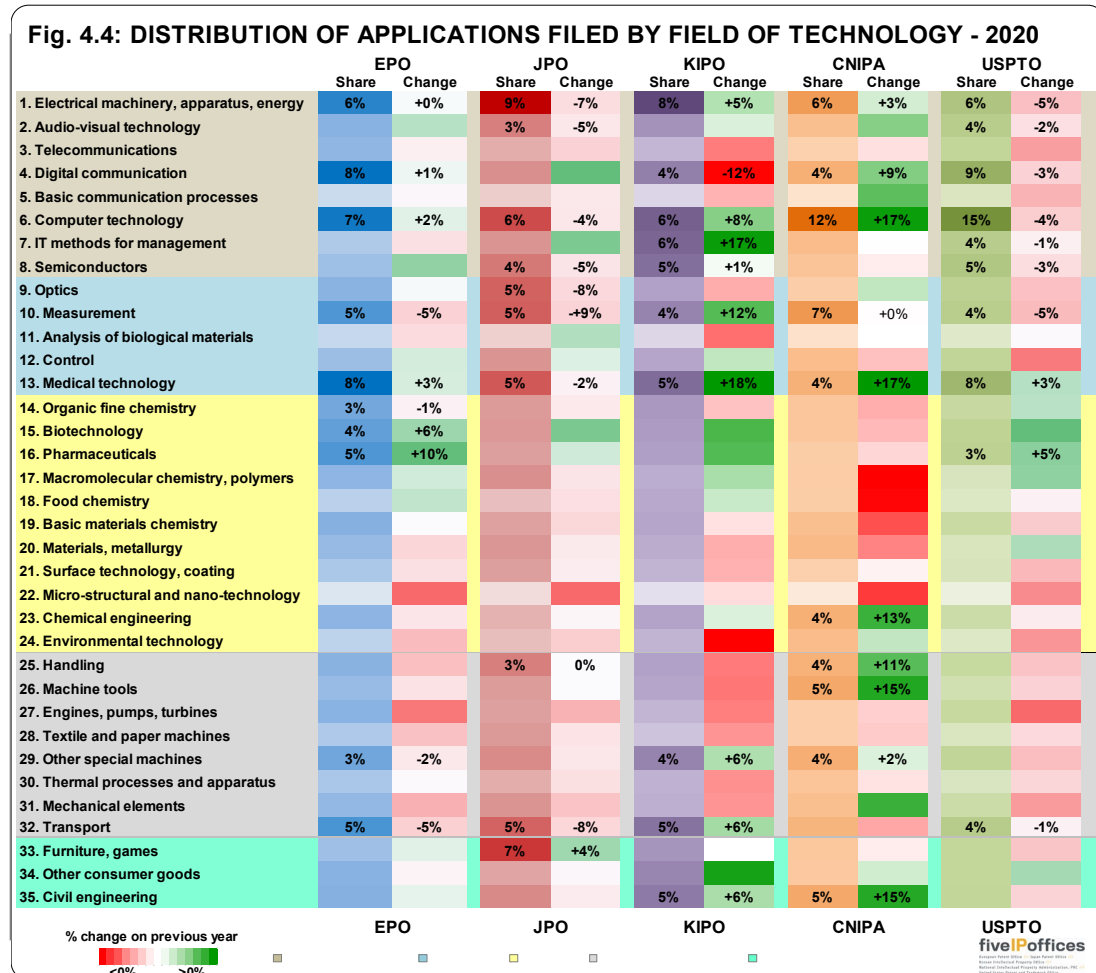


The Electrical engineering sector is more prominent at the USPTO than in the other IP5 Offices. A higher proportion of applications are filed in the Chemistry sector at the CNIPA and at the EPO than in the other IP5 Offices. At each office, the distribution between sectors of technology was fairly stable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

<sup>35</sup> [https://www.wipo.int/meetings/en/doc\\_details.jsp?doc\\_id=117672](https://www.wipo.int/meetings/en/doc_details.jsp?doc_id=117672)  
[https://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/xls/ipc\\_technology.xls](https://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/xls/ipc_technology.xls)

<sup>36</sup> JPO data for 2019 are the most recent available figures because the IPC assignment is completed just before the publication of the Unexamined Patent Application Gazette (18 months after the first filing). Percentages may not total 100 due to rounding.

Fig. 4.4 describes the distribution of the 2019<sup>37</sup> 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 2018 (right column). Actual shares and percentage changes in application counts are shown for the top 10 leading fields at each Office. The distribution of applications is represented by a colour scale: the darker the shade of a colour, the greater the share. The extent of change is reflected by a red-to-green colour scale, the dark red indicates a marked decrease and dark green indicates a marked increase.



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

Six of the leading fields at the USPTO and five of the leading fields at the KIPO are related to the Electrical engineering sector (1 to 8). At the JPO, KIPO and USPTO, most of leading fields are related to the Electrical engineering sector (1 to 8) or to Instruments sector (9 to 13). At the CNIPA and the EPO, the leading fields are more spread between sectors, with EPO a little more concentrated in the Electrical engineering (1 to 8) and in the Mechanical engineering (25 to 32) sectors.

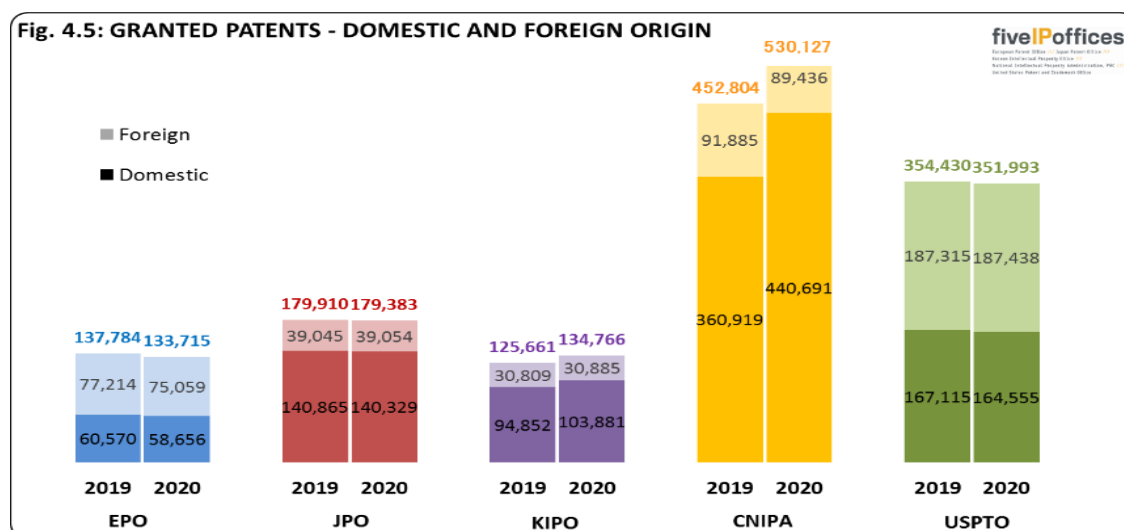
The highest share in a field can be found in 6. *Computer technology* receiving 15 percent of all applications at the USPTO and 11 percent at the CNIPA.

<sup>37</sup> In the case of JPO data for 2019 are reported and compared to data for 2018.

## 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 1,329,984 patents in 2020. This was 79,935 more than in 2019 and represents an increase of 6 percent.

The numbers of granted patents increased in 2020 at the KIPO and the CNIPA. At the KIPO, there was an increase of approximately 7 percent, by 17 percent at the CNIPA. In contrast, the number of granted patents slightly decreased at the EPO, JPO and the USPTO.

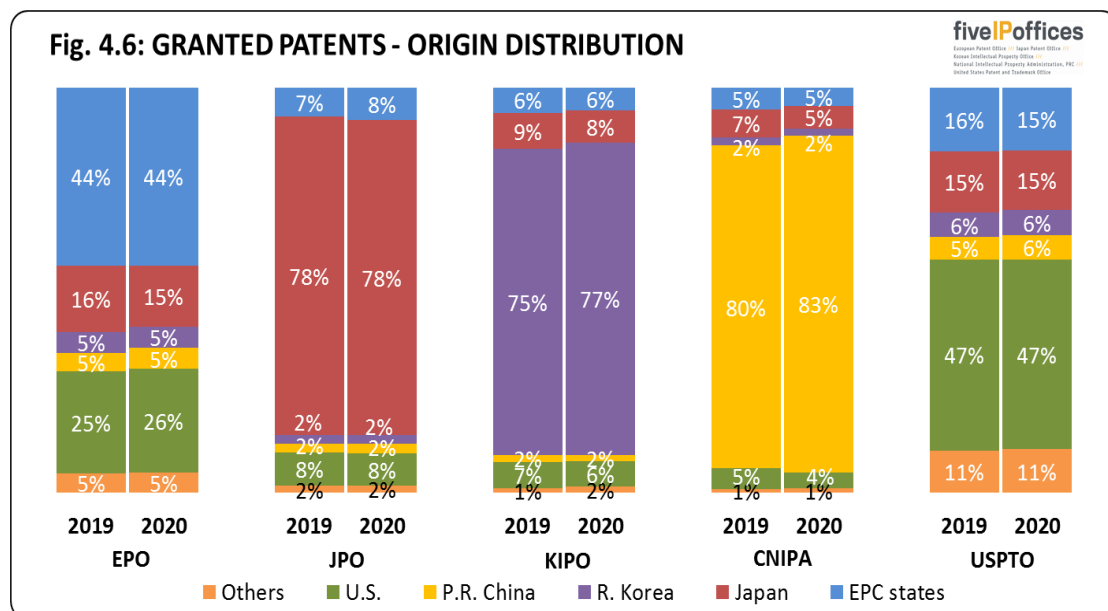
The differences between the IP5 Offices regarding the absolute numbers of granted patents can only be partly explained by differences in the numbers of corresponding applications. These numbers are also affected by differing grant rates and durations to process applications by the IP5 Offices (see the 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 2020.

**Table 4.2: 2020 GRANTED PATENTS – ORIGIN**

Office Origin	EPO	JPO	KIPO	CNIPA	USPTO	Total
EPC States	58,656	13,266	7,478	24,144	54,377	157,921
Japan	20,230	140,329	10,819	28,955	51,619	251,952
R. Korea	7,049	3,960	103,881	9,311	21,977	146,178
P.R. China	6,863	4,331	2,041	440,691	21,428	475,354
U.S.	34,162	14,165	8,504	21,084	164,555	242,470
Others	6,755	3,332	2,043	5,942	38,037	56,109
<b>Total</b>	<b>133,715</b>	<b>179,383</b>	<b>134,766</b>	<b>530,127</b>	<b>351,993</b>	<b>1,329,984</b>

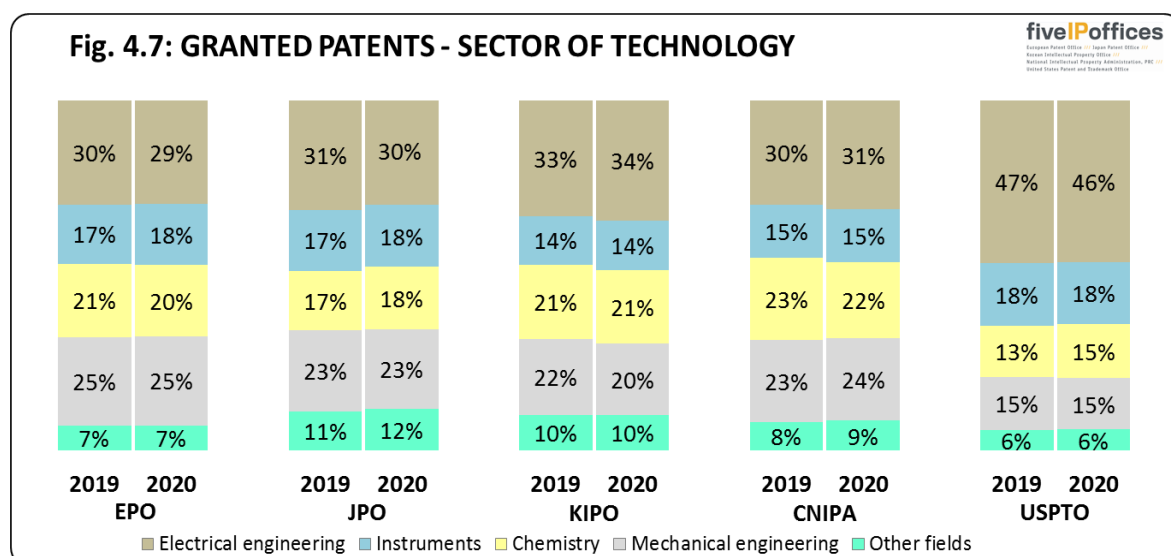
Fig. 4.6 shows the shares of granted patents by origin (residence of first-named owner or inventor) at each office for 2019 and 2020.



At all offices except the USPTO, the share of domestic granted patents in 2019 is lower than the share of domestic applications that is shown in Fig. 4.2. For CNIPA, the difference is larger than for the other offices, which can be partially explained by the strong growth in domestic applications observed during the past few years. That is not yet reflected in the distribution of granted patents.

## SECTORS AND FIELDS OF TECHNOLOGY

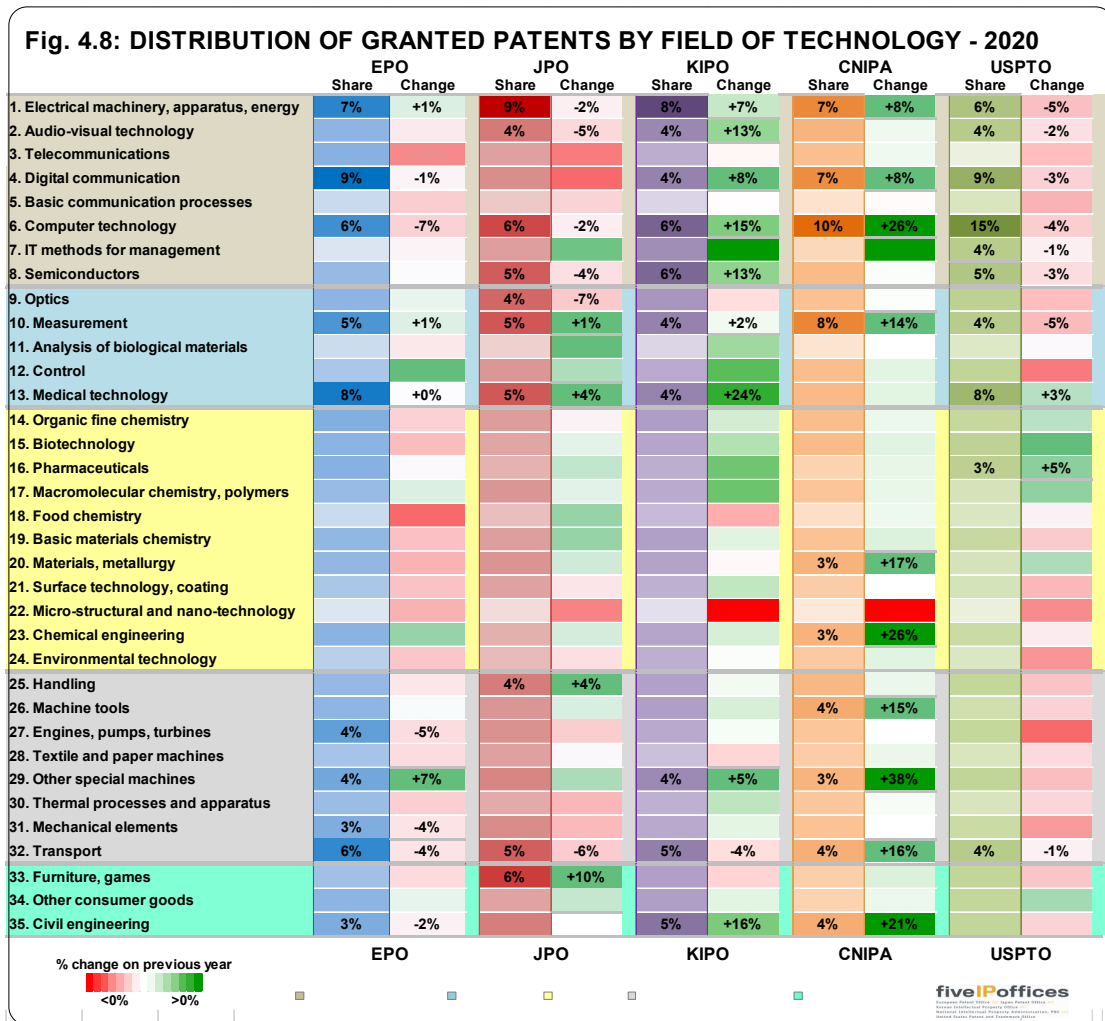
Fig. 4.7 shows the distribution of the granted patents in 2019 and 2020 at each office according to the five main sectors of technology.



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

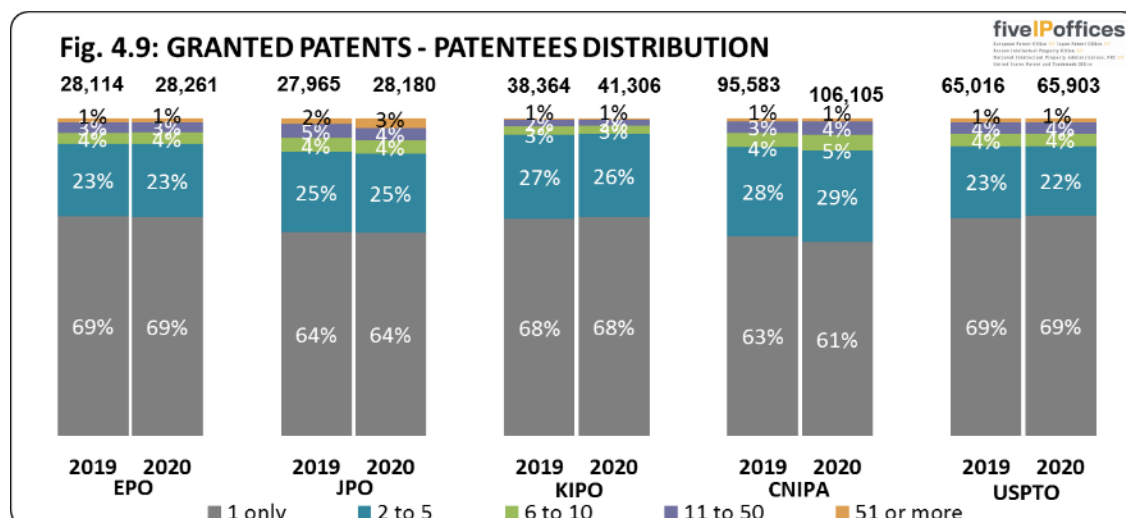


Fig.4.8 describes the distribution of the 2019 granted patents by the more detailed fields of technology at each office (left column for each IP5 Office), and the change in granted patents counts compared to 2018 (right column). Actual shares and percentage changes in patent counts are shown for the 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 3.Telecommunications, 27.Engines, pumps, turbines and 35. Civil engineering are leading fields in granted patents but not in applications. At the JPO, 35.Civil engineering is a leading field in granted patents but not in applications. At the KIPO 2.Audio-visual technology is a leading field in granted patents but not in applications. At the CNIPA, 2.Audio-visual technology, 20. Material, metallurgy are leading fields in granted patents but not in applications. At the USPTO 27. Engines, pumps, turbines 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 2019 and 2020.



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 2019 and 2020 for each office. See the annexed statistical tables for longer term trends. These data are static.

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

Most of the patentees received only one grant in a year. In 2020, the proportion was between 61 percent (CNIPA) and 69 percent (EPO, USPTO). 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 (7 percent) than at the USPTO (5 percent), at the EPO (4 percent), at the CNIPA (5 percent), and at the KIPO (3 percent).

In 2020, the average number of granted patents received remained unchanged for most offices when comparing 2019 to 2020. The numbers were five 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 2,895 at the EPO, 3,680 at the JPO, 4,671 at the KIPO, 6,371 at the CNIPA, and 5,945 at the USPTO. This maximum number for 2020 was larger than for 2019 at the EPO, the KIPO, the CNIPA, and the USPTO.

## **MAINTENANCE**

A patent is enforceable for a fixed term that depends on actions taken by the owner. In the IP5 Offices, the maximum term is usually twenty years from the date of filing the application. In order to maintain protection during this period, the applicant has to pay what are variously known as renewal, annual or maintenance fees in the countries for which the protection pertains. Maintenance systems differ from country to country. In most jurisdictions, including those of the IP5 Offices, protection expires if a renewal fee is not paid in due time.

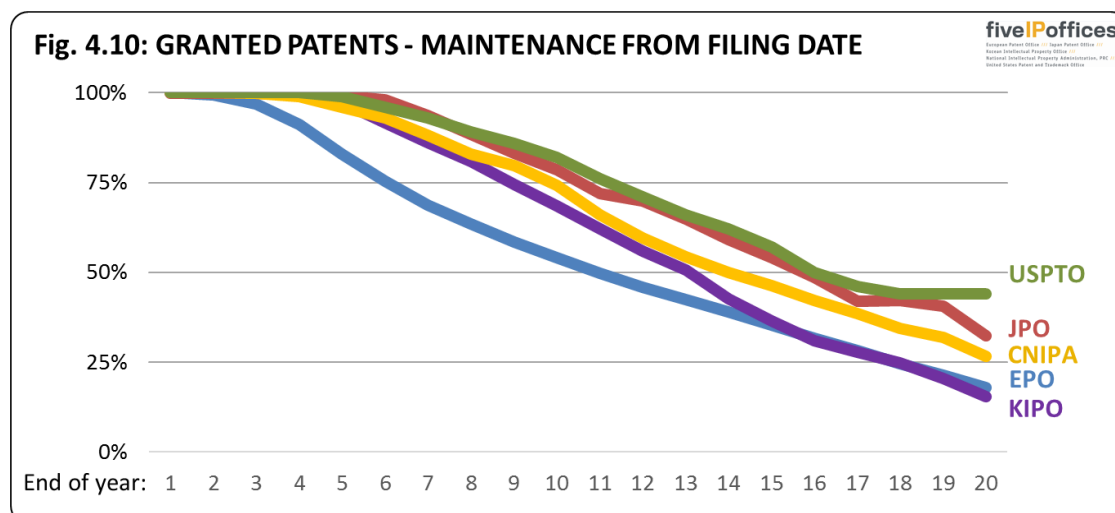
At the EPO, annual renewal fees are payable at the beginning of the year from the third year after filing in order to maintain the application. After the patent has been granted, renewal fees are then paid to the national office of each designated EPC contracting state in which the patent has been registered. These national patents can be maintained for different periods in the contracting states. Therefore, rather than maintaining one patent after grant, patentees have to deal with the maintenance of several patents and need to choose how long to maintain each one.

For a Japanese or Korean patent, the annual fees for the first three years after patent registration are paid as a lump-sum and for subsequent years there are annual fees. The applicant can pay either yearly or in advance.

At the CNIPA, the annual fee for the year in which the patent right is granted is paid at the time of going through the formalities of registration, and the subsequent annual fees are paid before the expiration of the preceding year. The date at which the time limit for payment expires is the date of the current year corresponding to the filing date.

The USPTO collects maintenance fees at 3.5, 7.5, and 11.5 years after the date of grant and does not collect an annually payable maintenance fee.

Fig. 4.10 shows the proportions of granted patents by each office that are maintained for differing lengths of time. It compares the rate of granted patent registrations existing and in force each patent year starting with the year of application. Figures are based on the most recent relevant data that are available at each IP5 Office. The EPO proportion represents a weighted average ratio of the maintenance of the validated European patents in the 38 EPC states<sup>38</sup>.



At the USPTO, 44 percent of the granted patents are maintained for a full 20 years from filing. This compared to 32 percent at the JPO, 27 percent at the CNIPA, 18 percent at the EPO, and 15 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, 14 years at the CNIPA, 13 years at the KIPO and 11 years at the EPO.

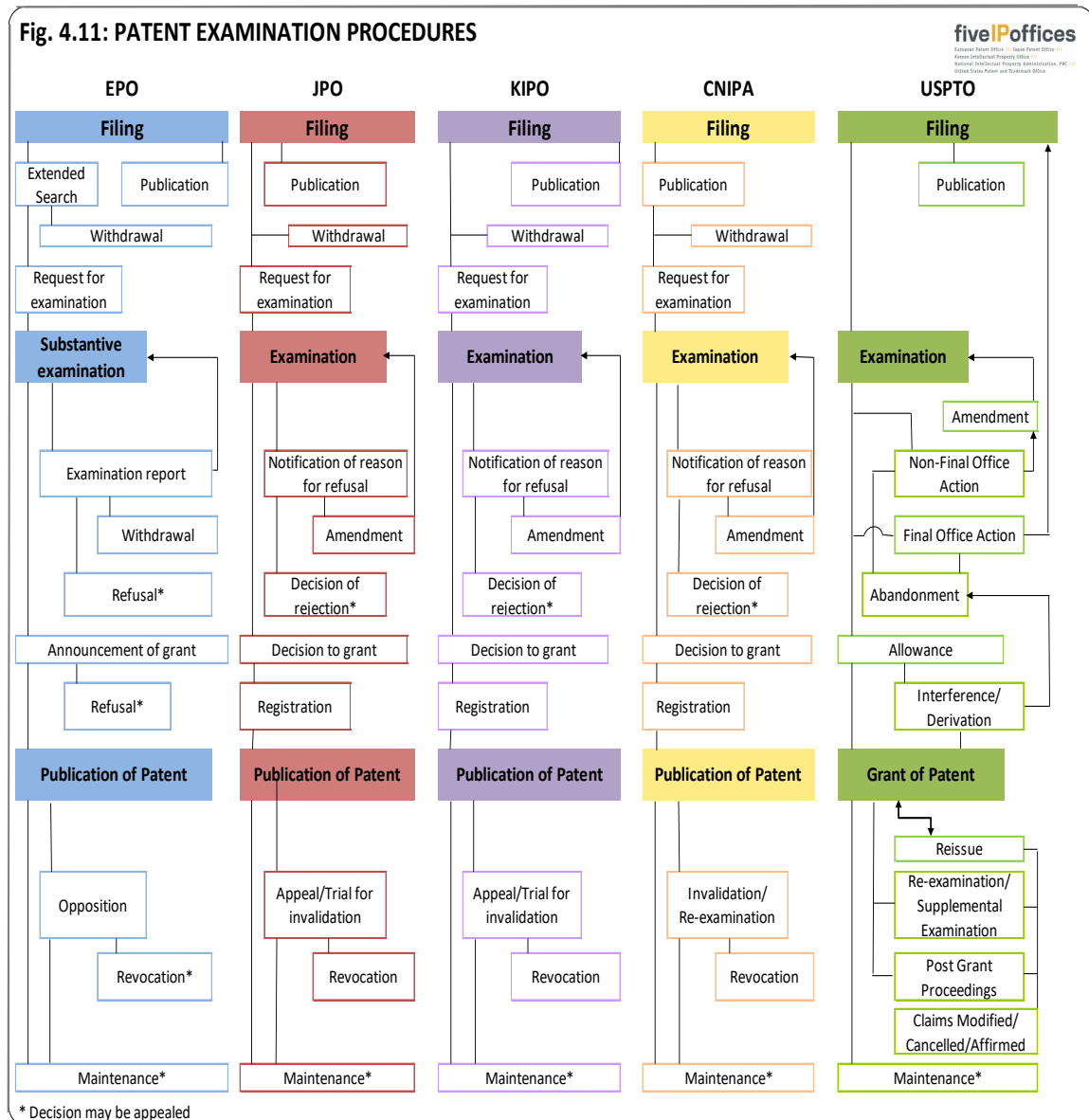
In addition to patentees' behaviour, these differences can be partly explained by differences in the procedures, such as a multinational maintenance system (EPO), deferred examination (JPO, KIPO, CNIPA) and a stepped maintenance payment schedule (USPTO). Changes in patent laws and administrative processes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

<sup>38</sup> 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 page<sup>39</sup>.

<sup>39</sup> See [https://www.fiveipoffices.org/statistics/statisticaldata\\_index.html](https://www.fiveipoffices.org/statistics/statisticaldata_index.html) under fees. These data are not guaranteed to be entirely accurate or up to date. Official fee schedule information and associated regulations from each IP5 Office take precedence.

## STATISTICS ON THE PROCEDURES

Table 4.3 shows various statistics as average rates and numbers where applicable for 2019 and 2020. Definitions of the various terms are given in Annex 2.

Details on the definition of the terms presented in Table 4.3 can be 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 2020 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 2020 the USPTO has transitioned to a compliance rate based on 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	Year	EPO	JPO	KIPO	CNIPA	USPTO
<b>Rates in percentage</b>						
Examination	2019	94.5	72.7	81.7	89.5	100.0
	2020	94.3	73.1	84.5	89.1	100.0
Grant	2019	63.9	74.9	68.8	44.3	77.3
	2020	64.5	74.4	72.2	48.9	77.8
Opposition	2019	2.7	0.6	n.a	n.a	n.a
	2020	2.4	0.6	n.a	n.a	n.a
Appeal on examination	2019	14.6	30.5	5.5	11.4	2.7
	2020	12.3	30.6	4.4	13.0	2.0
<b>Pendency</b>						
Awaiting request for examination	2019	98,161	619,007	244,276	266,567	n.a
	2020	100,708	589,694	238,252	207,422	n.a
Pending examinations	2019	335,293	173,494	174,064	2,218,145	578,138
	2020	320,961	179,341	206,957	2,360,652	602,777
Pendency first action (months)	2019	4.1	9.5	10.8	14.9	13.3
	2020	4.3	10.1	11.1	14.4	n.a
Pendency final action (months)	2019	26.1	14.3	15.6	22.2	21.8
	2020	23.7	14.8	15.8	20	n.a
Pendency invalidation (months)	2019	n.a	12	n.a	5	n.a
	2020	n.a	12.5	n.a	5.9	n.a

n.a = not available

## 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 EPO, the KIPO and the USPTO increased between 2019 and 2020. At the CNIPA and the JPO, the grant rate decreased between 2019 and 2020.

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

## PENDENCIES

In the successive stages of the procedure, there are pending applications awaiting action in the next step of the procedure. The number of pending applications gives an indication of the workload (per stage of procedure) from the patent grant procedure in each of the IP5 Offices. Although this may seem to be an indicator for the backlog in handling applications within the offices, it is not in fact a particularly good one because substantial parts of pending applications are awaiting action from the applicant. This could be for instance a request for examination or a response to actions communicated by the office.

As shown in Table 4.3, about 4.8 million applications were pending (i.e. awaiting request for examination or pending examination) in the IP5 Offices at the end of 2020. The total number of applications pending at the IP5 Offices increased by 2.1 percent

between 2019 and 2020. Pending applications decreased at the EPO and the JPO, increased at the KIPO, the CNIPA and stayed flat at the USPTO between 2019 and 2020.

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

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 Annex 2 for further explanation.

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



## Chapter 5

# THE IP5 OFFICES AND THE PATENT COOPERATION TREATY (PCT)

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

Graphs are presented that display the shares that used the PCT, by origin, of patent applications, grants and patent families. Descriptions are given of additional activities of the IP5 Offices under the PCT as Receiving Offices (RO) for applicants in their respective territories, as 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 Database<sup>40</sup> and the IP5 Offices. The graphs cover five-year periods that include the latest year for which reliable data are available<sup>41</sup>. Data for 2020 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).

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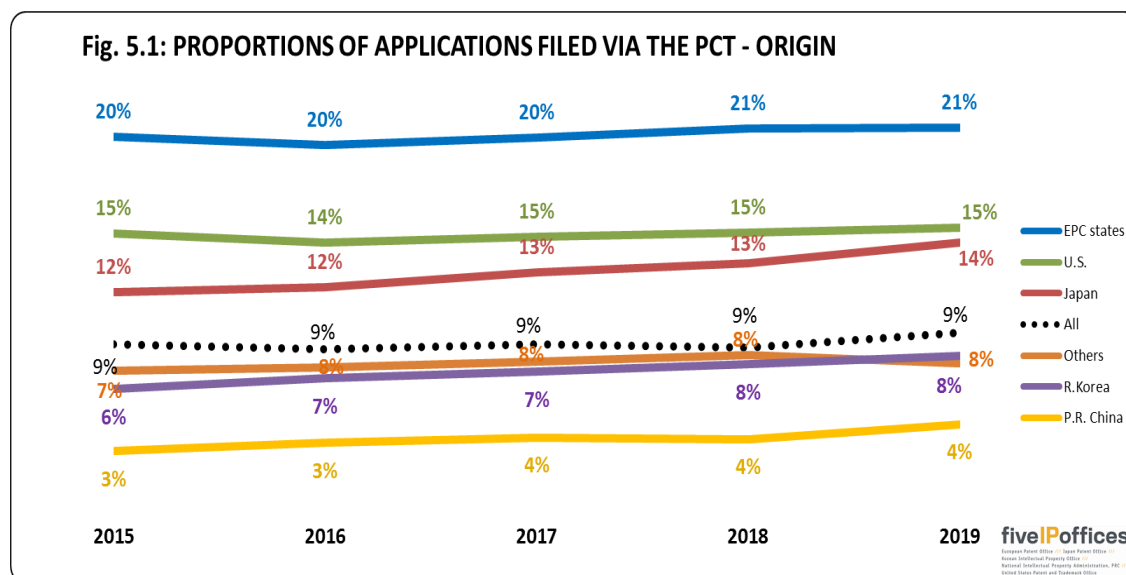
<sup>40</sup> This edition refers to general patent data as of April 2021, and to PCT international application data as of July 2021, <https://www.wipo.int/ipstats/en/index.html>

<sup>41</sup> 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. <https://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.



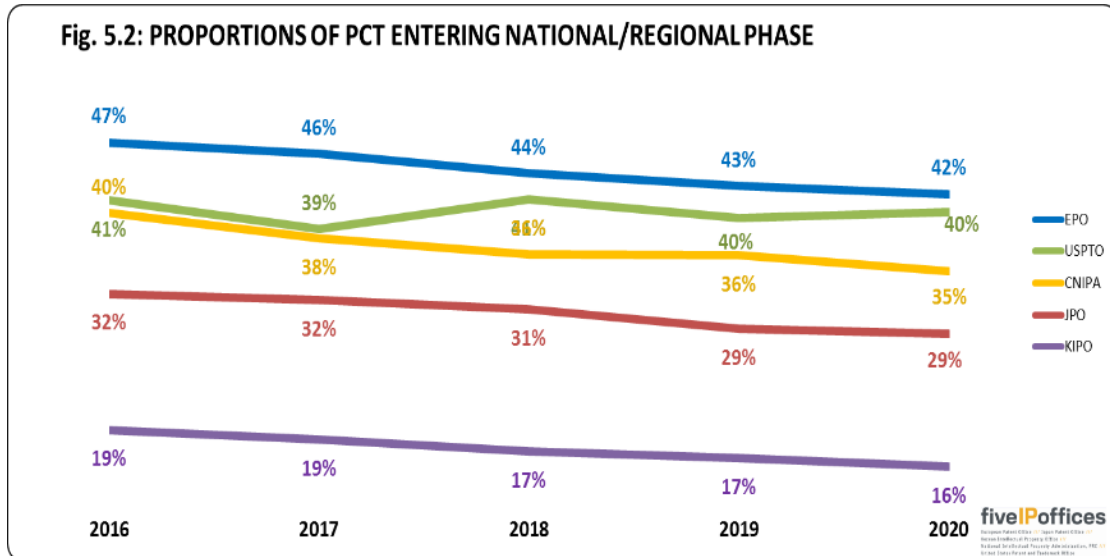
Nine percent of worldwide patent filings were made via the PCT route in 2019

Comparing 2018 and 2019, the proportion of applications filed via the PCT remained stable for applications originating from EPC states, U.S, P.R. China and R. Korea. For Japan, the proportion increased by 1 percent. The proportion for the EPC states origin applications continue to be higher than the proportions for applications from the remaining blocs.

### NATIONAL / REGIONAL PHASE ENTRY

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

Fig. 5.2 shows the proportions of international PCT applications that entered the national or regional phase at each of the IP5 Offices. Applications are counted in the year corresponding to the date when the delay to enter the national or regional phase has expired<sup>42</sup>.



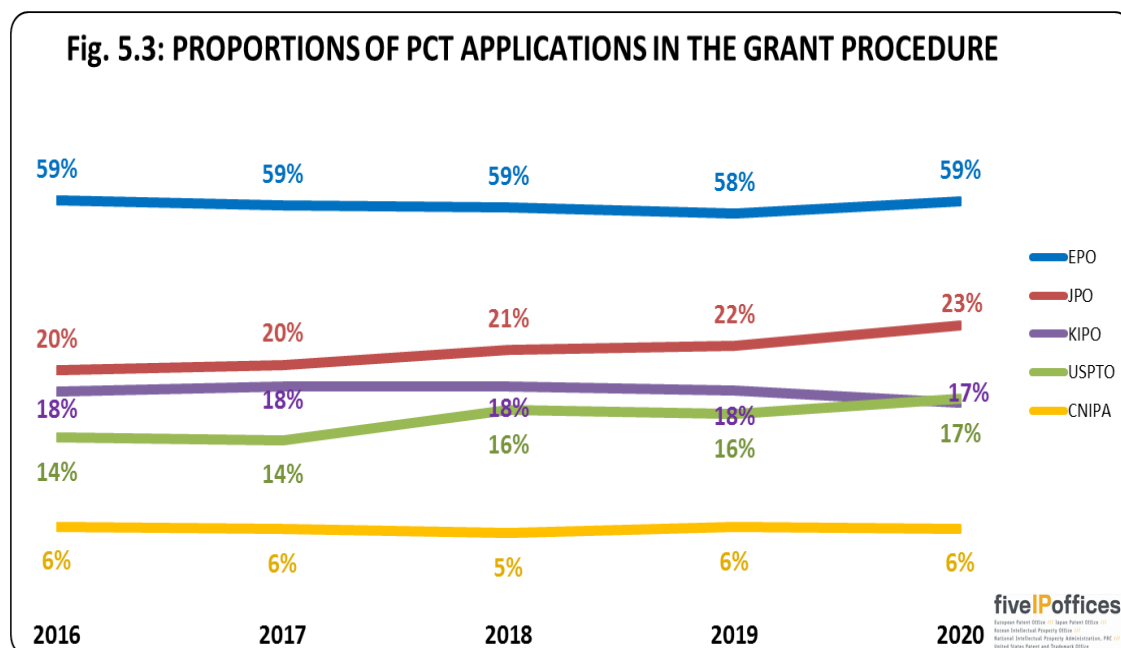
A higher proportion enters the regional phase at the EPO than enters the national phase at any of the other IP5 Offices. The proportion remains lowest at the KIPO.

Between 2016 and 2020, the proportion declined slightly at the EPO, the JPO, the KIPO and the CNIPA.

<sup>42</sup> It should be noted that counts from EPC contracting state national offices are not reported in Figs. 5.2, 5.3, and 5.4.

## SHARE OF PCT APPLICATIONS

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

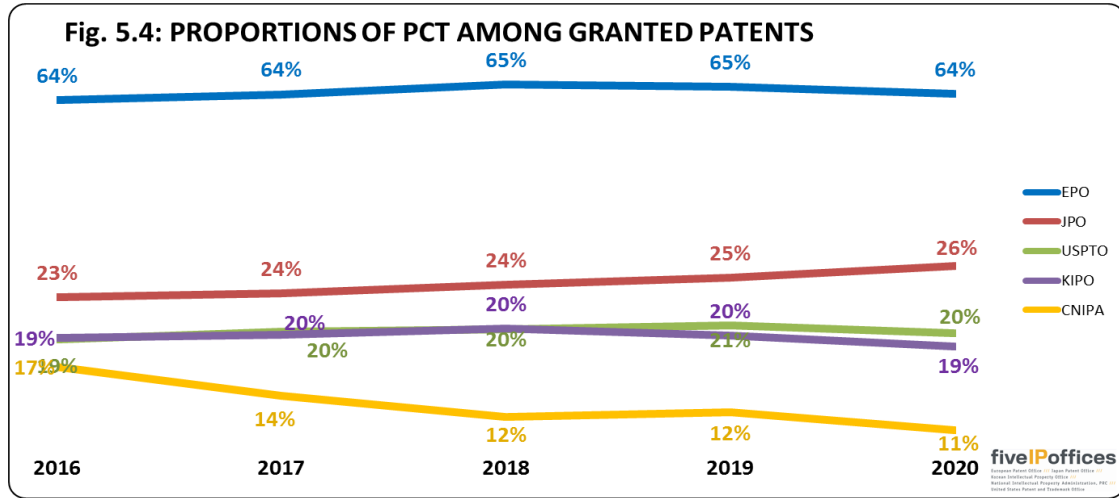


The proportions of PCT national/regional phase applications among all applications remained stable from 2019 to 2020 for the CNIPA. At the EPO, JPO, and the USPTO proportion increased by 1 percent. At the KIPO, the proportion decreased by 1 percent.

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

## PCT GRANTS

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



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

Over the past 4-year period, the EPO, the KIPO and the USPTO maintained the proportion of PCT in patent grants, whereas in 2020 it decreased by 1 percent. The JPO maintained the increase in the proportion of PCT in patent grants.

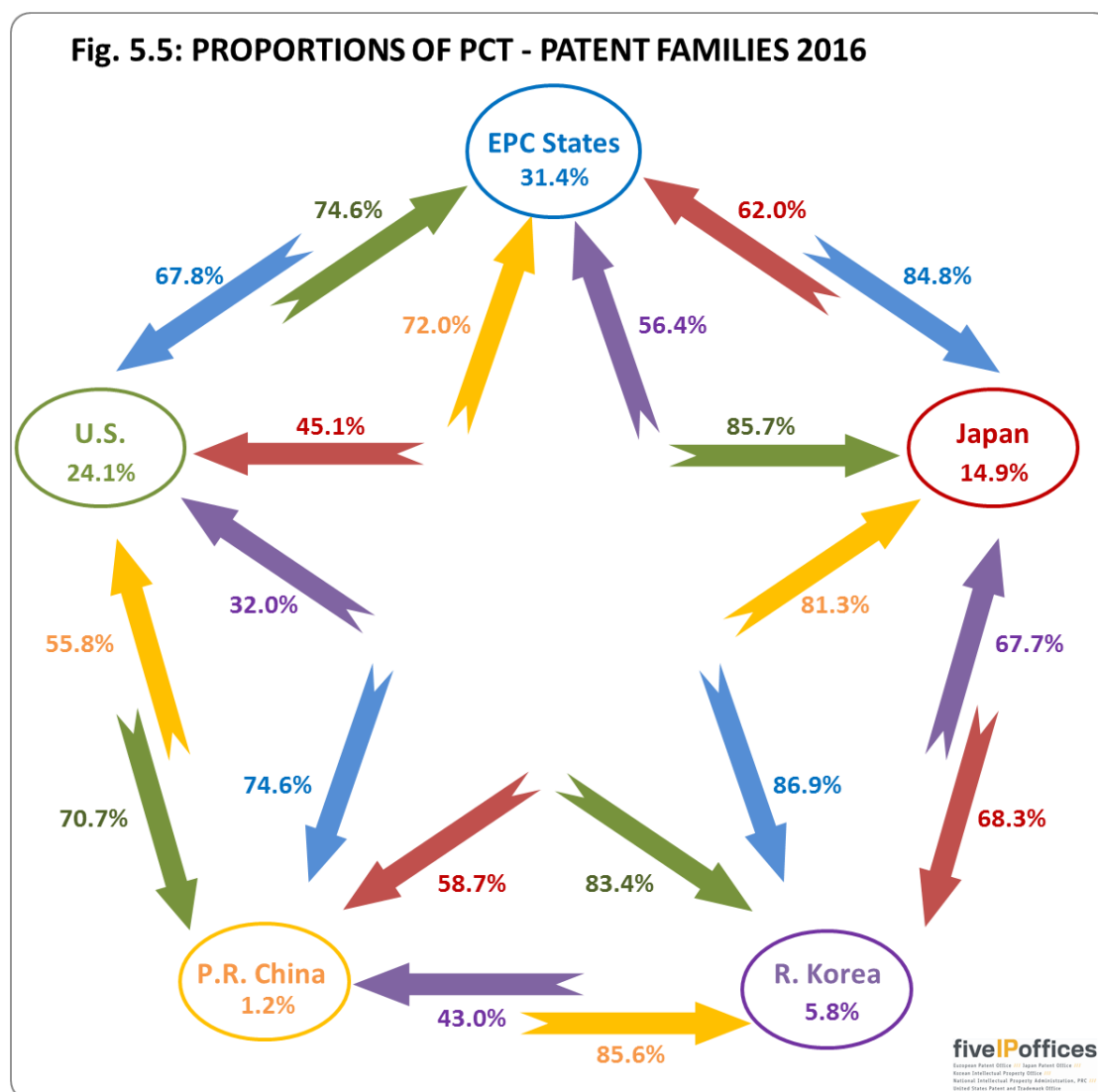
At the CNIPA, the percentage decreased by 1 percent. The percentages of PCTs in patent grants in Fig. 5.4 are always higher than the percentages of PCTs in applications in Fig. 5.3, for all IP5 Offices.

## 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.

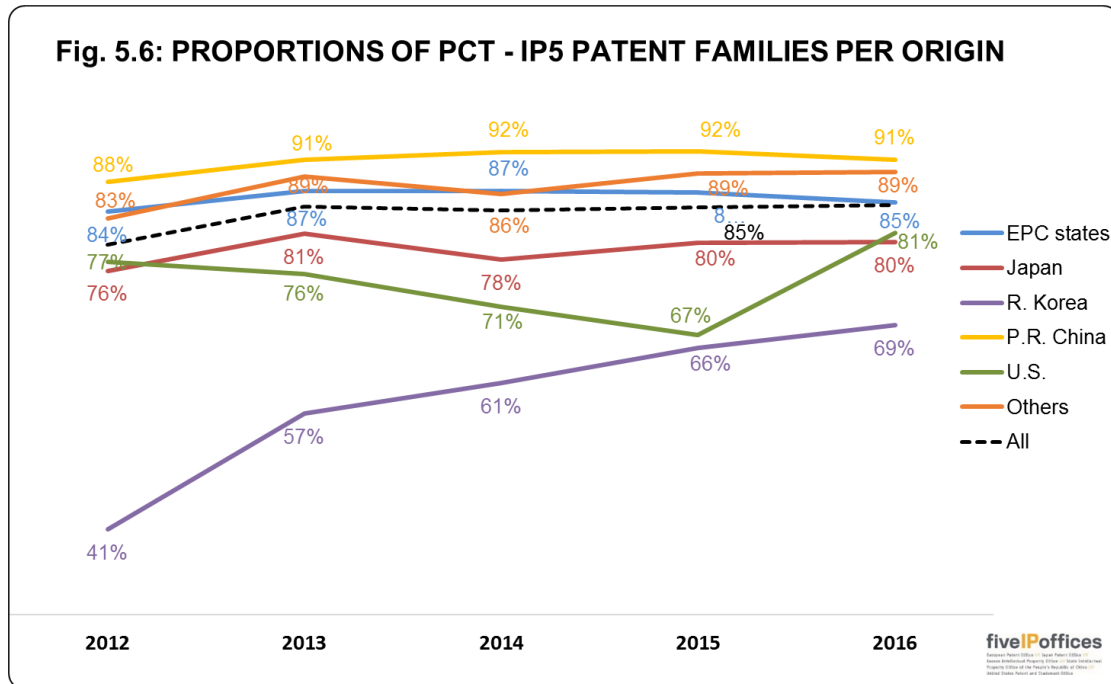
Fig. 5.5 shows the usage of the PCT among patent families for the priority year 2016. Two types of percentages are shown. The first, next to the name of each bloc, is the proportion of the overall number of first filings for the bloc that generated families using the PCT. The second, next to the arrows 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 2016, 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.



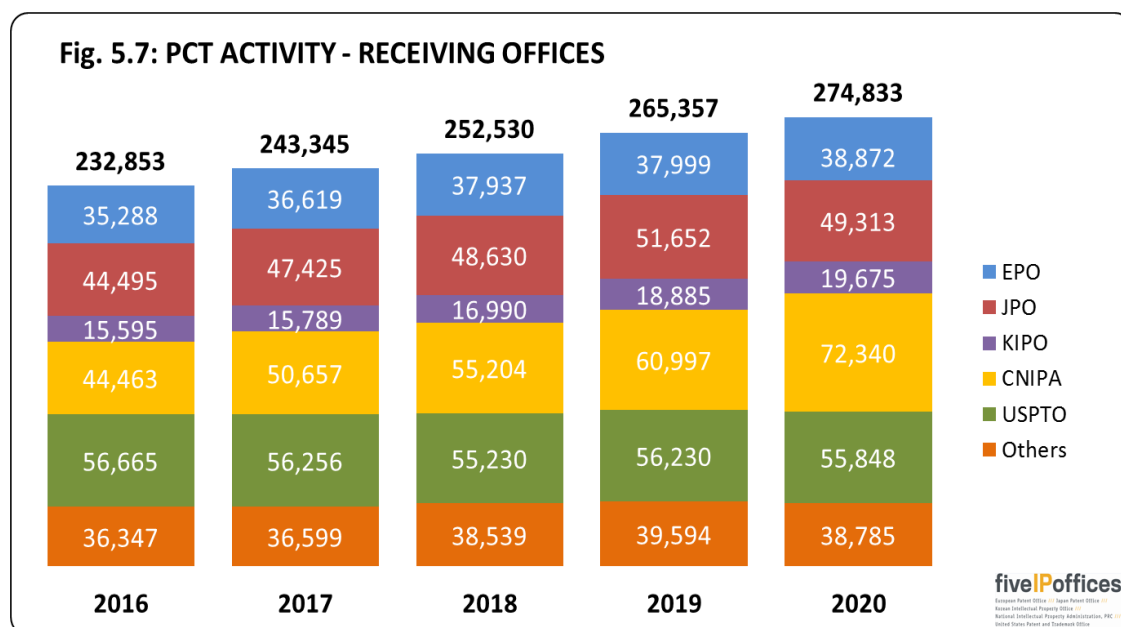
Since IP5 patent families represent highly internationalised applications, the rate of PCT usage is high compared to the overall usage of PCTs among applications in general, as was shown in Fig. 5.1.

Except for R. Korea and US, in 2016 there were only marginal variations in the usage of the PCT system. In 2016, usage in the U.S sharply increased by 14 percent whereas usage in the R. Korea increased by 3 percent, where it still remains lower than in other blocs.

## 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 2016 to 2020.

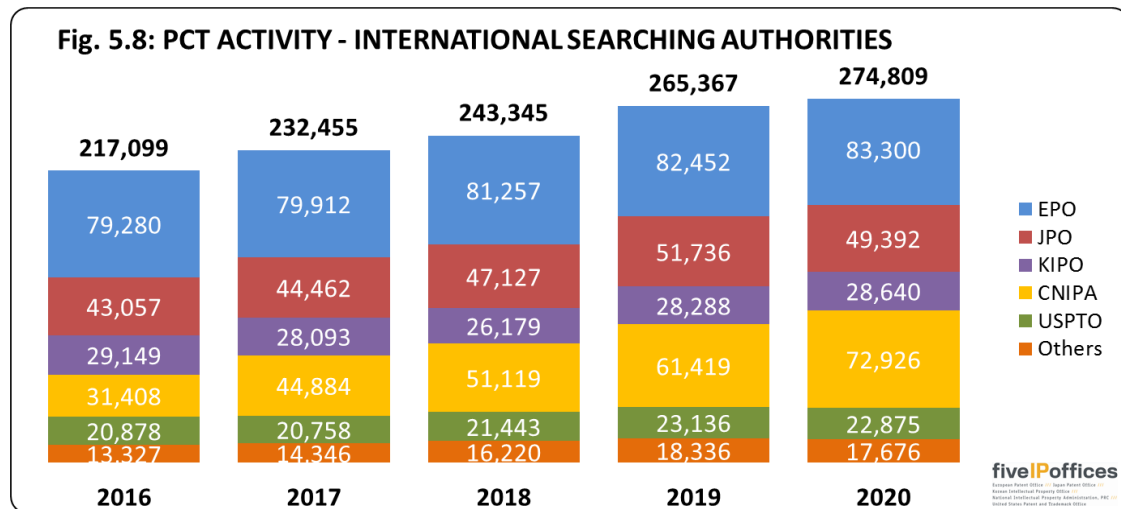
Fig. 5.7 shows the breakdown of PCT international filings by ROs over time.



The total number of PCT international phase filings grew at a high pace from 2016 to 2020. The compound annual growth rate from 2016 to 2020 was 3.6 percent. In 2020, EPO, KIPO and CNIPA had increase of PCT international filings compared with 2019. The CNIPA had the largest percentage increase of 18 percent. Together the IP5 Offices were RO for 85 percent of the PCT international filings in 2020 (84 percent in 2016).



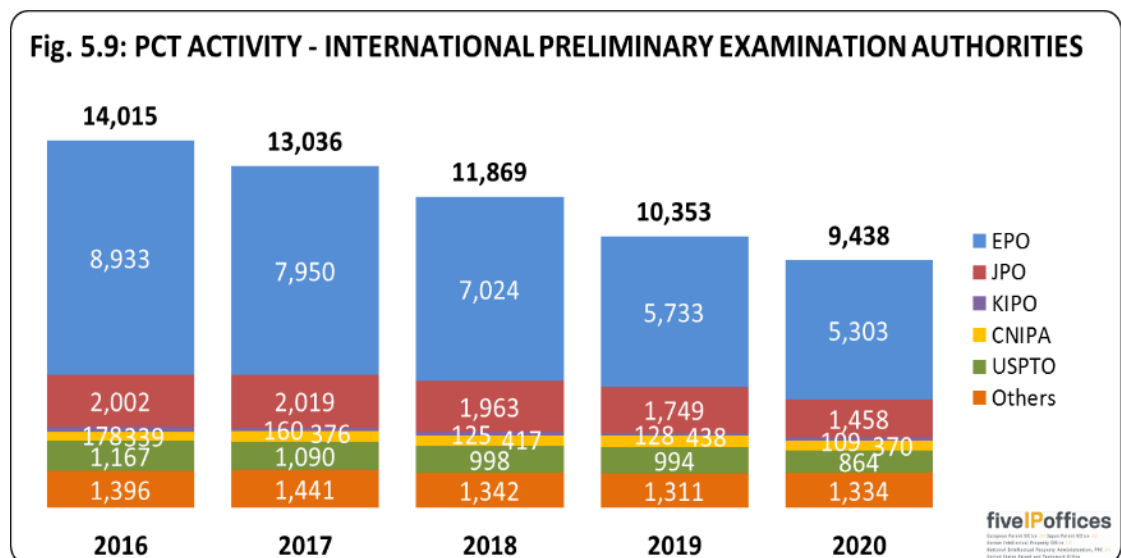
Fig. 5.8 shows the breakdown over time of the numbers of international search requests to offices as ISA, for those applications for which information is known.



There is a steady increase in total activity over the period described. In 2020, the IP5 Offices received 93 percent of all PCT international search requests, consistent with the percentage of requests received by the IP5 Offices during the previous years. The EPO continues to receive the largest number of requests, receiving 30 percent of all requests in 2020.

The CNIPA continuously demonstrated strong growth with more than 15 percent increase. While, EPO and KIPO maintained the number of the request, the JPO and USPTO decreased by 4 percent and 1 percent respectively.

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



From 2020 to 2019, the total number of requests for international preliminary examinations decreased 8 percent. It should be born in mind that there had been a decline in the numbers over the past 10 years, as can be seen in the statistical tables that are available at the website. Since the changes in the PCT regulations for the international preliminary examination, the number of requests for such examination

declined markedly. After a limited increase during the period 2014 to 2016, the declining trend was restored in 2017.

Together, the IP5 Offices were in charge of 87 percent of the IPEA work in 2020. In 2020, 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), provisionals (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 invention<sup>43</sup>, 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 2019 and 2020 in Table 6.

**Table 6: STATISTICS ON OTHER WORK**

Activity	Year	EPO	JPO	KIPO	CNIPA	USPTO
Search for national offices	2019	25,380	-	-	-	-
	2020	27,577	-	-	-	-
Design applications	2019	-	31,489	65,039	711,617	46,847
	2020	-	31,752	67,583	770,362	47,537
Utility model applications	2019	-	5,241	5,447	2,268,190	-
	2020	-	6,018	4,981	2,926,633	-
Plant patent applications	2019	-	-	-	-	1,134
	2020	-	-	-	-	991
Re-issue applications	2019	-	-	-	-	1,110
	2020	-	-	-	-	1,129
Trademark applications	2019	-	190,773	221,507	7,837,441	673,569
	2020	-	181,072	257,933	9,347,568	851,333
Provisional applications	2019	-	-	-	-	170,089
	2020	-	-	-	-	171,968

In 2020, the number of utility model applications increased 9 percent and 16 percent at the CNIPA and the JPO, decreased by 9 percent, at the KIPO. The number of trademark applications increased by 16 percent at the KIPO and 26 percent at the USPTO. For design applications, there were increases at the KIPO, CNIPA and the USPTO by 4 percent, 8 percent, and 1 percent respectively.

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

## Annex 1

# DEFINITIONS FOR IP5 OFFICES EXPENDITURES

### EPO EXPENDITURES (Fig. 2.4)

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

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

#### **A-E. Business support and other indirect**

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

#### **F. Patent information**

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

#### **G. Technical cooperation**

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

## **H. European patent academy**

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

## **Expenses for JPO's business**

### **Expenses for business processing**

#### **A. General processing work**

- Existing personnel (including increase and transfer)
- General administration
- Various councils
- Encouragement of guidance including patent management
- External rented offices
- Internationalization of industrial property administration
- Project for supporting medium and small company's applications
- 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 INPIT<sup>44</sup>**

#### **H. Others**

All other expenses not covered by the above.

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

## **KIPO EXPENDITURES (Fig. 2.6)**

### **A. Personnel resources**

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

### **B. Internal business**

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

### **C. Primary business expenses**

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

### **D. Other expenses**

All other expenses not covered by the above.

## **CNIPA EXPENDITURES (Fig. 2.7)**

### **A. Administrative Operation**

### **B. 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.



## **USPTO EXPENDITURES (Fig. 2.8)**

### **A. Salaries and Benefits**

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

### **B. Equipment**

### **C. Rent and Utilities**

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

### **D. Printing**

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

### **E. Other expenses**

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

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



## Annex 2

# DEFINITIONS OF TERMS AND STATISTICS ON PROCEDURES

This annex contains firstly definitions of the main terms used in the report<sup>45</sup>. After that there is an explanation of the patent procedures relating to Fig. 4.9. Then finally there are definitions of the statistics on procedures that appear in Table 4.3.

### DEFINITIONS OF TERMS

#### APPLICATIONS, COUNTING OF

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

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

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

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

#### BLOCS, GEOGRAPHIC

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

- The EPC contracting states (EPC states in this report) corresponding throughout the period covered in this report to the territory of the 38 states party to the EPC at the end of 2020;
- 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:

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<sup>45</sup> 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 filed<sup>46</sup>. For the purpose of reporting statistics for the EPC contracting states considered as a bloc, domestic applications are given with regard to the applications made by residents from anywhere inside the EPC bloc. For example, applications made by residents of France in one of the other EPC contracting states are counted as domestic demand in the EPC bloc.

## FIRST FILINGS

These are applications filed without claiming the priority<sup>47</sup> of another previous filing and are counted in the year they are filed. They are usually made in the home country or region. All other applications are subsequent filings, usually made within one year of the first filings. In the absence of a complete set of available statistics on first filings, it is assumed in this report that domestic national filings are equivalent to first filings<sup>48</sup> and that PCT filings are subsequent filings. Currently, USPTO first filing data, unless otherwise noted, also include a substantial proportion of applications that are

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<sup>46</sup> 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.

<sup>47</sup> See the Article 4A to 4D of the Paris Convention at the WIPO web site;

<https://www.wipo.int/treaties/en/ip/paris/>

<sup>48</sup> 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.

continuations of applications previously filed at the USPTO. See also *APPLICATIONS, COUNTING OF*.

## **FOREIGN APPLICATIONS**

These are defined as all demands for patents made by residents of a location outside of the country or region where the application is filed<sup>49</sup>. See the term definition for Domestic Applications for additional details.

## **GRANTS, COUNTING OF**

Grant counts in Chapter 3 are based on the WIPO Statistics Database<sup>50</sup>. 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

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<sup>49</sup> 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.

<sup>50</sup> <https://www.wipo.int/ipstats/en/statistics/pct/index.html>

purposes of this report<sup>51</sup>, 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 phase<sup>52</sup>.

## **REQUESTS FOR PATENTS ENTERING A GRANT PROCEDURE**

These are filings that entered a grant procedure and include direct national, direct regional, national phase PCT, and regional phase PCT applications. Direct national and direct regional applications enter a grant procedure when filed, while in the case of PCT applications, the grant procedure is delayed to the end of the international phase.

## **SUBSEQUENT FILINGS**

Subsequent filings are applications filed that claim the priority<sup>53</sup> 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.

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<sup>51</sup> 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.

<sup>52</sup> 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.

<sup>53</sup> See the Article 4A to 4D of the Paris Convention at the WIPO web site, <https://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 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).

The USPTO has revised its calculation to present a grant rate that is more consistent with the other IP5 Offices. In reports prior to the 2011 edition, a USPTO allowance rate was reported rather than a grant rate. In this report, the displayed USPTO grant rate is the total number of issued patents divided by the total number of applications disposed of in the reporting year. 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. In FY 2020, the patent term adjustment (PTA), measurement was 43.4 percent for first action PTA compliance and 83.2 percent for Total PTA compliance = Mailed Actions. See Annex 2 for further explanation

## **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.

## Annex 3

### ACRONYMS

AI	Artificial Intelligence (ii) [USPTO]
ARIPO	African Regional Intellectual Property Office (37)
CCD	Common Citation Document (12) [EPO]
CPG	Cooperation for facilitating Patent Grant (15 [JPO]
CNIPA	China National Intellectual Property Administration (i)
CPC	Cooperative Patent Classification (11) [EPO]
CS&E	Collaborative Search and Examination (27) [CNIPA]
DOCDB	DOCumentDataBase (10) [EPO]
EAPO	Eurasian Patent Organization (12)
EPC	European Patent Convention (2) [EPO]
EPO	European Patent Office (i)
EUIPO	European Union Intellectual Property Office (12) [EPO]
FA	First Action (i) [JPO]
FAOM	First Office Action on Merits (96) [USPTO]
FY	Fiscal Year (30) [USPTO]
GCC	Gulf Cooperation Council Patent Office (37) [CNIPA]
GIPA	Global Intellectual Property Academy (33) [USPTO]
GPPH	Global Patent Prosecution Highway (16) [JPO]
IB	International Bureau of WIPO (iii)
IFRS	International Financial Reporting Standards (13) [EPO]
IMF	International Monetary Fund (iii)
INPADOC	International Patent Documentation Center (10) [EPO]
INPI	National Institute of Industrial Property (16) [JPO]
IP	Intellectual Property (i)

IP5	Five IP Offices: EPO, JPO, KIPO, CNIPA, USPTO (i)
IP5 SR	IP5 Statistics Report (i)
IPC	International Patent Classification (3)
IPEA	International Preliminary Examining Authority (3)
IPRs	Intellectual Property Rights (i) [KIPO]
ISA	International Searching Authority (3)
JPO	Japan Patent Office (i)
KIPO	Korean Intellectual Property Office (i)
NCEAI	The Council for Inclusive Innovation or CI <sup>2</sup> (ii)
NET/AI	New Emerging Technologies/Artificial Intelligence (i)
OAPI	Organisation African Intellectual Property (37)
OEE	Office of Earlier Examination(15) [JPO]
PATSTAT	Worldwide Patent Statistical Database (10) [EPO]
PCT	Patent Cooperation Treaty (1)
PPH	Patent Prosecution Highway (iii)
P.R. China	People's Republic of China (2)
R&D	Research and Development (21) [KIPO]
RCE	Request for Continued Examination (32) [USPTO]
R. Korea	Republic of Korea (2)
RO	Receiving Office (3)
SMEs	Small and Medium-sized Enterprises (31)
SUCCESS	Study of Underrepresented Classes Chasing Engineering and Sciences Success (29) [USPTO]
U.S.	United States of America (2)
USPTO	United States Patent and Trademark Office (i)
WIPO	World Intellectual Property Organization (iii)

**European Patent Office (EPO)**

Bob-van-Bentham-Platz 1  
80469 Munich  
Germany

<https://www.epo.org/>

**Japan Patent Office (JPO)**

3-4-3 Kasumigaseki, Chiyoda-ku  
Tokyo 100-8915  
Japan

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

**Korean Intellectual Property Office (KIPO)**

Government Complex Daejeon Building 4  
189, Cheongsa-ro, Seo-gu, Daejeon, 35208  
Republic of Korea

<https://www.kipo.go.kr/en/>

**National Intellectual Property Administration of the People's Republic of China (CNIPA)**

No. 6, Xitucheng Lu, Jimenqiao,  
Haidian District  
Beijing 100088  
People's Republic of China

<https://english.cnipa.gov.cn/>

**United States Patent and Trademark Office (USPTO)**

P.O. Box 1450  
Alexandria, VA 22313  
United States

<https://www.uspto.gov/>

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

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# IP5

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