

PCT Yearly Review 2020 – Executive Summary

The International Patent System

2020

This executive brief identifies key trends in the use of the WIPO-administered Patent Cooperation Treaty (PCT). For fuller statistics, see the PCT Yearly Review 2020 – available in English at: www.wipo.int/ipstats

Key numbers for 2019

647,700 (+2.6%)
PCT national phase entries

265,800 (+5.2%)
PCT applications filed

127 (unchanged)
Countries in which PCT applications were filed

56.9% (–0.5 percentage points)
Share of PCT national phase entries in worldwide non-resident filings

18.7% (+1.6 percentage points)
Share of women among PCT inventors

Note: The latest available year for PCT national phase entry data is 2018.

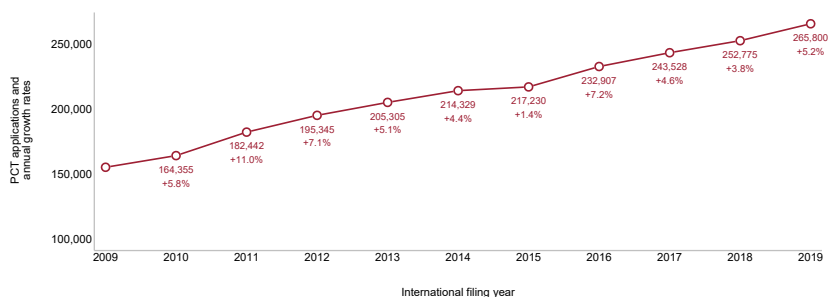
Statistics on the international phase – PCT applications

Record number of PCT applications filed

An estimated 265,800 international patent applications (PCT applications) were filed under WIPO's Patent Cooperation Treaty (PCT) in 2019. This represents a 5.2% increase on 2018 and a tenth consecutive year of growth (figure 1). Since the PCT System became operational in 1978, almost 4 million PCT applications have been filed. Overall, PCT filings have grown every year, except for 2009, when the global financial crisis led to an economic downturn.

The total number of PCT applications grew by 5.2% in 2019.

Figure 1 – Trend in filings of PCT applications, 2009-2019



Source: WIPO Statistics Database, March 2020.

Applicants from 127 different countries filed PCT applications

In 2019, 153 states were members of the PCT and applicants from 127 countries across the six geographical regions of the world filed PCT applications at 87 receiving offices (ROs). Despite this broad geographical spread, most filing activity is concentrated in a small number of economies.

Combined, the top 10 ROs accounted for nearly 94% of applications received in 2019. With 60,993 filings, the China National Intellectual Property Administration (CNIPA) received the highest number of PCT applications. It was followed by the

United States Patent and Trademark Office (USPTO), the Japan Patent Office (JPO), the European Patent Office (EPO), the Korean Intellectual Property Office (KIPO) and the International Bureau (IB) of WIPO.

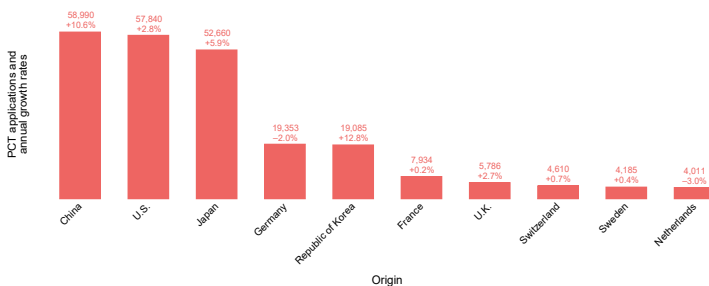
For the first time, applicants from China became the biggest users of the PCT System

With 58,990 PCT applications, applicants residing in China filed the most applications in 2019. This was the first year since the PCT System began operating in 1978 that applicants from the United States of America (U.S.) moved down to the second place, with 57,840 PCT applications filed. They were followed by Japan, Germany and the Republic of Korea (figure 2). Combined, these top five countries accounted for 78.2% of all PCT applications filed in 2019. Driven mainly by a rapid increase in filings by applicants from China, Japan, the Republic of Korea and the U.S., the combined share of the top five users of the PCT System has increased every year for the last decade.

The top 20 origins included 17 high-income countries – mostly European – and three middle-income countries, namely, China, India and Turkey. Outside the top 20 origins, other large middle-income economies with notable numbers of PCT applications were Brazil, the Islamic Republic of Iran, the Russian Federation and South Africa, whose filings ranged between 200 and 1,300. Applicants from low-income countries filed a total of 10 PCT applications in 2019. Within this category, applicants from the Syrian Arab Republic and Uganda together accounted for half of this total.

Applicants residing in China, Japan and the U.S. filed by far the most PCT applications.

Figure 2 – PCT applications for the top 10 origins, 2019



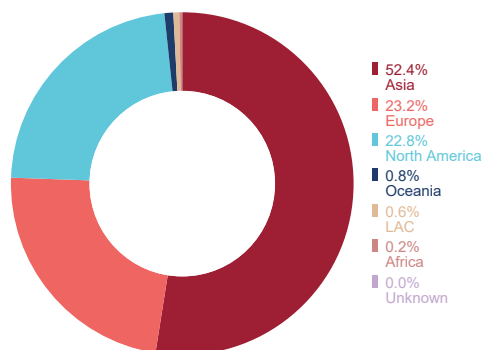
Source: WIPO Statistics Database, March 2020.

The majority of PCT filings originated from Asia in 2019

Countries located in Asia accounted for 52.4% of all PCT applications in 2019 (figure 3). Applicants in Europe and North America each had a similar proportion of filings at 23.2% and 22.8% respectively. The combined share for Africa, Latin America and the Caribbean (LAC) and Oceania amounted to 1.6% of total PCT filings. Asia's share has increased every year since 1993, growing from 32% in 2008 to 52.4% in 2019, primarily due to increases in filings from China, Japan and the Republic of Korea during the period.

Asia accounted for the majority of PCT applications filed.

Figure 3 – Distribution of PCT applications by region, 2019



Note: LAC is the Latin America and the Caribbean.

Source: WIPO Statistics Database, March 2020.

The business sector accounted for about 86% of all PCT applications

In 2019, the IB published 246,636 PCT applications, representing a 3.9% rise in published applications on 2018. The business sector accounted for 86.4% of all published PCT applications, followed by individuals (6.2%), the university sector (5.6%) and the government and public research organization (PRO) sector (1.9%).

The business sector accounted for the majority of published applications received from each of the top 20 origins in the high-income group. This sector's share was especially high for Sweden (97.6%) and Japan (96.1%). Of the top 20 origins from the middle-income category, the business sector accounted for a majority of the published applications from six countries, while individual applicants filed the most in 11 countries. For applications originating from Egypt, the Islamic Republic of Iran and Ukraine, individual applicants accounted for over 94% of published applications.

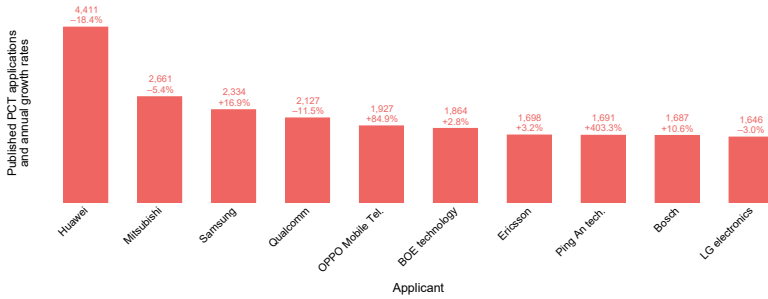
Huawei remained the top PCT applicant in 2019

In 2019, Huawei Technologies of China was the top PCT applicant in the business sector, the fifth time since 2014 (figure 4). However, with 4,411 published PCT applications, it saw its number of published applications fall by almost one thousand compared to 2018. With 2,661 published PCT applications, Mitsubishi Electric Corporation of Japan remained second, again, despite a decreasing number of published applications. These two companies were followed by Samsung Electronics Corporation of the Republic of Korea and Qualcomm Incorporated of the U.S.

Companies active in digital communication headed the list of top 50 PCT filers in 2019. Of the top 10 applicants, six filed mainly in digital communication, namely, Ericsson, Huawei Technologies, Oppo Mobile, LG Electronics, Qualcomm Incorporated and Samsung Electronics.

Huawei Technologies remained the top PCT applicant in 2019.

Figure 4 – Top 10 PCT applicants, 2019



Source: WIPO Statistics Database, March 2020.

Of the top five universities, three are in China and two in the U.S.

With 470 published PCT applications, the University of California remained the biggest user of the PCT System among educational institutions in 2019. Tsinghua University moved up to second spot by doubling its number of published applications. It was followed by Shenzhen University, MIT and the South China University of Technology. Within the top 50 universities, 20 were located in the U.S. and 14 in China.

Fraunhofer-Gesellschaft remained the top PCT applicant in the government and PRO sector

With 331 published applications, the German-based Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung headed the list of top 30 government and PRO applicants in 2019. It was followed by the China Academy of Telecommunications Technology, the Commissariat à l'Énergie Atomique et aux Énergies Alternatives of France, the Shenzhen Institute of Advanced Technology of China and the Agency for Science, Technology and Research of Singapore.

Computer technology is back as the main technology field in PCT applications

Computer technology (21,449) regained top position in 2019, having competed with digital communications as the most frequently featured technology field in published PCT applications since 2015. It was followed by digital communication (19,090), electrical machinery, apparatus, energy (17,223), medical technology (16,954) and measurement (11,471). These top five fields of technology, combined, accounted for slightly over one third of all PCT applications published in 2019.

The share of women listed as inventors grew slightly faster in 2019 than the year before but remained low

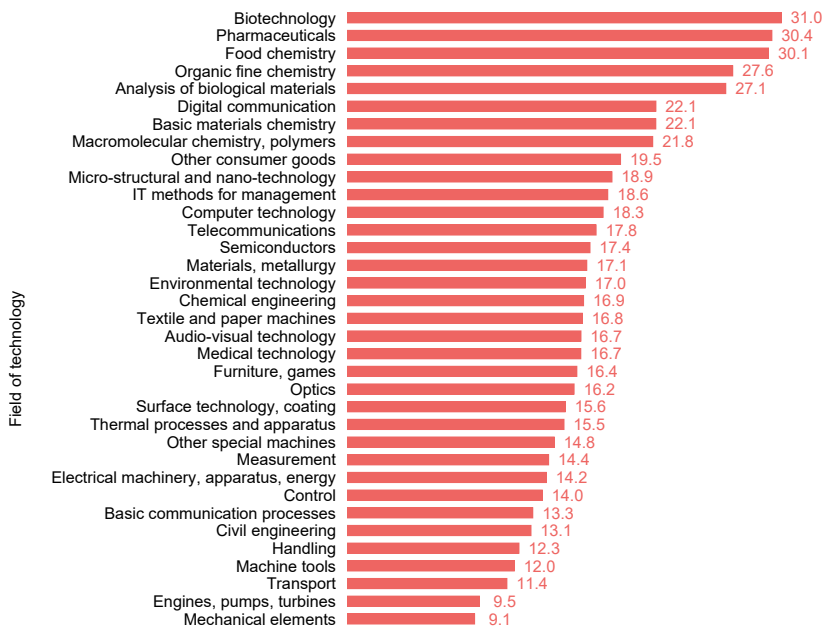
In 2019, women accounted for 18.7% of all inventors listed in PCT applications and men the remaining 81.3%. This is 4.1 percentage points higher than it was in 2014 (14.6%). Since 2005, this share has continuously increased. Moreover, the share of women inventors has grown in each of the world's geographical regions over the past five years. The LAC region (22.4%) had the highest share of women among PCT inventors, followed by Asia (22.2%), Oceania (19.3%), North America (16.5%), Europe (13.7%) and Africa (11.7%).

The gender gap among PCT inventors varies considerably across countries. From among the top 20 origins, Australia, China and the Republic of Korea had the highest shares of inventors who were women in 2019. These three were the only origins among the top 20 to have about one-fifth or more of all their inventors being women.

Those technology fields related to the life sciences had comparatively high proportions of women among inventors listed in PCT applications (figure 5). Overall, women represented between 27% and 31% of inventors in the fields of analysis of biological materials, biotechnology, food chemistry, organic fine chemistry and pharmaceuticals.

Women inventors represented a relatively high proportion of inventors in biotechnology, food chemistry and pharmaceuticals.

Figure 5 – Share of women among listed inventors in PCT applications by field of technology, 2019



Share of applications with women inventors (%)

Source: WIPO Statistics Database, March 2020.

Statistics on PCT national phase entries

The number of PCT national phase entries grew by 2.6% in 2018

An estimated 647,700 PCT national phase entries (NPEs) were initiated worldwide in 2018 – the latest year for which NPE data are available. This represents an increase of 2.6% on the previous year (figure 6). Overall, growth in NPEs has gradually slowed over the past 15 years and actually fell, first in 2009 and again in 2016.

NPEs initiated by non-resident applicants represented about 83% of total NPEs in 2018. This share has tended to decrease slightly in recent years, mainly due to a strong growth in resident NPEs initiated at the JPO and at the USPTO. In 2018, resident NPEs accounted for 39.2% and 22.4% of total NPEs at these respective offices.

In 2018, the number of PCT national phase entries increased by 2.6%.

Figure 6 – Trend in PCT national phase entries, 2008-2018



Source: WIPO Statistics Database, March 2020.

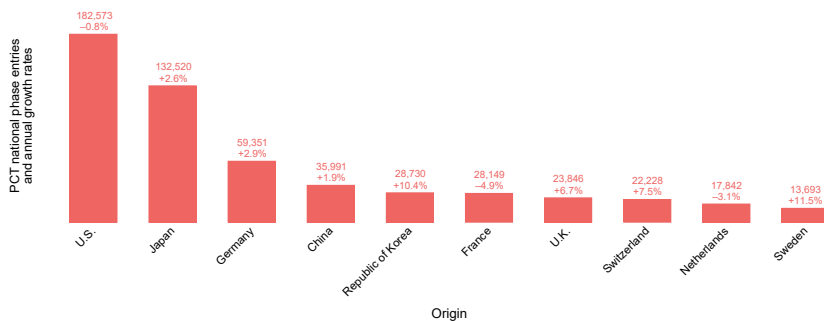
Applicants based in the U.S. initiated 28.2% of PCT NPEs worldwide

In 2018, applicants residing in the U.S. initiated 182,573 NPEs. The U.S. was followed by applicants from Japan, Germany, China and the Republic of Korea (figure 7). The U.S. and Japan combined accounted for 48.6% of all NPEs initiated in 2018, while the top five together accounted for 67.8% of total NPEs. Beside this high concentration of NPEs among just a few origins, applicants from over 130 countries also initiated NPEs in 2018.

Of the 155,322 NPEs received at the USPTO, applicants residing in the U.S. and in Japan were each responsible for approximately one-fifth. U.S.-based applicants accounted for the highest shares of NPEs at 13 of the top 20 offices, while applicants residing in Japan accounted for the highest shares at the seven other offices. More specifically, U.S.-based applicants accounted for over 45% of all NPEs initiated at the offices of Canada and Mexico, while Japan-based applicants initiated over 47% of all NPEs at the offices of Germany and Thailand.

Applications originating from Japan and the U.S. accounted for 48.6% of all NPEs.

Figure 7 – PCT national phase entries for the top 10 origins, 2018



Source: WIPO Statistics Database, March 2020.

The PCT System accounted for 56.9% of all non-resident filings in 2018

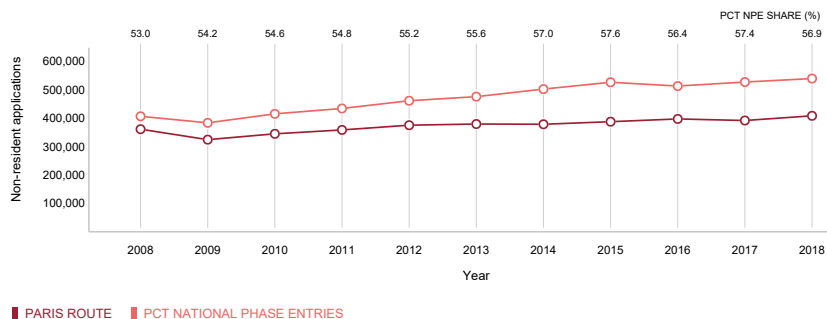
An estimated 539,500 non-resident NPEs were initiated worldwide in 2018 via the PCT route. By comparison, about 408,400 patent applications were filed directly at offices by non-resident applicants (i.e. the Paris route). This means that 56.9% of non-resident applications were filed via the PCT route in 2018, a 0.5 percentage point lower than in 2017 (57.4%) but considerably higher than their share in 2004 (figure 8). Long-term data show that the number of applications filed via both routes has trended upward, although the PCT route has grown at the fastest pace of the two, with an average annual growth rate of 4.7% between 2004 and 2018, as compared to 1.8% for the Paris route.

Of the top 20 offices in terms of non-resident patent applications, 17 received a majority of their non-resident filings via the PCT route, with the offices of Brazil, Israel and South Africa having shares above 88%, and those of Germany, the U.K. and the U.S. having shares below 40%.

When looking at the top 20 origins filing most applications overseas, applicants from Australia, France, the Netherlands, Sweden and the U.S. relied on the PCT route for over two-thirds of their filings abroad. Applicants from Canada, India and the Republic of Korea had far lower shares of filings abroad using the PCT route.

In 2018, PCT national phase entries accounted for 56.9% of total non-resident filings.

Figure 8 – Trend in non-resident applications by filing route, 2008-2018



Source: WIPO Statistics Database, March 2020.

Statistics on the performance of the PCT System

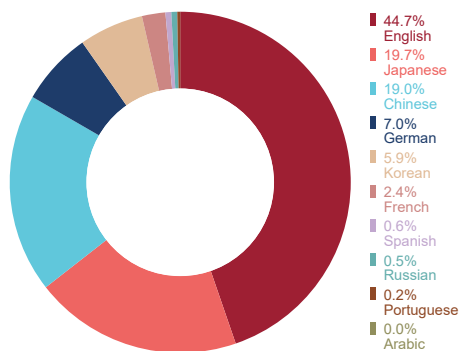
The International Bureau

About 45% of PCT applications were published in English in 2019

The vast majority of PCT applications are published in the language in which they were filed. In 2019, 44.7% of all PCT applications were published in English, followed by Japanese and Chinese (figure 9). The seven remaining languages of publication, combined, accounted for 16.6% of the total. Whereas the combined share of the top three languages has remained relatively stable between 2013 and 2019, their respective contributions have changed drastically. While the use of Japanese has not altered much during this period, back in 2013, a majority of applications were published in English and Chinese accounted for a low share in comparison.

Nearly 45% of PCT applications were published in English.

Figure 9 – Distribution of PCT applications by language and year of publication, 2019



Source: WIPO Statistics Database, March 2020.

Nearly 13% of all PCT applications were filed through the ePCT-filing portal in 2019

In 2019, 64 ROs accepted PCT filings through the ePCT-filing portal and applicants filed 34,335 PCT applications this way. This represents an increase of 42.6% on the previous year and corresponds to 12.9% of all PCT applications filed in 2019. Applicants from the U.S. (6,940) filed by far the most applications via the ePCT portal, followed by those from India (1,758) and Italy (1,688), representing respectively, 12%, 85.6% and 49.8% of the total filings received from applicants residing in these three countries.

The IB examined almost 80% of all PCT applications within one week of receipt

In 2019, the IB performed a formalities examination of 79.3% of PCT applications within one week of receipt of the application and had processed 98.2% within a month.

Slightly more than 77% of publications occurred during the week following the expiration of the 18-month period from the priority date, and 99.5% of publications occurred within two weeks of that period. When an international search report (ISR) is unavailable at the time of publication, an application is republished together with its ISR once it is available. The proportion of applications republished within two months of receipt of the ISR was 89.5%. Almost all republishations occurred within three months of receipt of the ISR at the IB.

The receiving offices

Seventeen of the top 20 offices received more than 90% of applications electronically in 2019

Of the top 20 ROs, China, Israel, Japan, Singapore and the U.S. received more than 99% of PCT applications electronically in 2019. The share of electronic filings exceeded 82% at all the top 20 offices, except for the office of the Russian Federation, which received 77.6% of its PCT applications on paper.

Australia and India transmitted all their PCT applications to the IB within four weeks

In 2019, on average, ROs transmitted their PCT applications to the IB within 2.7 weeks of the international filing date. Australia and India transmitted all their applications to the IB within four weeks of the filing date. Sixteen of the top 20 offices had a transmittal rate within this timeframe of above 80%.

International searching authorities

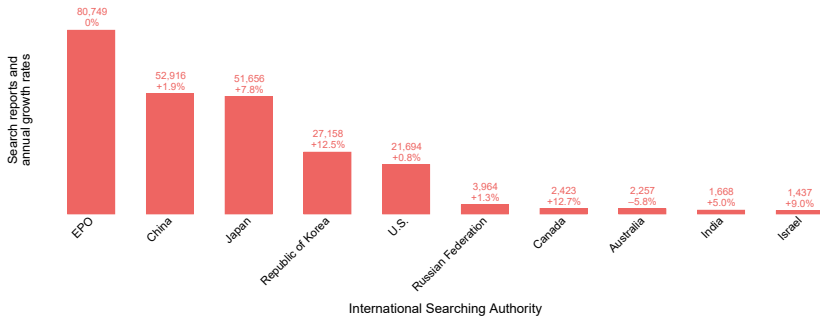
The EPO issued slightly under one third of all ISRs in 2019

In 2019, 251,300 ISRs were issued by the 23 existing International Searching Authorities (ISAs). The EPO issued almost 80,800 ISRs and was followed by the CNIPA and the JPO (figure 10). Together, these three ISAs accounted for nearly three-quarters of all ISRs issued. Of the top 10 ISAs, the offices of Canada and the Republic of Korea experienced double-digit growth. From among all 23 ISAs, Turkey and Ukraine issued far more ISRs than they had in 2018 and the Philippines issued its first ISRs.

Of all ISRs required to be transmitted to the IB within three months from the date of receipt of the application, nearly 87% were successfully transmitted within this timeframe in 2019. At all ISAs, except for Egypt, almost three-quarters of ISRs that should have been transmitted to the IB within three months from the date of receipt of the search copy met this deadline. As for those required to be transmitted within 9 months from the priority date, almost 81% were transmitted within this timeframe. All ISAs transmitted at least 62% of such ISRs within 9 months, except for the Nordic Patent Institute.

The European Patent Office issued nearly 81,000 international search reports.

Figure 10 – International search reports issued by the top 10 International Searching Authorities, 2019



Source: WIPO Statistics Database, March 2020.

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