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# ANNUAL REPORT 2021

# Message from the Commissioner



We will continue to take an active role in creating an ecosystem where IP is highly evaluated and IP commercialization is vitalized.



Due to the COVID-19 pandemic, we are experiencing an acceleration of digital transformation and a disruption of supply chains which causes greater uncertainty for the global economy. In such environment, it is important for governments and industries to promote innovation as a means for sustainable development and economic growth especially centered in the field of science and technology. As intellectual property (IP) plays a key role in encouraging innovation, the Korean Intellectual Property Office (KIPO) has been continually improving the quality of examination and trial services, supporting the creation and use of valuable IP, and strengthening IP protection. In result of KIPO's efforts, the Republic of Korea (ROK) reached its highest number of overall IP applications, most being filed by small and medium-sized enterprises (SMEs) and venture companies.

First of all, KIPO has worked to provide reliable examination and trial services that support the transition into a digital economy and responds to COVID-19. On a legislative level, amendments were made to allow protection of new types of graphic image designs using digital technology, such as those expressed through AR and VR, and to broaden the scope of "working of a design" for both offline and online channels. Also, a policy was enacted to ex officio designate patent application for accelerated examination in order to facilitate response to emergency situations, such as COVID-19 vaccine development. On an administrative level, we developed an AI-based trademark and design image search system which greatly reduces time and improves accuracy of examination, and we began involving third-party technical experts of cutting-edge technical fields to supplement the patent trial and appeal process.

In terms of creating and utilizing IP, KIPO has been supporting SMEs to find financing opportunities based on the value of their IP assets, also known as "IP-finance." Amidst the global crisis, the total cumulative transactions of IP-finance in the ROK grew to surpassed 6 trillion South Korean Won for the first time. Furthermore, we published a patent analysis report on non-mRNA vaccines to help companies, universities, and research institutes set the direction of their COVID-19 vaccine research and development. Meanwhile, the ROK's ranking advanced to be the No.1 country with the largest standard-essential patents (SEPs) reported to the world's top three international standard-setting organizations as of 2021.

One of KIPO's consistent pursuits is to strengthen protection of IP. The *Unfair Competition Prevention Act* was revised in 2021 to provide legal basis against the misappropriation of data, which is a key asset in a digital economy, and to prohibit products with unauthorized use of portraits and names of famous persons. Also, more reasonable compensation and punitive damages for infringement will be applied to all intellectual property rights (except copyright) through amendment of the *Trademark Act*, *Design Protection Act*, and *Unfair Competition Prevention Act*. For more effective enforcement, the "Tech Police" was newly organized to be a dedicated division of KIPO's special judicial police for investigation of illegal activities related to technology and trade secrets. And, the "Trademark Police" has been producing significant results of counterfeit enforcement to protect the interest of trademark owners and consumers.

On an international stage, the ROK was able to make remarkable achievements in 2021 being ranked 5th worldwide (1st in Asia) in the "Global Innovation Index" by the World Intellectual Property Organization (WIPO) and 4th in international applications under the Patent Cooperation Treaty (PCT) for the second consecutive year. Furthermore, KIPO reached 1st in the "IP Office Innovation Ranking" by the international publication World Trademark Review. Based on KIPO's background and experiences, we took the lead to create a cooperative roadmap for utilization of new emerging technologies among the five largest IP offices (IP5) and to share our insights in WIPO's global conversations on AI and IP.

Particularly in 2021, we encountered many changes in the environment surrounding IP and within the IP system. Despite this situation, KIPO was able to sufficiently respond and even achieve good outcomes. This would not have been possible without the interest and support of our domestic and foreign stakeholders. We will continue to take an active role in creating an ecosystem where IP is highly evaluated and IP commercialization is vitalized.

We are pleased to present to you the 2021 Annual Report. I hope our publication serves to help you understand the recent activities and future vision of KIPO.

LEE Insil | Commissioner

# Innovation

**KIPO fosters IP Innovation through fast services with reliable quality.**

Creative ideas have the power to change the world. KIPO continues to provide timely, accurate, innovative IP examination services to ensure that ideas are adequately protected as IPR.



# Premium Examination Services

KIPO continually aims to provide high-quality, customer-oriented, and fast examination services by raising the quality of IP administration, improving examination systems, and reducing first office action pendency.

In 2021, the average first office action pendency was 12.2 months for patents and utility models, 10.8 months for trademarks, and 5.2 months for industrial designs.

To provide timely registration of rights and accommodate the IP strategies of our users, patent and utility model examinations have three tracks: regular examination, accelerated examination, and customer-deferred examination. Trademark and industrial design examinations have two tracks: regular examination and accelerated examination.

#### ◀ Future Technology and Children

Artificial intelligence robots are already deeply embedded in our lives. It is very important for children to experience future technology.

#### ▶ Golden Royal Seal for the King Sejong

King Sejong the Great was the fourth king of Joseon. He invented Hangeul, the world's most scientific script. This seal was made in 1450, the year of King Sejong's death.



# Competitiveness

KIPO increases its IP competitiveness by maintaining the highest number of resident patent applications per both GDP and population.

In this era of creative economies, IPRs are the core of competent business strategies. KIPO is dedicated to establishing a competitive and rewarding IP system by transforming novel ideas into strong IPRs.

# IP Competitiveness

## Top Global Ranking

According to WIPO's World IP Indicator unveiled in November 2021, the ROK ranks 1st worldwide for having the highest number of national patent and industrial design applications per PPP\$ GDP.

## IPR Applications

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

## PCT Applications

The number of PCT applications from the ROK has continually grown every year. We have the 4th largest amount of PCT applications by country of origin. There were 20,678 PCT applications in total for 2021 which is a 3.2% increase from 20,044 applications in 2020. The Korean language is also the 4th most commonly used language as an official PCT publication language.

(Source: WIPO IP Statistics Data Center)



### ◀Nuriho

With the successful launch of the Nuriho on June 21, 2022, Korea became the seventh country in the world to launch a practical satellite.

### ▶The Seal of an Emperor

This is the seal of King Gojong, the 26th king of the Joseon Dynasty and the first emperor of the Korean Empire. Emperor Gojong declared that Joseon was a sovereign state and made a national seal.

# Harmonization

**KIPO collaborates with key national allies to create a global community that appropriately values and rewards inventions.**

Cooperation is fundamental to creating an environment where IPRs are promptly acquired and firmly protected for stakeholders. KIPO engages in activities that advance the global IP systems as it works to increase the value of IP.

# Worldwide IP Collaboration

## Global Cooperation Forums

Taking on the role as one of the world's leading IP offices, KIPO engages in cooperation forums with other leading IP offices that contribute to harmonizing global IP systems, such as the IP5 for patents, the TM5 for trademarks, and the ID5 for industrial designs.

## Patent Prosecution Highway (PPH) with 36 Countries & Regions

KIPO works with countries around the world under the PPH for reducing the time and costs required to obtain patent rights overseas. As of 2021, the PPH has been implemented with 36 countries & regions.

- PPH participants: Australia, Austria, Brazil, Canada, Chile, China, Colombia, Denmark, Eurasia, European Patent Office, Estonia, Finland, Germany, Hungary, Iceland, Israel, Japan, Malaysia, Mexico, New Zealand, Nordic Patent Institute, Norway, Peru, Philippines, Poland, Portugal, Russia, Saudi Arabia, Singapore, Spain, Sweden, Taiwan, UK, USA, Vietnam and Visegrad Patent Institute.

## 63 IP-Sharing Projects

KIPO implements IP-Sharing projects to share our gained knowledge of rapid development and to help bridge the IP divide among developed and developing countries. These projects aim to help create cost efficient and sustainable appropriate technology and brand development for improving the quality of life and income of local communities.

## WIPO Korea Funds-In-Trust (FIT)

Jointly undertaken in collaboration with KIPO and WIPO, the WIPO Korea FIT is applied towards projects that support developing countries and strengthen the global IP system through economic, social, and cultural development. For the continued operation of the WIPO Korea FIT, the ROK has contributed about 13.6 million Swiss francs in total since 2004.



◀ Cheongsachorong  
"Cheongsachorong" is a traditional Korean lantern with a red-and-blue silk shade.

▶ The seal of the Princess Deokon  
This is the seal of Princess Deokon (1822-1844), the third daughter of Sunjo (1790-1834) and Queen Sunwon (1789-1857). It is shaped like a lion facing the front with its front legs up.

# 2021 Highlights

**Jan.** 21 Seminar on Trademark and Design Policy Trends 2021



**Feb.** 24 KIPO-USPTO High-level Meeting



**Mar.** 12 Talks with the Singapore Ambassador to Korea  
23 WIPO-KIPO Heads Meeting  
30 MOU Signing on Fostering IP Experts in Major Universities



**Apr.** 05 Seminar on Convergence Technology Examination Guidelines  
09 Seminar on IP & FTA  
13 IP5 Deputy Heads Meeting  
22 16th Contest for Research on Judicial Precedents of Patents & Trademarks



**May.** 31 56th Invention Day Celebration



**Jun.** 11 IP5 Heads of IP Trial and Appeal Board Meeting  
14 Korea-China-Japan Trademark and Design Forum  
15 Online Session on International IP Applications  
23 IP5 Heads Meeting



**Jul.** 27 Launch Ceremony of the KIPO Tech Police



**Aug.** 12 53rd APEC IPEG Meeting  
13 Seminar on Technology Leaks and Sentencing Guidelines



**Sep.** 06 17th PATent INformation Expo  
16 Korea-Europe Trademark Examination Cooperation Meeting  
22 4th WIPO Conversation on Frontier Technology and IP



**Oct.** 14 KIPO-EUIPO Heads Meeting  
21 60th Anniversary of the Design Protection Act  
25 KIPO-USPTO Heads Meeting  
26 KIPO-CIPO Heads Meeting  
KIPO-DKPTO Heads Meeting



**Nov.** 11 Youth Invention Festival 2021  
25 KIPO-AWGIPC Heads Meeting  
KIPO-INPI Heads Meeting  
29 WIPO Roving Webinar  
30 TRIPO Heads Meeting



**Dec.** 01 Korea IP Exhibition 2021  
07 KIPO-EPO Heads Meeting  
08 International Conference on AI & Inventorship  
06 KIPO-Rospatent Heads Meeting

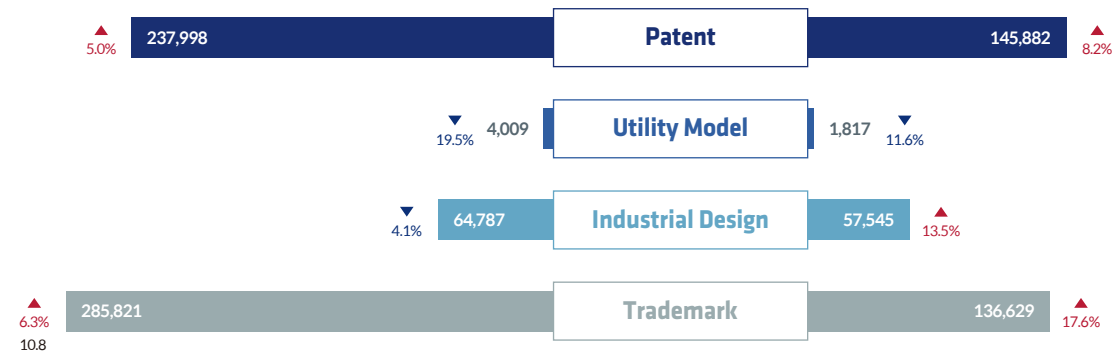


# 2021 IP Trends

## Overview of Key Data in 2021

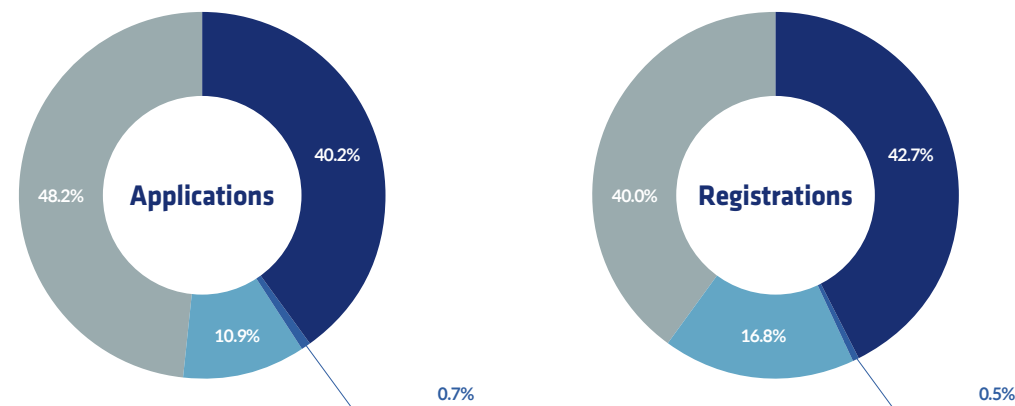
### Domestic IPR Applications

(unit: cases)



### Ratio by IPRs

- Patent
- Utility Model
- Industrial Design
- Trademark

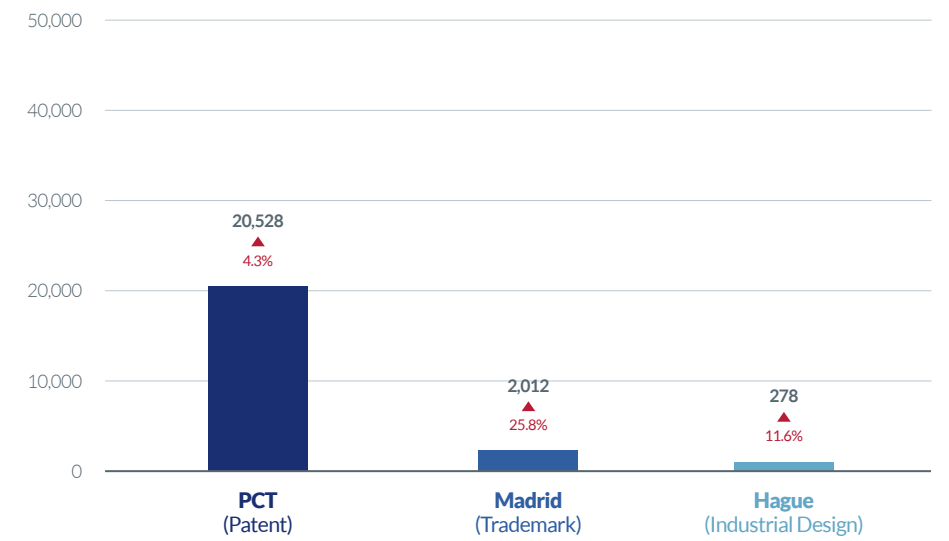


### International IPR Applications

#### • KIPO as the Receiving Office (International Phase)

(unit: cases)

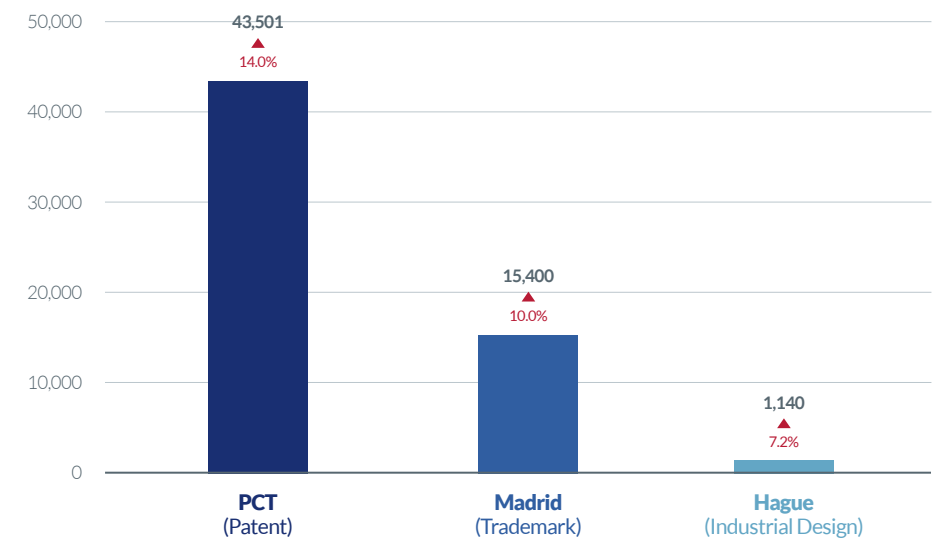
**22,818** ▲ 6.0%



#### • KIPO as the Designated Office (National Phase)

(unit: cases)

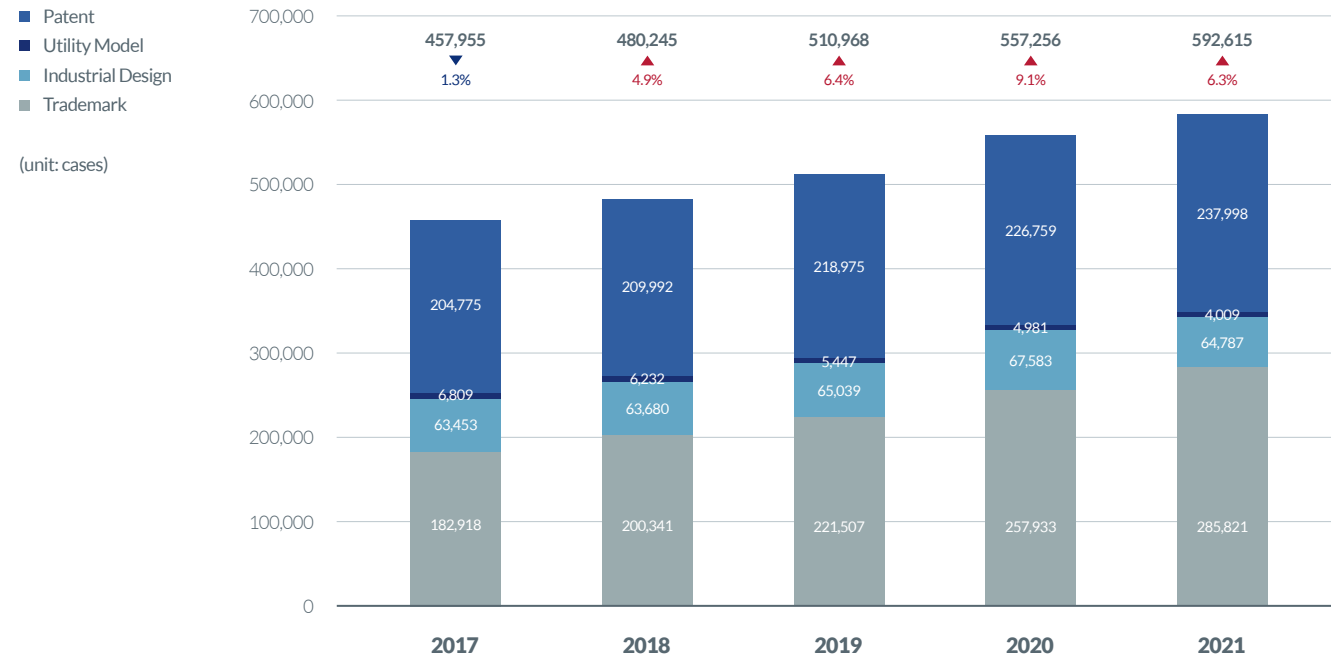
**60,041** ▲ 12.5%



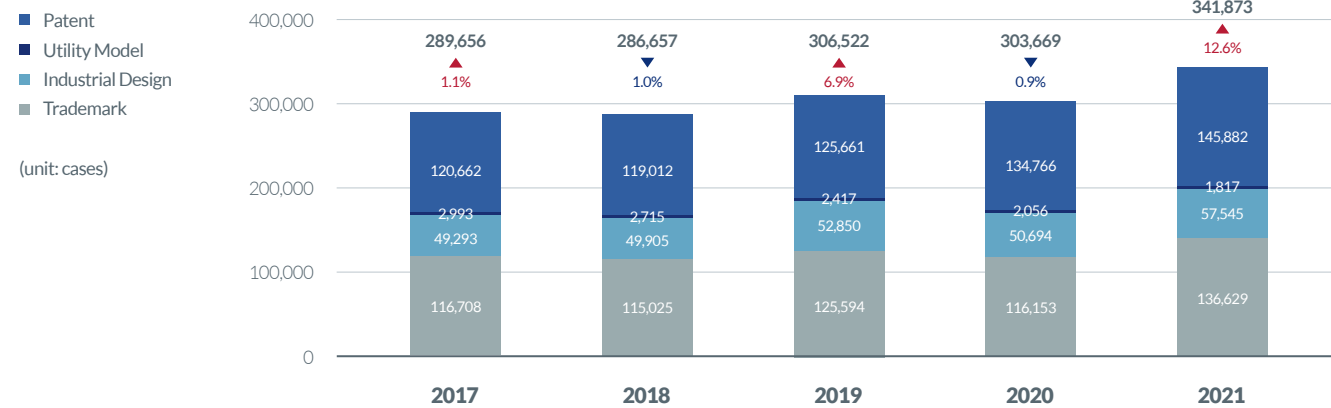
## IPR Applications and Registrations by Year

### IPR Applications

\*Including PCT, Madrid, Hague international applications

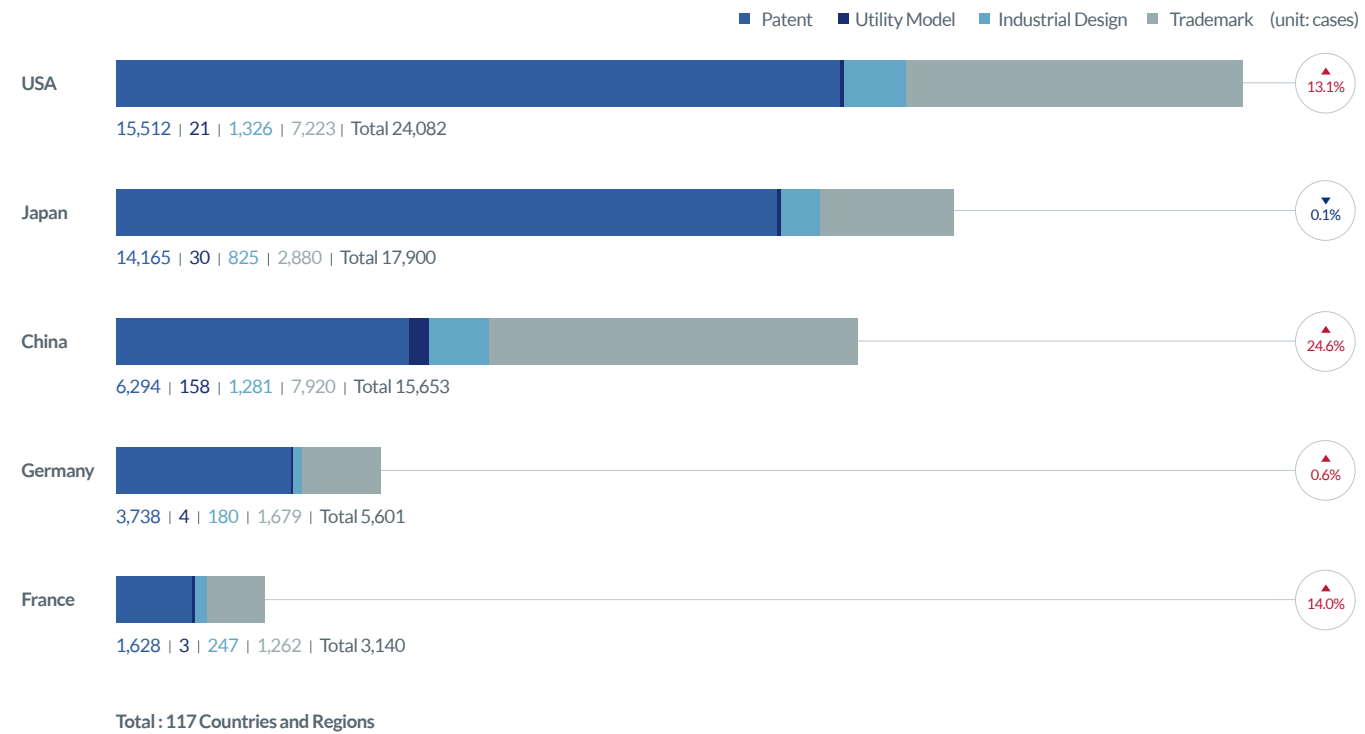
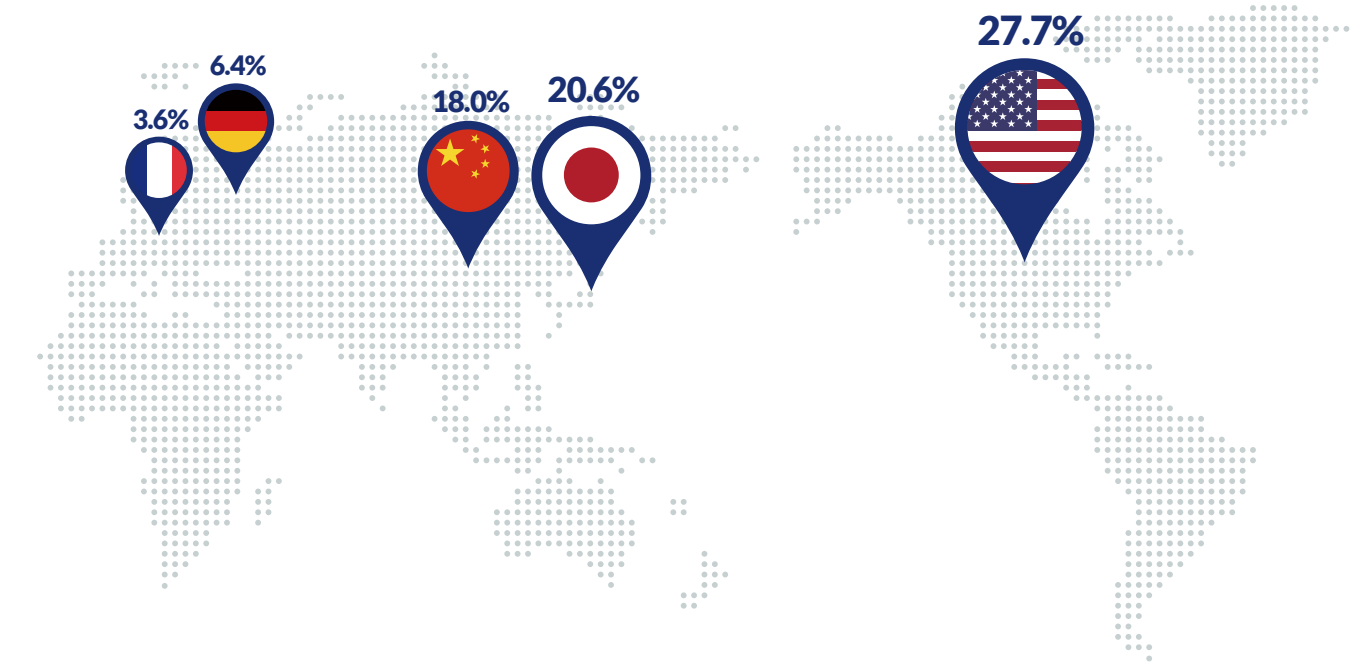


### IPR Registrations































## Non-resident IPR Applications filed at KIPO

### Top 5 Countries/Regions





### Top IPR Filing Domestic & Foreign Companies

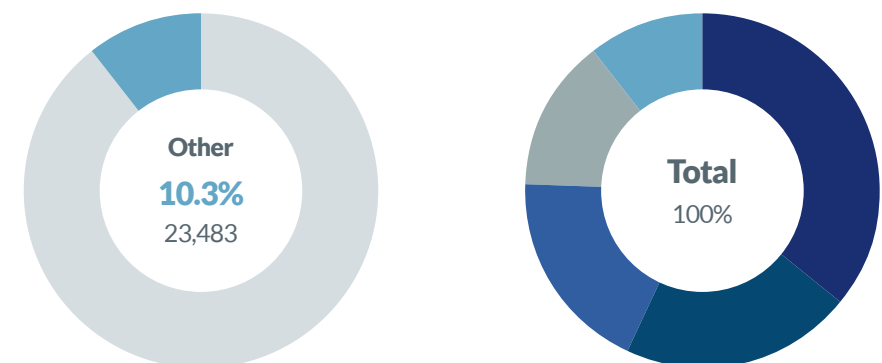
Patent	1st.	2nd.	3rd.	4th.	5th.
<b>Domestic</b>	 <b>9,857</b> 7,742 ▲32.5%	 <b>4,008</b> 5,345 ▼25.0%	 <b>2,975</b> 3,000 ▼0.8%	 <b>2,605</b> -	 <b>2,600</b> 2,957 ▼12.1%
<b>Foreign</b>	 <b>687</b> 623 ▲10.3%	 <b>644</b> 527 ▲22.2%	 <b>623</b> 397 ▲56.9%	 <b>601</b> 505 ▲19.0%	 <b>546</b> 603 ▼9.5%
<b>Industrial Design</b>	1st.	2nd.	3rd.	4th.	5th.
<b>Domestic</b>	 <b>1,129</b> 1,129 ▼46.5%	 <b>573</b> 684 ▼16.2%	 <b>407</b> 289 ▲40.8%	 <b>403</b> 788 ▼48.9%	 <b>223</b> 193 ▲15.5%
<b>Foreign</b>	 <b>193</b> 197 ▼2.0%	 <b>72</b> 70 ▲2.9%	 <b>67</b> 8 ▲738%	 <b>67</b> 140 ▼52.1%	 <b>52</b> 33 ▲57.6%
<b>Trademark</b>	1st.	2nd.	3rd.	4th.	5th.
<b>Domestic</b>	 <b>1,869</b> 191 ▲879%	 <b>905</b> 829 ▲9.2%	 <b>450</b> 767 ▼41.3%	 <b>449</b> 142 ▲216%	 <b>446</b> 1,043 ▼57.2%
<b>Foreign</b>	 <b>129</b> 175 ▼26.3%	 <b>96</b> 44 ▲118%	 <b>83</b> 56 ▲48.2%	 <b>64</b> 80 ▼20.0%	 <b>63</b> 63 -

■ 2021 ■ 2020 | ▲▼ Year-over-year comparison (unit: cases)

### Patent Applications by Technology

#### Top 5 WIPO Technology Fields

(unit: cases)

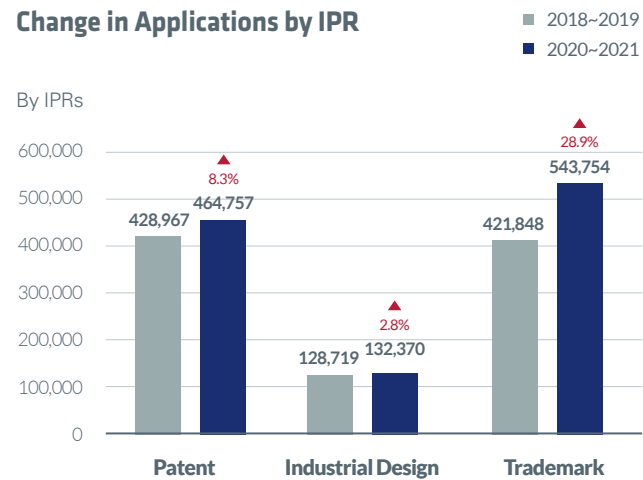


### IP Application Trends: Before and After the COVID-19 Outbreak

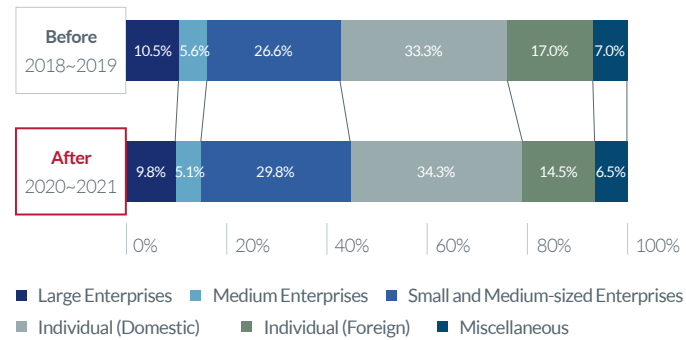
(unit: cases)

\*Before: Total number of applications during 2018~19  
 \*After: Total number of applications during 2020~21

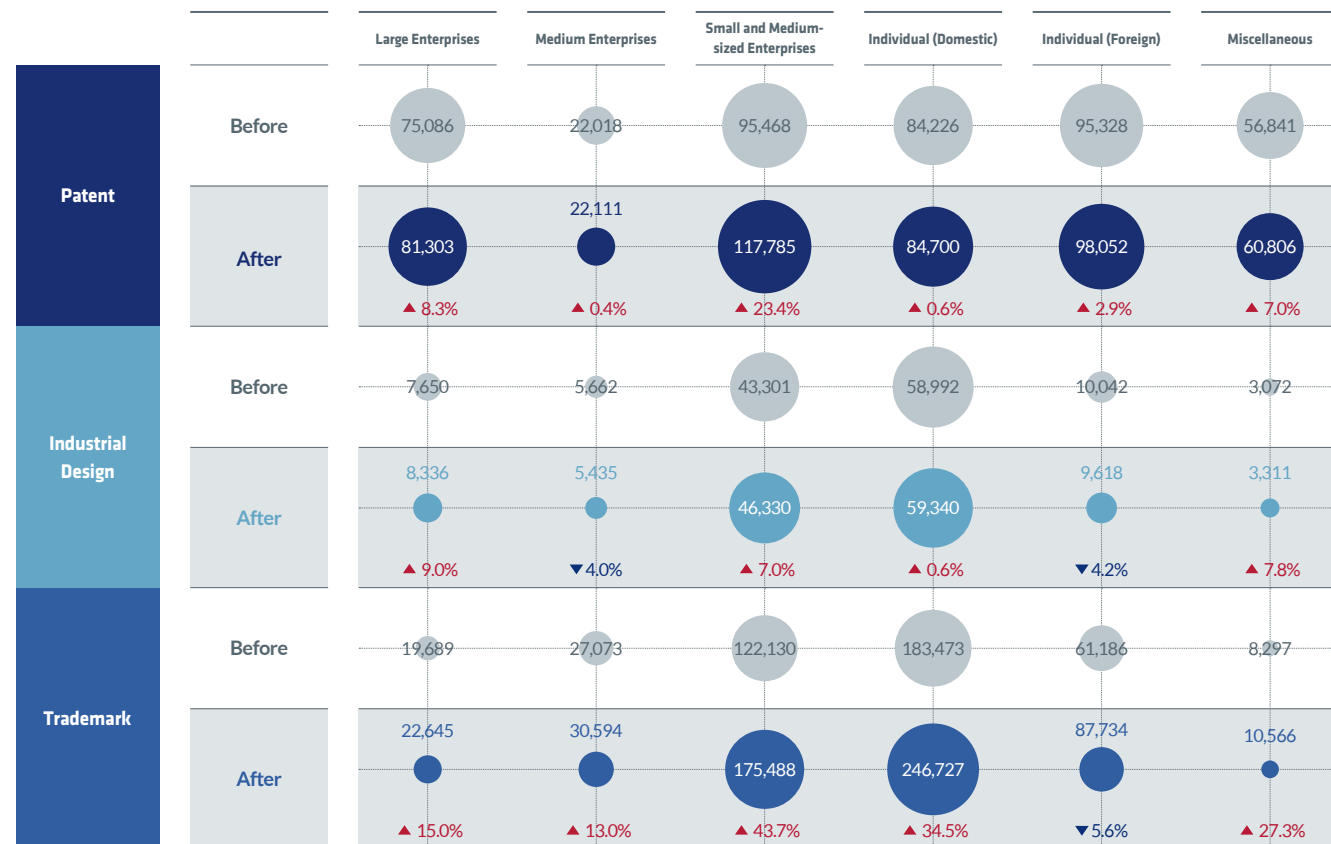
#### Change in Applications by IPR



#### Change in Proportion by Applicant Type



#### Applications by Applicant type for each IPR



\*Rate of Change: Comparison of before (2018~19) and after (2020~2021) the COVID-19 outbreak.

### Change in Applications by Fields

#### • Patent - WIPO Technology Classification

	1st.	2nd.	3rd.	4th.	5th.
Before	31,141 Electrical Machinery/Energy	23,789 Computer Technology	22,491 Semiconductor	21,163 IT Methods for Management	20,388 Transport
After	33,970 Electrical Machinery/Energy	29,301 Computer Technology	28,192 IT Methods for Management	24,150 Medical Technology	23,640 Semiconductor
	1st.(-)	2nd.(-)	3rd.(▲ 1)	4th.(▲ 2)	5th.(▼ 2)

#### • Industrial Design - Locarno Classification

	1st.	2nd.	3rd.	4th.	5th.
Before	10,764 Building / Construction Elements	9,683 Packages and Containers for Transport	9,250 Telecommunication Processing Equipment	9,015 Articles of Clothing	8,467 Furnishing
After	13,091 Articles of Clothing	10,513 Packages and Containers for Transport	10,158 Building / Construction Elements	9,525 Telecommunication Processing Equipment	9,475 Office Equipment/ Artist Materials
	1st.(▲ 3)	2nd.(-)	3rd.(▼ 2)	4th.(▼ 1)	5th.(▲ 3)

#### • Trademark - Nice Classification

\*Excludes Class 35

	1st.	2nd.	3rd.	4th.	5th.
Before	44,462 Cosmetics	43,607 Computer Software	39,184 Restaurants and Food Services	29,074 Education and Sports Services	27,965 Clothing
After	55,582 Computer Software	49,837 Restaurants and Food Services	44,799 Cosmetics	34,634 Clothing	33,474 Education and Sports Services
	1st.(▲ 1)	2nd.(▲ 1)	3rd.(▼ 2)	4th.(▲ 1)	5th.(▼ 1)

# Improving the IP System

- 24 Amending Legislation to Protect Graphic Image Design
- 25 Prioritizing Examination of COVID-19 Vaccines
- 26 Applying AI Technology in Trademark and Design Image Search
- 28 Introducing an Expert Commissioner System in Patent Trial and Appeal



**Semiconductor Wafer**  
A semiconductor wafer is a thin slice of semiconductor substance, like crystalline silicon, used in electronics for the making of integrated circuits. In the electronics jargon, a thin slice of semiconductor material is called as a wafer.

## Amending Legislation to Protect Graphic Image Design

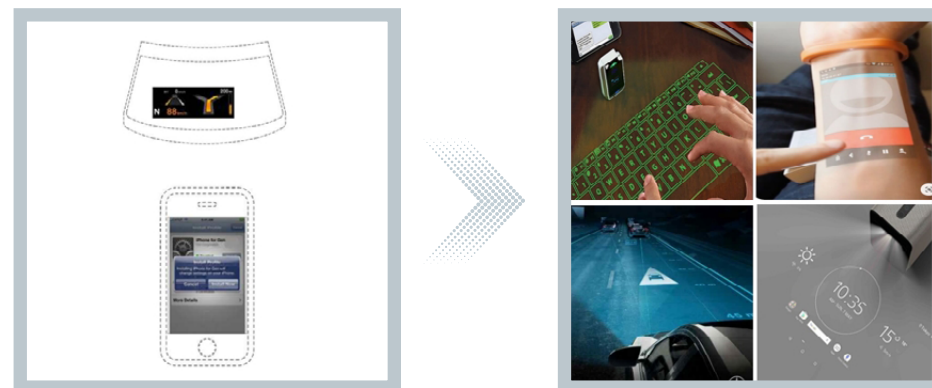
### Design Examination Policy Division

With expansion of the digital economy, an increasing number of products based on emerging technologies, such as virtual reality (VR) and augmented reality (AR), are being launched into the market. Especially, these new technologies are being used to create and express designs. In that regard, the *Design Protection Act* was amended to provide legal basis for the registration and protection of graphic image on their own (i.e. holograms, augmented reality, projected displays, etc.) as design rights in effect since October 2021.

Graphic image design refers to visually-recognized shapes, colors, and combinations thereof, including graphic user interface, icons, and graphic images. Before the amendment, only image designs displayed within a defined screen or panel of a physical article could be registered as a design right. Therefore, designs projected on an undefined space outside of a physical design article or onto any other external surface, such as holograms, could not be protected.

The amendment establishes a new definition of graphic image design and expands the term “working of a design” to add the online transmission of graphic image design, thereby broadening the “practicing (working) of a design” to include the production, use or online transmission of graphic image designs, which previously covered only physical design articles produced or used through an offline transaction. In accordance, KIPO published an updated examination guideline to allow graphic images used to operate the device or displayed as a result of the device performing its function to be considered for examination and registration as a design right such as virtual keyboards, smart bracelets, intelligent automobile headlights, etc.

This is the ROK’s first legislation that supports the digital economy by protecting IP expressed through digital technology. Going forward, it will be necessary to provide sufficient protection as new designs appear and the overall scale of the industry grows.



## Prioritizing Examination of COVID-19 Vaccines

### Patent Legal Administration Division

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

After passing the enforcement decree, KIPO applied this policy for the

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

Through this measure, KIPO will be able to assist companies already producing or in the process of producing COVID-19 vaccines as they benefit from an accelerated examination. Moreover, continuing to encourage production of COVID-19 Vaccines and expand R&D alongside the U.S., the two countries will build a stable base for the KORUS Global Vaccine Partnership to jointly fight against global public health emergencies.



# Applying AI Technology in Trademark and Design Image Search

## Information & Customer Policy Division








Utilizing AI technology, KIPO developed a search system for trademark and design images in the examination and trial process, which was launched in February 2021. Improving on the previous method of having to review thousands of trademark and design prior art images with their own eyes, examiners benefit from shortened time spent searching and improved accuracy in examination with the help of AI. More than 2 million trademark and design images held by KIPO were used as training data and it took two years of research, actualization and trial operations for the establishment of the AI-based image search system.








A key feature of the image search system is the display of search results according to similarity of the image in

the application and the prior art images. It is particularly notable that the system is capable of recognizing and searching partial images for an image where multiple forms are combined. For example, both the shape of the bag as well as the logos and characters printed on the bag are simultaneously recognized and searched for similar images. Also, a classification code is automatically recommended by the AI to help designate a classification for the trademark and design.








Moreover, AI technology was applied to overseas patent document translation and patent drawing recognition in 2020. Also, a chatbot that uses AI to converse with text or voice is under development to respond to public queries, intelligent patent search, automatic classification, etc.

### Design and Trademark Image Search (auto-search of logos and characters)

Subject	Key search results (design database)					
						

Subject	Key search results (trademark database)					
						

### Trademark Image Search

Subject	Key search results (trademark database)					
						

\*Results based on similarity rather than filing date, etc.

## Introducing an Expert Commissioner System in Patent Trial and Appeal

### Trial Policy Division

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

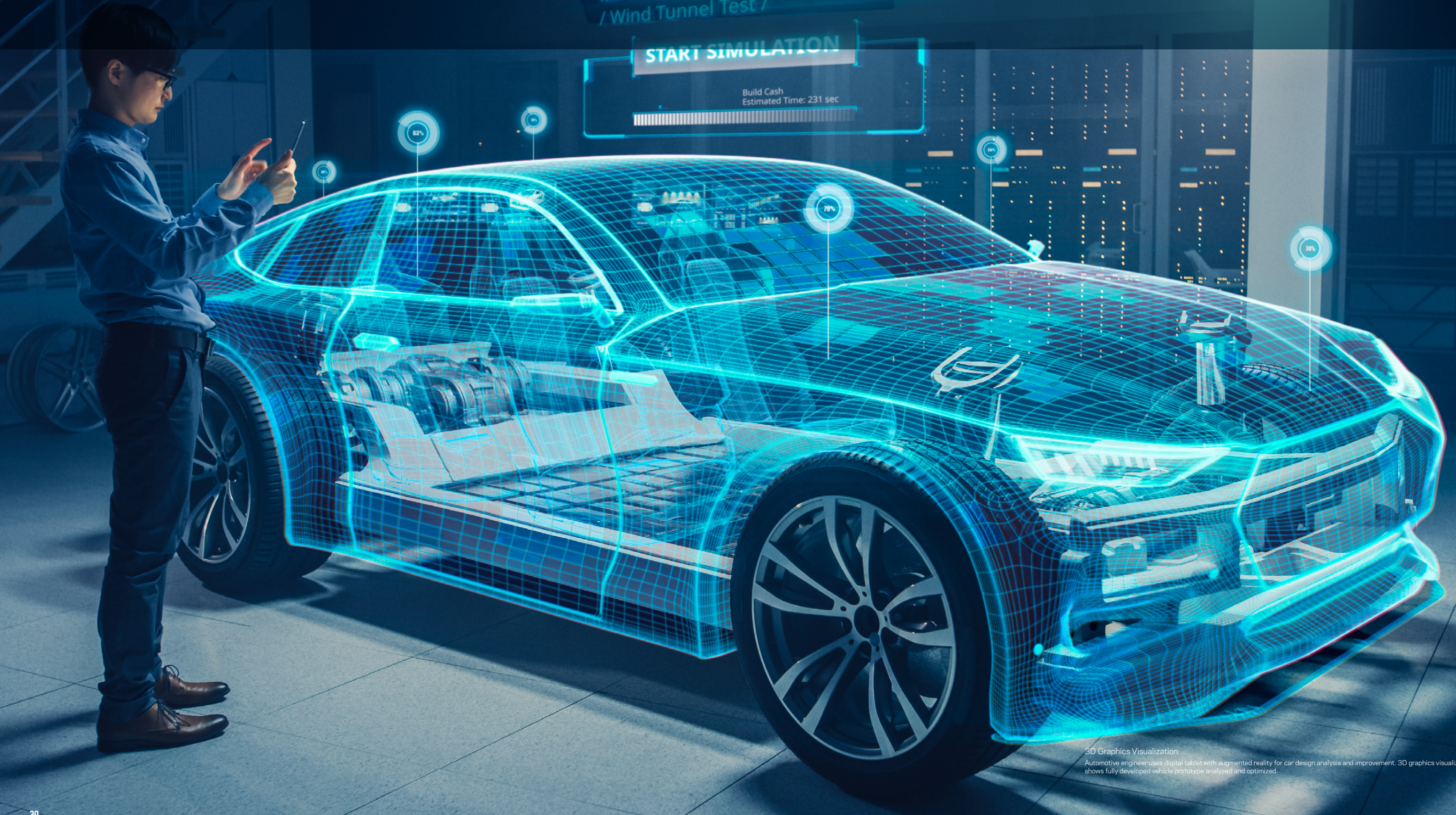
The IPTAB selected various fast-changing and cutting-edge technical fields that require field knowledge to comprehend. A total of 11 fields were deemed necessary to have an expert commissioner: artificial intelligence (AI), autonomous driving, secondary/fuel cells, wireless communication (5G/6G), video/audio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

Where a presiding administrative judge determines that the participation of an expert commissioner is required in a trial or appeal, the judge may designate one or more expert commissioners in the relevant technical field from the candidate list. An expert commissioner is confirmed after hearing the opinions of both parties so that no one party would be disadvantaged. While parties may even suggest that an expert commissioner participate in a trial or appeal by submitting a written statement, the presiding administrative judge makes the ultimate determination. Once chosen, an expert commissioner will submit a written explanation or opinion from a neutral position to provide clarity or explanation to the technological issues of the case. The use of this system will significantly contribute to helping a judge render a final decision so that the matter in concern is resolved quickly and accurately.



# Creating and Utilizing IP

- 32 Exceeding Six Trillion South Korean Won in IP-Finance
- 33 Publishing a Non-mRNA Vaccine Patent Analysis Report
- 34 Ranking No.1 in Standard-Essential Patents



3D Graphics Visualization  
Automotive engineer uses digital tablet with augmented reality for car design analysis and improvement. 3D graphics visualization shows fully developed vehicle prototype analyzed and optimized.

## Exceeding Six Trillion South Korean Won in IP-Finance

### Intellectual Property Utilization Division

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

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

Most notably, the scale of investment

into companies with valuable IP assets grew 2.3 times that of the previous year to KRW 608.8 billion from KRW 262.1 billion in 2020. This was possible due in part to collaboration between KIPO and private investment institutions to expand fund raising for IP-based investments and cooperation with venture capital firms to promote IP-based investments in the promising IP of companies.

As the IP-finance market grows, it will be important to properly assess the value of IP to allow innovative companies to be given appropriate financing opportunities. A survey conducted on 1,390 companies indicated that 78% of the companies were able to receive loans using their IP as collateral which would otherwise have been ineligible due to their low credit ratings. By continuing to improve the quality of the IP valuation services, promising and innovative SMEs and venture companies can make the best use of IP-finance.

## Publishing a Non-mRNA Vaccine Patent Analysis Report

### Intellectual Property Creation Strategy Division

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

The “Non-mRNA Vaccine Patent Analysis Report” provides analysis of 15 types of international non-mRNA vaccines that are undergoing global clinical trials. The report describes the characteristic of each platform technology and key patents and includes detailed analyses of recently published COVID-19 patents and their original patents. Making such information available to the public will

aid researchers identify existing patents of vaccine technology platforms and help set the direction of vaccine R&D as well as establish strategies to avoid, invalidate, buy or license key patents as necessary.

This publication comes after a “mRNA Vaccine Patent Analysis Report” published in September 2021. Due to expedited development and worldwide distribution of mRNA vaccines created by pharmaceutical companies such as Moderna and Pfizer, there has been relatively low public interest in earlier non-mRNA vaccine platform technologies such as virus vector, synthetic antigens, self-amplifying RNA, and DNA. However, non-mRNA vaccines have been known to be more stable, have less severe side effects, and are easier to store and distribute. Therefore, both reports were published by KIPO as it is important to support the development of non-mRNA vaccines as well as mRNA vaccines.





## Ranking No.1 in Standard-Essential Patents

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### **Intellectual Property Creation Strategy Division**

The ROK became the No.1 country with the largest amount of declared standard-essential patents by 2021 reported to three international standard-setting organizations (SSOs)—the International Organization for Standardization (ISO), International Electrotechnical Commission (IEC), and the International Telecommunication Union (ITU). Standards frequently make reference to technologies that are protected by patents, and a patent that protects technology which is essential to a standard is called a “standard-essential patent (SEP).” In total, the ROK has declared 3,390 SEPs (22.6% of all SEPs) which is more than six times the amount of 571 patents in 2017.

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

SEPs are particularly important for market competition as it is impossible to manufacture standard-compliant products, such as smartphones or tablets, without using the technologies covered by one or more SEPs. From that aspect, the growth of Korean company’s competitive edge in standardization can be evidenced through the ROK’s rises in overall global ranking of declared SEPs from No.5 to No.1 among the three international SSOs and No.4 to No.3 among the five major SSOs over the five past year.

In order to secure this competitiveness, the Korean government has been striving to interconnect R&D, standards, and patents, such as developing institutions specializing in standard patents through cooperation among the Ministry of Science and ICT’s “Information, Communication, and Broadcast Standard Development Project”; the Ministry of Trade, Industry and Energy’s “National Standard Technology Enhancement Project”; and KIPO’s “Standard Patent Creation Support Project,” as well as supporting strategies for SEP creation by institutions that carry out R&D-standardization projects. These efforts will lay the foundation for improving technological trade profitability in the future.

# Strengthening IPR Protection

- 38 Providing Legal Basis for Data and Publicity Protection
- 39 Enabling Reasonable Compensation for Damages
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- 42 Outcome of Counterfeit Enforcement in 2021



Bongsan Talchum (Mask Dance Drama of Bongsan)  
Talchum (mask dance) is a stage play wherein one person or several people wearing a mask act as a person, an animal, or a supernatural being (god), delivering a message with dialogues or dances. Bongsan Talchum was started in Bongsan-gun, Hwanghae-do about 200 years ago.

## Providing Legal Basis for Data and Publicity Protection

### Intellectual Property Protection Policy Division

Amendments to the *Unfair Competition Prevention and Trade Secret Protection Act* were promulgated on December 7, 2021 which stipulates new acts of unfair competition, including the misappropriation of data (to be enforced in April 2022) and distinctive signs (e.g. portraits and names) of a famous person (to be enforced June 2022).

As the ability to secure and use data is becoming a key element that determines competitiveness in a data economy, many countries around the world are hurrying to be the first to align their data-related legislations accordingly. In that regard, the ROK has been aiming to create an environment where data can be effortlessly used and distributed by making reasonable compensation for data creation.

However, there is concern that granting monopoly rights to data itself may discourage its use and hinder the development of the growing data industry. Therefore, the amendment only defines the action of misappropriation of data which has been accumulated and managed for the purpose of transaction to be an act of unfair competition and protect the data holder.

Going forward, the holder of the data is able to request an injunction by the court for unlawfully acquired or used data and claim compensation if any damage occurs. It will also be possible to request an investigation by KIPO to order corrective measures and remedies. Also, acts that work to impair the technical measures put in place to protect data may be subject to criminal penalties up to 3 years of imprisonment or a fine up to KRW 30 million.

The other amendment is related to the publicity of famous persons in the form of portraits or names. The rapidly growing global popularity of the Korean popular culture has created a large consumer base, however, a lack of stipulated legislation made it difficult to sufficiently protect against the production and sale of products using the unauthorized images and names of celebrities. With new provisions in place, a right holder can claim economic damages due to the unauthorized use of a portrait or name of famous persons and request an injunction by the courts as well as an investigation by KIPO to get compensation and remedies.

## Enabling Reasonable Compensation for Damages

### Intellectual Property Protection Policy Division

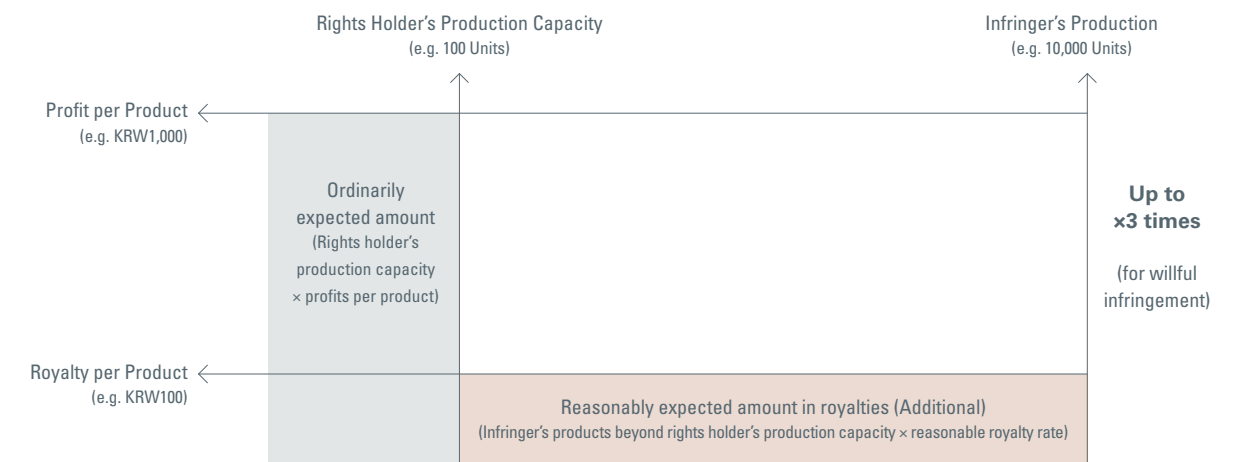
Partial amendments were made to the *Trademark Act*, *Design Protection Act*, and *Unfair Competition Prevention and Trade Secret Protection Act* to enable reasonable compensation that includes damages that exceeds the production capacity of the rights holders on June 23, 2021. The new calculation of compensation for damages was first introduced to only the *Patent Act* in December 2020, but now, the same compensation calculation method is applied to almost all intellectual properties except for copyrights.

Prior to the amendment, a rights holder could not claim compensation for damages that exceeded their own production capacity. Therefore, larger companies could profit from infringing on the innovative idea and technology of smaller companies with smaller production capacity. With a weak

deterrent, companies would oftentimes steal or copy and pay comparatively small compensation rather than sign lawful licensing agreements with the rights holder.

However, it is now possible to claim compensation for the full production capacity of the rights holder as well as any exceeding amount by calculating the reasonably expected amount in royalties. Furthermore, the amount awarded can increase up to three times in punitive damages for willful infringement.

With the new calculation methods, right holders will have more comprehensive protection against intentional violations of various IP rights. These amendments help establish an environment encouraging lawful use of ideas and technologies, thereby accelerate the innovation and growth of SMEs and venture companies.



- > With consideration that an IPR can be licensed by multiple people at the same time  
(Right holder's production capacity x profits per product) + (Infringer's products beyond right holder's production capacity x reasonable royalty rate)
- \*Up to 3 times in compensation for willful infringement
- >> Important to calculate damage compensation based on a reasonable royalty rate

## Expanding and Reorganizing KIPO Divisions for Investigation

### Technology & Design Police Division, Trademark Police Division, and Unfair Competition Investigation Division

Since 2010, KIPO has been strengthening IPR enforcement through gradual expansion of their investigative divisions. In 2021, to help further improve effectiveness of investigations, the Industrial Property Investigation Division was divided according to specific fields of IPRs and restructured into separate divisions Technology & Design Police Division, the Trademark Police Division and the Unfair Competition Investigation Division.

Each division consists of government administrative officials who carry out investigative and enforcement activities regarding fields that require specific expertise (i.e. patented technologies, trade secrets, designs, trademarks, and unfair competition actions). Based on information gathered from direct investigations, they are able to make quick and accurate judgement on the occurrence of IPR violations and order corrective recommendations or transfer the case to the Prosecutor's office. KIPO also increased the overall number of personnel from 47 to 58 people with 22 people in the Technology & Design Police Division, 29 people in the Trademark Police Division and 7 people in the Unfair Competition Investigation Team.

The Technology & Design Police Division (also known as the "Tech Police") dedicates effort to protect against infringement and leaks of key technologies, which are core assets of national industrial competitiveness. The Tech Police specializes in investigating illegal activity involving patented

technologies, trade secrets and designs. members are professionals with proficient knowledge in technology and IP law, such as having Ph.D degrees (law, engineering, pharmacy, and design), lawyer/patent attorney certification, or experience in examination and trials. In 2021, the Tech Police investigated 164 cases and arrested 376 individuals on criminal charges.

Most notably, KIPO worked in collaboration with the National Intelligence Service to close a major case regarding an attempt to internationally leak the trade secret of a medium-scale Korean semiconductor manufacturing equipment company. The case concluded with the arrest of 7 individuals, including an overseas company broker, and the prevention of KRW 100 billion worth of damage.

The Trademark Police Division works to prevent disruption of the market order and damage to consumers caused by trademark infringements mainly in the form of distribution of counterfeits. In addition to carrying out crackdowns and monitoring of on/offline counterfeits, the Trademark Police organizes private-public cooperation for counterfeit prevention, hosts training and promotional activities on the illegality of trademark infringement, and operates a reward system for reporting counterfeits. In 2021, they investigated 523 cases and arrested 557 individuals on criminal charges, confiscating 78,061 counterfeit items, thereby preventing consumer damages worth KRW 41.5 billion.

The Unfair Competition Investigation Team carries out administrative investigations and recommends measures for correction according to provisions under the *Unfair Competition Prevention and Trade Secret Protection Act*. There has been a steady growth in the number of reported cases each year with a total of 405 cases reported to KIPO from December 2017 until 2021. Having concluded investigation for 327 cases, there were 148 instances where the offenders made self-corrections

and 14 required KIPO to make orders of corrective measures. The number of reports is expected to increase as protection of data and publicity fall under the scope of administrative investigations.

In that regard, the expansion and reorganization has allowed KIPO to effectively focus enforcement according to specific needs and to commit itself to promoting a fair market order with thorough inquiry and investigations.



# Outcome of Counterfeit Enforcement in 2021

## Trademark Police Division

KIPO has been actively responding to trademark infringements and distribution of counterfeit goods. In 2021, KIPO's special judicial police on IP arrested 557 people on criminal charges and confiscated 78,061 counterfeit goods which was worth KRW 41.5 billion in counterpart genuine product value. As a result of KIPO's efforts

to eradicate counterfeits, the number of arrests decreased by 9.7% from 617 people in 2020, and the number of confiscated goods decreased 89.2% from 720,471 items in 2020 and the overall value of the counterfeit goods that were confiscated increased by 160.1% from KRW 15.96 billion in 2020.

### Results of Counterfeit Enforcement by Year

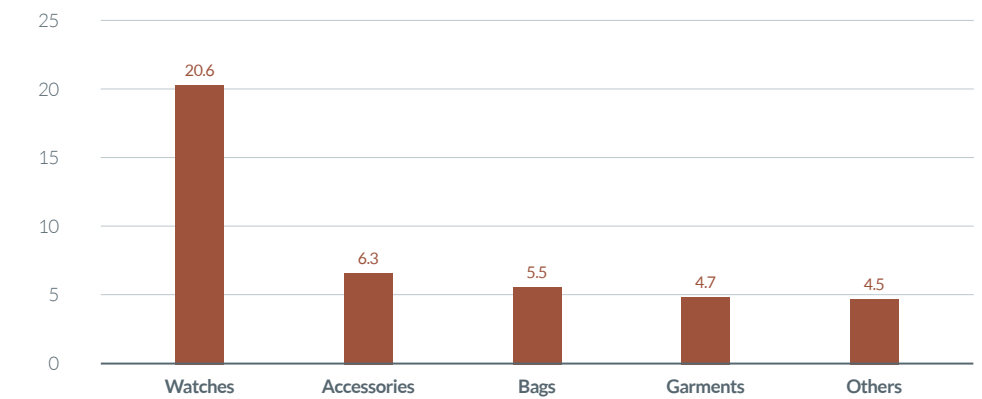
Category	2017	2018	2019	2020	2021
Arrests on criminal charges (individual)	362	361	376	617	557
Confiscated goods (item)	691,630	542,505	6,269,797	720,471	78,061
Genuine product value (KRW 100 million)	416.5	364.6	633.1	159.6	415.1

In terms of the value of the seized counterfeit products, timepieces (wristwatches, etc.) were at the top at KRW 20.6 billion, followed by accessories (rings, necklaces, earrings, bracelets, etc.) at KRW 6.3 billion, bags (handbags,

pouches, purses and wallets, etc.) at KRW 5.5 billion, clothing (tops/bottoms, gloves, socks, hats, etc.) at KRW 4.7 billion, and miscellaneous (shoes, glasses, electronic devices, cosmetics, toys, etc.) at KRW 4.5 billion.

Top Items Seized in Terms of Genuine Product Value

(unit: KRW 100 million)



In 2021, a popular influencer was even controversially found wearing counterfeit items on a popular online video platform. As such, while most of the seized counterfeit goods were related to expensive foreign luxury brands, a significant amount of high-demand daily household products in the low and middle price range were also confiscated. Moreover, the growing coffee market and increasing popularity of golf related-entertainment has led to an increase in

the number of sellers and vendors selling counterfeit goods in the form of tumblers, mugs, golf balls, etc.

As consumers progressively rely on remote transactions, the presence of counterfeit goods on online platforms will increase. Therefore, KIPO will strengthen its investigations of counterfeit sellers both online and offline to protect consumers, especially related to health and safety.

# Establishing Global Leadership in IP

- 46 Fifth in the Global Innovation Index by WIPO
- 47 First in the IP Innovation Ranking by the WTR
- 48 Fourth Largest in the Number of PCT Applications
- 49 Leading International IP Standards Related to AI



Peace Square of Seoul Olympic Park  
Olympic Park was created to commemorate the 1988 Seoul Olympics. The Seoul Olympics is a historic event that signaled the end of the Cold War, as well as an opportunity for Korea to emerge as an advanced country.

## Fifth in the Global Innovation Index by WIPO

### Trade and Cooperation Division

With the annual launch of the Global Innovation Index (GII) by WIPO on September 20, 2021, the ROK was revealed to rank as the 5th most innovative economy among 132 economies worldwide and 1st among Asia.

While Switzerland (1st), Sweden (2nd), the US (3rd), and the UK (4th) stayed in the top 4, the ROK rose from 10th in 2020 to have the most improved innovative capabilities among the top 20 countries. Despite difficult domestic and international circumstances, such achievement was possible by continuing to carry out activities that lead to innovation and creation of IP and other intangible assets.

More specifically, the GI is a global innovation ranking conducted by WIPO which uses seven pillars to measure innovation, including \*five input and two output sub-indexes. The ROK has

continued to be No.1 in the sub-index of Human Capital and Research for three consecutive years which is a measure of investment in innovation. Also, the ROK's ranking in the two output sub-indexes which measure the performance of innovative activities advanced to 5th from 10th of the previous year due to the increase in domestic and international patent applications.

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

\*Input Sub-index: Institution, Human Capital and Research, Infrastructure, Business Sophistication, Market Sophistication  
Output Sub-index: Knowledge and Technology Output, Creative Output

## First in the IP Innovation Ranking by the WTR

### International Cooperation Division

In 2021, the World Trademark Review (WTR) jointly ranked KIPO and the European Union Intellectual Property Office (EUIPO) as 1st in the IP Innovation Ranking 2021. The WTR is a news and research outlet specializing in worldwide issues related to Trademark which ranks 60 major IP offices.

Over the past few years, KIPO has been consistently rising to the top after ranking 6th in 2019 and 3rd in 2020. For the first time, KIPO eventually reached 1st in 2021 with its continued commitment to innovation, such as introducing the world's first mobile trademark e-filing system. The IP Innovation Ranking uses 16 metrics concerning three areas: online service capabilities, value-added propositions, and

public outreach efforts. Overall, KIPO placed 1st in the area of online metrics (6th in 2020) through its website functionality and accessibility, Trademark e-filing service offerings, and AI-based search system and also dramatically jumped to 1st place (23rd in 2020) for its public outreach efforts, such as holding briefing sessions about the trademark system and social networking services for applicants.

In particular, KIPO utilized AI to develop a trademark image search system to provide efficient and accurate examination and continuously improved the functions of e-filing system which has led to 98% of all trademark applications to be filed electronically in 2021. Like this, KIPO has worked tirelessly to improve the quality of the trademark system.



## Fourth Largest in the Number of PCT Applications

### Trade and Cooperation Division

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

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

There was also a remarkable increase in the number of trademark applications filed under the Madrid protocol by Korean companies. In 2021, Korean applicants including companies filed the 11th highest number of the Madrid applications with a total of 1,973 applications. The growth rate for Madrid application filings increased 24% in 2021 which is significantly higher than the global rate of 14.4%.

The demand for global IP services is dramatically increasing in the ROK. Therefore, KIPO is continuously working to establish a local WIPO external office so that users in the ROK are provided with accessible and timely services regarding WIPO's international application services.

## Leading International IP Standards Related to AI

### Trade and Cooperation Division, International Cooperation Division, International Training Division

A forum of the world's five largest intellectual property offices (IP5) agreed on a joint statement to authorize a cooperative roadmap of new emerging technology (NET) and technologies related to the Fourth Industrial Revolution (e.g. AI, big data, blockchain, etc.) to preemptively respond to the rapid development of digital technologies such as AI and provide efficient patent examination services.

Two years after KIPO and the EUIPO jointly established a "IP5 NET/AI Taskforce" to lead discussions in 2019, the IP5 agreed to create the "NET/AI New Emerging Technology Roadmap."

The IP5 NET/ AI Roadmap identifies four key areas of co-operation: Statistics, Classification, IT aspects/utilization of NET/ AI, and Legal. The Roadmap is intended to serve as a blueprint for joint endeavors of the IP5 Offices to harness NET/AI capabilities in support of their patent grant processes and to provide transparency in their patent practices and predictability of patent prosecution for users.

Meanwhile, KIPO participated in WIPO's first special session on IP and AI in 2019. Afterwards, WIPO has actively pursued international discussion and formation of norms related to IP of frontier technology by collecting the opinions of WIPO member states and stakeholders through conversations.

In that regard, KIPO actively shared relevant experiences and presented on AI and trademarks as well as the need to resolve technical discrepancies between advanced and developing countries in new emerging technologies at the 3rd Policy Conference held in 2020. For the 4th Policy Conference, KIPO presented on the ROK's data protection measures under the *Unfair Competition Prevention Act*.

In addition, KIPO newly established an international AI-related IP training course "Workshop on AI & IP" in December 2021 through joint effort with WIPO. The workshop will help share KIPO's AI policies and examination know-how to various countries, especially developing countries.





# Appendix

# 2022 KIPO Vision & Strategy



## Goals

- Responding to digital transformation with an innovative IP system
- Establishing a virtuous cycle of IP creation, utilization and protection

## Strategy



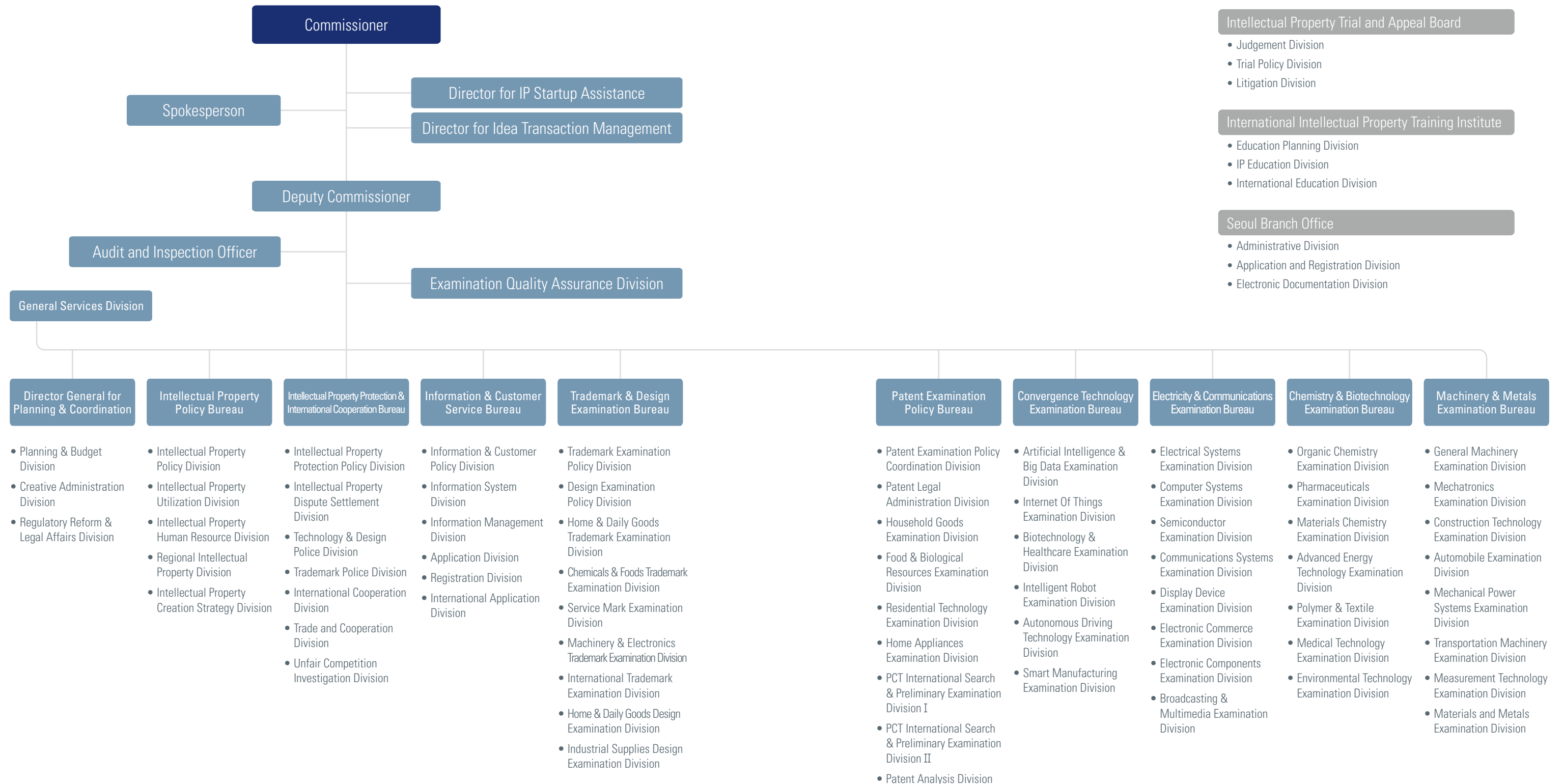
1. Implement a digital growth strategy based on IP data
2. Support business start-up and growth based on technology through core and essential patent creation
3. Vitalize IP-finance and promote trade and commercialization

1. Create an IP protection system which adapts to changes in the environment
2. Support response to domestic and overseas IP disputes
3. Enhance law enforcement for IP protection

1. Provide high-quality examination and trial services
2. Improve polices for IP examination and trial
3. Establish a digital system for IP administration

1. Strengthen regional IP capabilities
2. Foster a workforce with IP expertise
3. Expand global IP cooperation

# KIPO Organization Chart



# Applications

## Application by IPR type

(unit: cases)

Category	2017	2018	2019	2020	2021
Patents	204,775	209,992	218,975	226,759	<b>237,998</b>
Utility models	6,811	6,232	5,447	4,981	<b>4,009</b>
Subtotal	211,586	216,224	224,422	231,740	<b>242,007</b>
Designs	62,528 (64,986)	62,823 (65,434)	64,111 (66,637)	66,354 (68,695)	<b>63,647 (65,922)</b>
Trademarks	168,556 (202,539)	185,968 (232,109)	204,998 (252,309)	243,935 (290,207)	<b>270,421 (290,209)</b>
Total	442,670 (485,922)	465,015 (513,767)	493,531 (543,368)	542,029 (590,642)	<b>576,075 (598,138)</b>

Note: Figures in parentheses include multiple applications.

## PCT applications (KIPO as the Receiving Office)

(unit: cases)

Category	2017	2018	2019	2020	2021
Number of applications	15,790	16,991	18,885	19,675	<b>20,528</b>
Growth rate	1.2%	7.6%	11.1%	4.2%	<b>4.3%</b>

## International trademark applications under the Madrid System

(unit: cases)

Category	2017	2018	2019	2020	2021
Korea as office of origin	1,053	1,322	1,419	1,599	<b>2,012</b>
Korea as designated office	14,362	14,373	16,509	13,998	<b>15,400</b>

## International design applications under the Hague System

(unit: cases)

Category	2017	2018	2019	2020	2021
Korea as office of origin	133	116	178	250	<b>279</b>
Korea as designated office	925	857	928	1,229	<b>1,140</b>

## Comparison of domestic and foreign applications

(unit: cases)

Category			2017	2018	2019	2020	2021
Patents	Domestic	Cases	159,095	162,576	171,606	180,484	<b>186,245</b>
		Ratio	77.7%	77.40%	78.4%	79.6%	<b>78.3%</b>
	Foreign	Cases	45,680	47,416	47,396	46,275	<b>51,753</b>
		Ratio	22.3%	22.60%	21.6%	20.4%	<b>21.7%</b>
	Total		204,775	209,992	218,975	226,759	<b>237,998</b>
	Utility models	Domestic	Cases	6,448	5,768	4,975	4,595
Ratio			94.7%	92.60%	91.3%	92.3%	<b>90.8%</b>
Foreign		Cases	363	464	472	386	<b>367</b>
		Ratio	5.3%	7.40%	8.7%	7.7%	<b>9.2%</b>
Total		6,811	6,232	5,447	4,981	<b>4,009</b>	
Designs		Domestic	Cases	59,085 (60,379)	58,699 (60,021)	59,877 (61,204)	62,698 (63,939)
	Ratio		94.5% (92.9%)	93.4% (91.7%)	93.3% (91.8%)	94.5% (93.1%)	<b>94.1% (92.8%)</b>
	Foreign	Cases	3,443 (4,607)	4,124 (5,413)	4,234 (5,433)	3,656 (4,756)	<b>3,767 (4,747)</b>
		Ratio	5.5% (7.1%)	6.6% (8.3%)	6.7% (8.2%)	5.5% (6.9%)	<b>5.9% (7.2%)</b>
	Total		62,528 (64,986)	62,823 (65,434)	64,111 (66,637)	66,354 (68,695)	<b>63,647 (65,922)</b>
	Trademarks	Domestic	Cases	155,674 (181,229)	170,545 (207,958)	190,204 (228,530)	230,318 (269,332)
Ratio			92.4% (89.5%)	91.7% (89.6%)	92.8% (90.6%)	94.4% (92.8%)	<b>94.6% (92.8%)</b>
Foreign		Cases	12,882 (21,310)	15,423 (24,151)	14,794 (23,779)	13,617 (20,875)	<b>14,675 (20,990)</b>
		Ratio	7.6% (10.5%)	8.3% (10.4%)	7.2% (9.4%)	5.6% (7.2%)	<b>5.4% (7.2%)</b>
Total		168,556 (202,539)	185,968 (232,109)	204,998 (252,309)	243,935 (290,207)	<b>270,421 (290,209)</b>	
Total		Domestic	Cases	380,302 (407,151)	397,588 (436,323)	426,662 (466,315)	478,095 (518,350)
	Ratio		85.9% (85.0%)	85.5% (84.9%)	86.5% (85.8%)	88.2% (87.8%)	<b>87.8% (87.0%)</b>
	Foreign	Cases	62,368 (71,960)	67,427 (77,444)	66,869 (77,053)	63,934 (72,292)	<b>70,562 (77,857)</b>
		Ratio	14.1% (15.0%)	14.5% (15.1%)	13.5% (14.2%)	11.8% (12.2%)	<b>12.2% (13.0%)</b>
	Total		442,670 (479,111)	465,015 (513,767)	493,531 (543,368)	542,029 (590,642)	<b>576,075 (598,138)</b>

Note: Figures in parentheses include multiple applications.

## Patent and utility model applications by technological field in 2021

(unit: cases)

Classification	Patents			Utility models		
	Domestic	Foreign	Subtotal	Domestic	Foreign	Subtotal
Electrical machinery, apparatus, energy	14,283	3,385	17,668	218	42	260
Audio-visual technology	5,762	2,112	7,874	71	17	88
Telecommunications	2,604	666	3,270	27	4	31
Digital communication	6,472	2,945	9,417	5	2	7
Basic communication processes	594	306	900	1	-	1
Computer technology	12,201	3,718	15,919	36	15	51
IT methods for management	15,019	557	15,576	27	1	28
Semiconductors	7,936	4,278	12,214	6	10	16
Optics	2,736	2,143	4,879	23	15	38
Measurement	8,037	1,951	9,988	71	10	81
Analysis of biological materials	585	243	828	3	-	3
Control	3,900	566	4,466	54	1	55
Medical technology	10,156	2,217	12,373	167	27	194
Organic fine chemistry	3,732	2,659	6,391	1	2	3
Biotechnology	3,741	2,674	6,415	3	-	3
Pharmaceuticals	3,369	2,307	5,676	2	1	3
Macromolecular chemistry, polymers	2,063	1,880	3,943	-	-	-
Food chemistry	4,575	307	4,882	18	-	18
Basic materials chemistry	3,103	1,704	4,807	7	-	7
Materials, metallurgy	2,929	1,542	4,471	1	2	3
Surface technology, coating	2,222	1,595	3,817	15	5	20
Micro-structural and nano-technology	48	41	89	-	-	-
Chemical engineering	3,753	937	4,690	69	11	80
Environmental technology	3,316	390	3,706	39	2	41
Handling	4,749	884	5,633	260	24	284
Machine tools	3,555	1,066	4,621	128	10	138
Engines, pumps, turbines	2,355	734	3,089	43	7	50
Textile and paper machines	1,611	622	2,233	21	1	22
Other special machines	7,139	1,447	8,586	298	15	313
Thermal processes and apparatus	2,896	282	3,178	66	9	75
Mechanical elements	2,784	945	3,729	94	13	107
Transport	9,882	1,337	11,219	221	23	244

(unit: cases)

Classification	Patents			Utility models		
	Domestic	Foreign	Subtotal	Domestic	Foreign	Subtotal
Furniture, games	6,011	707	6,718	545	52	597
Other consumer goods	6,451	1,188	7,639	536	30	566
Civil engineering	8,767	487	9,254	311	7	318
Others	6,909	931	7,840	255	9	264
Total	186,245	51,753	237,998	3,642	367	4,009

Note: Figures for 2021 are preliminary.

## Patent applications in biotechnology

(unit: cases)

Category	2017		2018		2019		2020		2021	
	Cases	Ratio	Cases	Ratio	Cases	Ratio	Cases	Ratio	Cases	Ratio
Domestic	7,328	74.9%	7,239	72.2%	7,269	71.0%	7,878	71.0%	8,010	67.2%
Foreign	2,462	25.1%	2,794	27.8%	2,973	29.0%	3,218	29.0%	3,918	32.8%
Total	9,790	100%	10,033	100%	10,242	100%	11,096	100%	11,928	100%

Note1: Figures for 2021 are preliminary.

Note2: Based on the following biotechnological categories of the Eighth Edition of the International Patent Classification: A01H; A01K 67/00-67/04; A01N 63/00-65/00; A61K 8/97-8/99; A61K 8/64-8/68; A61K 35/12-35/76; 36/00-36/9068; A61K 38/00-38/58, 39/00-39/44, 48/00, 51/00-51/10; C02F; C07H 19/00-21/04; C07K; C12C-M; C12N; C12P; C12Q; C12S; G01N 33/50-33/98.

## Patent applications in business methods

(unit: cases)

Category	2017		2018		2019		2020		2021	
	Cases	Ratio	Cases	Ratio	Cases	Ratio	Cases	Ratio	Cases	Ratio
Domestic	8,852	95.2%	9,754	94.8%	10,321	95.1%	12,251	96.5%	15,019	96.4%
Foreign	446	4.8%	536	5.2%	534	4.9%	449	3.5%	557	3.6%
Total	9,298	100%	10,290	100%	10,855	100%	12,700	100%	15,576	100%

Note1: Figures for 2021 are preliminary.

Note2: Based on the Ninth Edition of the International Patent Classification.

## Applications by residents of foreign countries/regions in 2021

(unit: cases)

Countries/Regions	Patent & Utility models		Designs		Trademarks		Total
	Domestic	PCT	Domestic	Hague	Domestic	Madrid	
United States of America	1,678	13,851	1,182 (1,486)	144 (421)	3,680 (7,062)	3,549 (6,374)	<b>24,084 (30,872)</b>
China	1,401	5,059	1,161 (1,330)	122 (270)	5,823 (6,996)	2,100 (3,386)	<b>15,666 (18,442)</b>
Japan	3,999	10,196	685 (880)	140 (240)	1,494 (2,628)	1,386 (2,961)	<b>17,900 (20,904)</b>
Germany	609	3,140	60 (84)	120 (368)	174 (318)	1,504 (4,167)	<b>5,607 (8,686)</b>
France	163	1,468	108 (117)	139 (246)	339 (552)	924 (2,139)	<b>3,141 (4,685)</b>
Switzerland	122	1,302	81 (147)	112 (434)	251 (390)	846 (2,139)	<b>2,714 (4,534)</b>
United Kingdom	101	1,226	59 (107)	16 (35)	432 (973)	655 (1,694)	<b>2,489 (4,136)</b>
Italy	60	434	42 (46)	79 (158)	140 (233)	758 (1,604)	<b>1,513 (2,535)</b>
Netherlands	181	866	87 (116)	37 (271)	65 (133)	252 (579)	<b>1,488 (2,146)</b>
Sweden	116	680	25 (58)	21 (55)	54 (122)	333 (1,086)	<b>1,229 (2,117 )</b>
Taiwan, Province of China	1,219	107	51 (57)	-	353 (530)	-	<b>1,730 (1,913)</b>
Singapore	74	257	13 (14)	9 (10)	366 (549)	223 (477)	<b>942 (1,381)</b>
Australia	9	219	29 (46)	-	149 (230)	413 (811)	<b>819 (1,315)</b>
Canada	52	476	39 (60)	8 (15)	255 (449)	186 (353)	<b>1,016 (1,405)</b>
Denmark	12	236	18 (50)	25 (51)	25 (81)	247 (632)	<b>563 (1,062)</b>
Spain	23	143	12 (15)	10 (18)	71 (102)	259 (430)	<b>518 (731)</b>
Belgium	9	285	2 (2)	4 (6)	41 (80)	149 (369)	<b>490 (751)</b>
Finland	20	223	3 (3)	3 (3)	23 (112)	123 (420)	<b>395 (781)</b>
Austria	58	285	2 (6)	3 (8)	16 (42)	140 (370)	<b>504 (769)</b>
Israel	53	370	17 (20)	11 (14)	51 (62)	98 (157)	<b>600 (676)</b>
Russian Federation	6	61	4 (4)	7 (12)	29 (39)	151 (453)	<b>258 (575)</b>
New Zealand	3	50	16 (19)	-	50 (78)	101 (225)	<b>220 (375)</b>
Ireland	41	167	6 (8)	2 (2)	31 (57)	77 (146)	<b>324 (421)</b>
Norway	-	120	5 (7)	12 (27)	9 (22)	87 (229)	<b>233 (405)</b>
Luxembourg	15	120	4 (4)	1 (1)	57 (103)	62 (137)	<b>259 (380)</b>
Turkey	3	46	2 (2)	1 (1)	21 (34)	99 (184)	<b>172 (270)</b>
India	7	104	2 (2)	-	39 (54)	49 (68)	<b>201 (235)</b>
Poland	5	33	-	6 (10)	4 (4)	57 (157)	<b>105 (209 )</b>
Viet Nam	2	3	-	-	33 (40)	56 (135)	<b>94 (180)</b>
Thailand	7	36	18 (18)	-	46 (63)	25 (43)	<b>132 (167)</b>
Cyprus	2	12	-	3 (5)	10 (14)	45 (136)	<b>72 (169)</b>
Cayman Islands	2	30	-	-	40 (111)	9 (23)	<b>81 (166 )</b>
Malaysia	14	16	3 (3)	-	35 (43)	27 (41)	<b>95 (117)</b>
United Arab Emirates	4	8	-	1 (2)	59 (76)	7 (15)	<b>79 (105)</b>

(unit: cases)

Countries/Regions	Patent & Utility models		Designs		Trademarks		Total
	Domestic	PCT	Domestic	Hague	Domestic	Madrid	
Liechtenstein	11	26	-	6 (13)	4 (9)	15 (69)	<b>62 (128)</b>
Czech Republic	1	18	-	4 (26)	-	31 (55)	<b>54 (100)</b>
Brazil	2	32	-	-	21 (52)	7 (15)	<b>62 (101)</b>
Saudi Arabia	-	76	-	-	16 (26)	-	<b>92 (102)</b>
Chile	-	6	1 (4)	-	40 (49)	7 (11)	<b>54 (70)</b>
Portugal	5	23	-	2 (3)	7 (9)	23 (41)	<b>60 (81)</b>
Mexico	-	14	3 (3)	-	31 (40)	9 (9)	<b>57 (66)</b>
Bulgaria	-	1	-	-	6 (6)	29 (58)	<b>36 (65)</b>
Indonesia	-	-	2 (2)	-	23 (26)	11 (17)	<b>36 (45)</b>
Barbados	4	5	-	-	3 (5)	20 (42)	<b>32 (56)</b>
Greece	1	22	1 (3)	2 (2)	3 (5)	11 (27)	<b>40 (60)</b>
Philippines	2	3	-	-	2 (7)	18 (43)	<b>25 (55)</b>
Hungary	1	18	2 (2)	1 (2)	3 (5)	13 (28)	<b>38 (56)</b>
Lithuania	-	2	-	-	3 (9)	18 (42)	<b>23 (53)</b>
Virgin Islands (British)	-	-	-	-	14 (26)	13 (19)	<b>27 (45)</b>
South Africa	1	18	2 (2)	-	20 (23)	-	<b>41 (44)</b>
Malta	-	7	-	1 (22)	10 (20)	3 (3)	<b>21 (52)</b>
Ukraine	-	2	-	3 (3)	1 (1)	18 (38)	<b>24 (44)</b>
Monaco	-	-	-	3 (3)	1 (1)	17 (34)	<b>21 (38)</b>
Slovenia	1	7	-	3 (6 )	-	13 (28)	<b>24 (42)</b>
Seychelles	1	1	-	-	21 (21)	4 (4)	<b>27 (27)</b>
Estonia	1	4	-	1 (2)	2 (14)	9 (17)	<b>17 (38)</b>
Argentina	-	3	-	-	23 (23)	-	<b>26 (26)</b>
Antigua and Barbuda	-	40	-	-	1 (6)	-	<b>41 (46)</b>
Cook Islands	-	-	-	-	6 (33)	-	<b>6 (33)</b>
The Hong Kong Special Administrative Region of the People's Republic of China	-	-	5 (5)	-	9 (19)	-	<b>14 (24)</b>
Iceland	-	6	-	-	-	8 (23)	<b>14 (29)</b>
Panama	-	-	-	-	13 (23)	-	<b>13 (23)</b>
Belarus	-	1	-	-	1 (1)	9 (21)	<b>11 (23)</b>
Mauritius	-	1	-	-	12 (17)	1 (1)	<b>14 (19)</b>
Kazakhstan	-	-	-	-	9 (9)	3 (10)	<b>12 (19)</b>
Latvia	-	-	-	-	-	8 (19)	<b>8 (19)</b>
Morocco	-	1	-	-	-	8 (16)	<b>9 (17)</b>

(unit: cases)

Countries/Regions	Patent & Utility models		Designs		Trademarks		Total
	Domestic	PCT	Domestic	Hague	Domestic	Madrid	
Mongolia	1	-	-	-	11 (12)	-	<b>12 (13)</b>
Uruguay	-	1	-	-	9 (11)	-	<b>10 (12)</b>
Croatia	1	1	-	-	-	6 (13)	<b>8 (15)</b>
Azerbaijan	-	-	-	-	10 (10)	-	<b>10 (10)</b>
Slovakia	1	3	-	1 (2)	-	4 (8)	<b>9 (14)</b>
Tajikistan	1	-	1 (1)	-	6 (10)	-	<b>8 (12)</b>
Colombia	1	-	-	-	6 (9)	1 (2)	<b>8 (12)</b>
Puerto Rico	-	-	-	-	4 (11)	1 (2)	<b>5 (13)</b>
Romania	-	2	-	-	1 (1)	3 (11)	<b>6 (14)</b>
Qatar	-	1	3 (3)	-	2 (2)	1 (6)	<b>7 (12)</b>
Uzbekistan	2	-	4 (4)	-	3 (3)	-	<b>9 (9)</b>
Bermuda	-	4	-	-	4 (5)	1 (1)	<b>9 (10)</b>
Isle of Man	-	1	-	-	1 (14)	-	<b>2 (15)</b>
Kuwait	-	1	-	-	3 (8)	1 (1)	<b>5 (10)</b>
Iran (Islamic Republic of)	-	-	-	-	-	5 (8)	<b>5 (8)</b>
Sri Lanka	-	-	-	-	3 (3)	3 (3)	<b>6 (6)</b>
Georgia	-	-	-	-	-	5 (7)	<b>5 (7)</b>
Samoa	-	1	-	-	4 (5)	-	<b>5 (6)</b>
Namibia	-	-	-	-	-	5 (5)	<b>5 (5)</b>
Gibraltar	-	2	-	-	-	2 (6)	<b>4 (8)</b>
Serbia	-	-	-	-	-	3 (7)	<b>3 (7)</b>
Egypt	-	-	-	-	3 (3)	1 (2)	<b>4 (5)</b>
Costa Rica	-	5	-	-	2 (2)	-	<b>7 (7)</b>
Armenia	-	1	-	-	-	3 (4)	<b>4 (5)</b>
Bangladesh	6	-	-	-	1 (1)	-	<b>7 (7)</b>
Andorra	-	-	-	-	-	2 (6)	<b>2 (6)</b>
Marshall Islands	-	-	-	-	-	1 (6)	<b>1 (6)</b>
Jordan	-	-	-	-	2 (5)	-	<b>2 (5)</b>
San Marino	-	-	-	-	-	3 (4)	<b>3 (4)</b>
Syrian Arab Republic	-	-	-	-	-	3 (3)	<b>3 (3)</b>
Curacao	-	-	-	-	-	1 (5)	<b>1 (5)</b>
Ghana	-	-	2 (2)	-	1 (1)	-	<b>3 (3)</b>
Tunisia	-	-	-	-	-	2 (3)	<b>2 (3)</b>
Kyrgyzstan	-	1	1 (1)	-	1 (1)	-	<b>3 (3)</b>

(unit: cases)

Countries/Regions	Patent & Utility models		Designs		Trademarks		Total
	Domestic	PCT	Domestic	Hague	Domestic	Madrid	
Saint Kitts and Nevis	-	1	-	-	2 (2)	-	<b>3 (3)</b>
Peru	-	1	-	-	2 (2)	-	<b>3 (3)</b>
Bahamas	-	-	-	-	2 (2)	-	<b>2 (2)</b>
Fiji	-	-	-	-	1 (3)	-	<b>1 (3)</b>
Pakistan	-	-	1 (1)	-	1 (1)	-	<b>2 (2)</b>
Cuba	-	2	-	-	-	1 (1)	<b>3 (3)</b>
Cambodia	-	-	1 (1)	-	1 (1)	-	<b>2 (2)</b>
The former Yugoslav Republic of Macedonia	-	-	-	-	-	1 (3)	<b>1 (3)</b>
Algeria	1	2	-	-	-	-	<b>3 (3)</b>
Republic of Moldova	-	-	-	-	-	1 (2)	<b>1 (2)</b>
Dominican Republic	-	2	-	-	-	-	<b>2 (2)</b>
Zimbabwe	-	-	1 (1)	-	-	-	<b>1 (1)</b>
Myanmar	2	-	-	-	-	-	<b>2 (2)</b>
Guatemala	-	-	1 (1)	-	-	-	<b>1 (1)</b>
Lao People's Democratic Republic	-	-	-	-	-	1 (1)	<b>1 (1)</b>
Lebanon	-	-	-	-	1 (1)	-	<b>1 (1)</b>
Ethiopia	1	-	-	-	-	-	<b>1 (1)</b>
Oman	-	1	-	-	-	-	<b>1 (1)</b>
United Republic of Tanzania	1	-	-	-	-	-	<b>1 (1)</b>
Trinidad and Tobago	-	1	-	-	-	-	<b>1 (1)</b>
Belize	-	1	-	-	-	-	<b>1 (1)</b>
Liberia	1	-	-	-	-	-	<b>1 (1)</b>
Others	-	-	-	-	19 (23)	-	<b>19 (23)</b>
Total	10,120	42,001	3,767 (4,747)	1,063 (2,767)	14,676 (23,019)	15,384 (32,950)	<b>87,011 (115,604)</b>

Note: Figures in parentheses include multiple applications.

# Examinations

## Patents and utility models

(unit: cases)

Category		2017	2018	2019	2020	2021	
Patents	Office Action	Approval of registration	9,891	9,126	9,637	11,483	<b>12,900</b>
		Notice of preliminary rejection or amendment	158,013	148,772	158,527	170,299	<b>164,312</b>
		Other notices	1,012	1,202	1,613	1,990	<b>1,709</b>
		Withdrawal or abandonment	2,196	2,190	2,594	2,723	<b>3,055</b>
		Total	171,112	161,290	172,371	186,495	<b>181,976</b>
	Final Decisions	Approval of registration	110,408	106,129	115,302	126,228	<b>134,338</b>
		Rejection or cancellation	62,869	55,613	50,944	47,331	<b>46,074</b>
		Withdrawal abandonment, annulment, or rejection	3,841	3,636	3,914	3,997	<b>4,298</b>
		Total	177,118	165,378	170,160	177,556	<b>184,710</b>
	Utility models	Office Action	Approval of registration	337	235	225	216
Notice of preliminary rejection or amendment			6,161	5,258	4,739	4,007	<b>3,192</b>
Other notices			13	12	21	14	<b>8</b>
Withdrawal or abandonment			122	113	109	99	<b>97</b>
Total			6,633	5,618	5,094	4,336	<b>3,441</b>
Final Decisions		Approval of registration	3,040	2,619	2,329	1,994	<b>1,801</b>
		Rejection or cancellation	3,729	3,282	2,815	2,254	<b>1,854</b>
		Withdrawal abandonment, annulment, or rejection	234	196	217	174	<b>152</b>
		Total	7,003	6,097	5,361	4,422	<b>3,807</b>

## Designs and trademarks

(unit: cases)

Category		2016	2017	2019	2020	2021		
Designs	Office Action	Publication/approval of registration	29,453 (30,598)	27,559 (28,708)	31,029 (32,218)	31,232 (32,640)	<b>36,682 (38,470)</b>	
		Notice of preliminary rejection	30,275 (32,647)	29,654 (31,962)	29,303 (31,778)	27,068 (29,055)	<b>28,415 (30,537)</b>	
		Other notices	-	-	-	-	<b>-</b>	
		Total	59,728 (63,245)	57,213 (60,670)	60,332 (63,996)	58,300 (61,695)	<b>65,097 (69,007)</b>	
	Final Decisions	Approval of registration	51,166 (53,480)	50,161 (52,750)	53,987 (56,989)	51,407 (54,101)	<b>58,103 (61,383)</b>	
		Rejection	7,190 (7,978)	7,356 (8,089)	7,343 (8,055)	7,095 (7,776)	<b>7,864 (8,396)</b>	
		Total	58,356 (61,458)	57,517 (60,839)	61,330 (65,044)	58,502 (61,877)	<b>65,967 (69,779)</b>	
	Trademarks	Office Action	Publication/approval of registration	94,490 (107,033)	96,236 (109,983)	98,557 (112,244)	94,942 (108,405)	<b>118,905 (133,969)</b>
			Notice of preliminary rejection	69,393 (97,656)	73,376 (106,978)	77,623 (116,298)	67,433 (99,287)	<b>80,913 (113,232)</b>
			Other notices	-	-	-	-	<b>-</b>
Final Decisions		Total	163,883 (204,689)	169,612 (216,961)	176,180 (228,542)	162,375 (207,692)	<b>199,818 (247,201)</b>	
		Approval of registration	133,378 (166,963)	133,359 (168,237)	145,794 (187,392)	133,882 (173,499)	<b>162,874 (201,381)</b>	
		Rejection	31,773 (39,414)	29,873 (36,697)	32,014 (41,658)	28,219 (37,267)	<b>31,697 (39,962)</b>	
Total	165,151 (206,377)	163,232 (204,934)	177,808 (229,050)	162,101 (210,766)	<b>194,571 (241,343)</b>			

Note: Figures in parentheses include multiple applications.



**Average first office action pendency**

(unit: month)

Category	2017	2018	2019	2020	2021
Patents / Utility models	10.4	10.3	10.8	11.1	<b>12.2</b>
Trademarks	5.0	5.5	6.8	8.9	<b>10.8</b>
Designs	4.9	4.9	5.4	4.6	<b>5.2</b>

**Average total pendency**

(unit: month)

Category	2017	2018	2019	2020	2021
Patents / Utility models	15.9	15.8	15.6	15.8	<b>16.0</b>
Trademarks	9.8	10.4	11.1	13.2	<b>10.1</b>
Designs	6.2	6.3	6.7	6.0	<b>5.6</b>

**PCT international search reports and preliminary examinations undertaken by KIPO**

(unit: cases)

Category	2017	2018	2019	2020	2021
International Search Reports	25,955	24,123	27,167	28,547	<b>28,359</b>
International Preliminary Examinations	169	131	131	100	<b>124</b>

Note: Based on KIPO data

# Registrations

**Registrations by IPR type**

(unit: cases)

Category	2017	2018	2019	2020	2021
Patents	120,662	119,014	125,661	134,766	<b>145,882</b>
Utility models	2,993	2,715	2,417	2,056	<b>1,817</b>
Subtotal	123,655	121,729	128,078	136,822	<b>147,699</b>
Designs	49,293	49,905	52,850	50,694	<b>57,545</b>
Trademarks	116,704	115,025	125,594	116,153	<b>136,629</b>
Total	289,652	286,659	306,522	303,669	<b>341,873</b>

Note: Trademark registration renewals are excluded.

**Comparison of domestic and foreign registrations**

(unit: cases)

Category			2017	2018	2019	2020	2021
Patents	Domestic	Cases	90,847	89,229	94,852	103,881	<b>110,351</b>
		Ratio	75.3%	75.0%	75.5%	77.1%	<b>75.6%</b>
	Foreign	Cases	29,815	29,785	30,809	30,885	<b>35,531</b>
		Ratio	24.7%	25.0%	24.5%	22.9%	<b>24.4%</b>
	Total		120,662	119,014	125,661	134,766	<b>145,882</b>
	Utility models	Domestic	Cases	2,810	2,521	2,238	1,842
Ratio			93.9%	92.9%	92.6%	89.6%	<b>89.0%</b>
Foreign		Cases	183	194	179	214	<b>199</b>
		Ratio	6.1%	7.1%	7.4%	10.4%	<b>11.0%</b>
Total		2,993	2,715	2,417	2,056	<b>1,817</b>	
Designs		Domestic	Cases	44,052	44,150	46,011	45,169
	Ratio		89.4%	88.5%	87.1%	89.1%	<b>88.4%</b>
	Foreign	Cases	5,241	5,755	6,839	5,525	<b>6,667</b>
		Ratio	10.6%	11.5%	12.9%	10.9%	<b>11.6%</b>
	Total		49,293	49,905	52,850	50,694	<b>57,545</b>

(unit: cases)

Category			2017	2018	2019	2020	2021
Trademarks	Domestic	Cases	96,993	94,532	102,333	94,892	<b>116,997</b>
		Ratio	83.1%	82.2%	81.5%	81.7%	<b>85.6%</b>
	Foreign	Cases	19,711	20,493	23,261	21,261	<b>19,632</b>
		Ratio	16.9%	17.8%	18.5%	18.3%	<b>14.4%</b>
	Total		116,704	115,025	125,594	116,153	<b>136,629</b>
	Total	Domestic	Cases	234,702	230,432	245,434	245,784
Ratio			81.0%	80.4%	80.1%	80.9%	<b>81.9%</b>
Foreign		Cases	54,950	56,227	61,088	57,885	<b>62,029</b>
		Ratio	19.0%	19.6%	19.9%	19.1%	<b>18.1%</b>
Total		289,652	286,659	306,522	303,669	<b>341,873</b>	

Patent and utility model registrations by technological field in 2021

(unit: cases)

Classification	Patents			Utility models		
	Domestic	Foreign	Subtotal	Domestic	Foreign	Subtotal
Electrical machinery, apparatus, energy	8,689	2,294	<b>10,983</b>	114	25	<b>139</b>
Audio-visual technology	4,094	1,189	<b>5,283</b>	44	10	<b>54</b>
Telecommunications	1,874	510	<b>2,384</b>	12	5	<b>17</b>
Digital communication	4,030	2,324	<b>6,354</b>	3	-	<b>3</b>
Basic communication processes	348	293	<b>641</b>	-	-	<b>-</b>
Computer technology	7,183	2,577	<b>9,760</b>	12	6	<b>18</b>
IT methods for management	5,898	316	<b>6,214</b>	1	1	<b>2</b>
Semiconductors	5,263	3,891	<b>9,154</b>	4	10	<b>14</b>
Optics	2,510	1,691	<b>4,201</b>	19	7	<b>26</b>

(unit: cases)

Classification	Patents			Utility models		
	Domestic	Foreign	Subtotal	Domestic	Foreign	Subtotal
Measurement	4,806	1,339	<b>6,145</b>	33	1	<b>34</b>
Analysis of biological materials	457	172	<b>629</b>	1	1	<b>2</b>
Control	2,799	393	<b>3,192</b>	18	-	<b>18</b>
Medical technology	5,936	1,423	<b>7,359</b>	96	24	<b>120</b>
Organic fine chemistry	2,505	1,397	<b>3,902</b>	1	-	<b>1</b>
Biotechnology	2,053	989	<b>3,042</b>	-	-	<b>-</b>
Pharmaceuticals	1,609	889	<b>2,498</b>	-	-	<b>-</b>
Macromolecular chemistry, polymers	1,328	1,518	<b>2,846</b>	-	-	<b>-</b>
Food chemistry	2,007	129	<b>2,136</b>	3	-	<b>3</b>
Basic materials chemistry	2,437	1,390	<b>3,827</b>	-	2	<b>2</b>
Materials, metallurgy	2,166	1,147	<b>3,313</b>	5	-	<b>5</b>
Surface technology, coating	1,667	1,163	<b>2,830</b>	11	1	<b>12</b>
Micro-structural and nano-technology	45	26	<b>71</b>	-	-	<b>-</b>
Chemical engineering	2,625	717	<b>3,342</b>	25	3	<b>28</b>
Environmental technology	2,362	333	<b>2,695</b>	39	2	<b>41</b>
Handling	2,670	569	<b>3,239</b>	110	9	<b>119</b>
Machine tools	2,420	848	<b>3,268</b>	52	8	<b>60</b>
Engines, pumps, turbines	1,583	813	<b>2,396</b>	18	6	<b>24</b>
Textile and paper machines	1,088	474	<b>1,562</b>	8	1	<b>9</b>
Other special machines	4,660	1,276	<b>5,936</b>	126	3	<b>129</b>
Thermal processes and apparatus	2,340	298	<b>2,638</b>	53	1	<b>54</b>
Mechanical elements	1,755	777	<b>2,532</b>	45	15	<b>60</b>
Transport	5,593	1,023	<b>6,616</b>	117	7	<b>124</b>
Furniture, games	3,439	388	<b>3,827</b>	239	30	<b>269</b>
Other consumer goods	3,396	674	<b>4,070</b>	224	19	<b>243</b>
Civil engineering	6,716	281	<b>6,997</b>	185	2	<b>187</b>
Total	110,351	35,531	<b>145,882</b>	1,618	199	<b>1,817</b>

Note: Figures for 2021 are preliminary.

## Patent registrations in biotechnology

(unit: cases)

Category	2017		2018		2019		2020		2021	
	Cases	Ratio	Cases	Ratio	Cases	Ratio	Cases	Ratio	Cases	Ratio
Domestic	4,709	80.9%	4,524	79.3%	4,534	78.4%	4,969	79.0%	<b>4,913</b>	<b>76.4%</b>
Foreign	1,111	19.1%	1,149	20.3%	1,249	21.6%	1,321	21.0%	<b>1,514</b>	<b>23.6%</b>
Total	5,820	100%	5,673	100%	5,783	100%	6,290	100%	<b>6,427</b>	<b>100%</b>

Note1: Figures for 2021 are preliminary.

Note2: Based on the following biotechnological categories of the Eighth Edition of the International Patent Classification: A01H; A01K 67/00-67/04; A01N 63/00-65/00; A61K 8/97-8/99; A61K 8/64-8/68; A61K 35/12-35/76; 36/00-36/9068; A61K 38/00-38/58, 39/00-39/44, 48/00, 51/00-51/10; C02F; C07H 19/00-21/04; C07K; C12C-M; C12N; C12P; C12Q; C12S; G01N 33/50-33/98.

## Patent registrations in business methods

(unit: cases)

Category	2017		2018		2019		2020		2021	
	Cases	Ratio	Cases	Ratio	Cases	Ratio	Cases	Ratio	Cases	Ratio
Domestic	3,782	93.7%	3,560	93.1%	3,500	93.6%	4,581	94.3%	<b>5,898</b>	<b>94.9%</b>
Foreign	253	6.3%	262	6.9%	241	6.4%	277	5.7%	<b>316</b>	<b>5.1%</b>
Total	4,035	100%	3,822	100%	3,741	100%	4,858	100%	<b>6,214</b>	<b>100%</b>

Note1: Figures for 2021 are preliminary.

Note2: Based on the Ninth Edition of the International Patent Classification.

## Registrations by resident of foreign countries/regions in 2021

(unit: cases)

Countries/Regions	Patent & Utility models		Designs		Trademarks		Total
	Domestic	PCT	Domestic	Hague	Domestic	Madrid	
United States of America	9,009	1,057	1,704	517	2,146 (3,947)	2,312 (4,123)	<b>16,745 (20,357)</b>
Japan	10,723	1,193	736	225	1,088 (1,996)	1,181 (2,579)	<b>15,146 (17,452)</b>
China	2,755	310	658	222	3,157 (3,747)	1,542 (2,692)	<b>8,644 (10,384)</b>
Switzerland	697	88	168	232	163 (257)	638 (1,451)	<b>1,986 (2,893)</b>
France	1,002	125	156	265	196 (314)	715 (1,817)	<b>2,459 (3,679)</b>
Netherlands	657	68	119	232	42 (75)	219 (516)	<b>1,337 (1,667)</b>
United Kingdom	637	61	99	47	374 (849)	439 (1,198)	<b>1,657 (2,891)</b>

(unit: cases)

Countries/Regions	Patent & Utility models		Designs		Trademarks		Total
	Domestic	PCT	Domestic	Hague	Domestic	Madrid	
Germany	2,579	275	67	396	122 (231)	1,183 (3,327)	<b>4,622 (6,875)</b>
Italy	289	41	59	163	92 (146)	576 (1,111)	<b>1,220 (1,809)</b>
Sweden	560	56	53	89	50 (81)	184 (472)	<b>992 (1,311)</b>
Taiwan, Province of China	942	100	48	-	254 (404)	-	<b>1,344 (1,494)</b>
Denmark	95	9	43	34	26 (46)	131 (286)	<b>338 (513)</b>
Singapore	126	15	35	11	138 (273)	154 (384)	<b>479 (844)</b>
Luxembourg	100	21	23	6	11 (21)	46 (82)	<b>207 (253)</b>
Australia	84	10	17	1	90 (105)	241 (587)	<b>443 (804)</b>
Canada	193	24	15	20	154 (228)	80 (147)	<b>486 (627)</b>
Turkey	11	-	13	1	5 (7)	66 (107)	<b>96 (139)</b>
Thailand	20	4	10	-	42 (58)	31 (39)	<b>107 (131)</b>
Barbados	43	3	8	-	5 (13)	4 (6)	<b>63 (73)</b>
New Zealand	29	4	8	-	32 (57)	40 (64)	<b>113 (162)</b>
Ireland	95	14	8	3	20 (35)	57 (81)	<b>197 (236)</b>
Israel	179	28	5	9	13 (20)	67 (110)	<b>301 (351)</b>
Spain	72	6	5	3	50 (60)	196 (317)	<b>332 (463)</b>
Belgium	181	12	4	27	13 (22)	96 (200)	<b>333 (446)</b>
India	48	1	4	-	17 (29)	19 (28)	<b>89 (110)</b>
Qatar	-	-	3	-	3 (8)	-	<b>6 (11)</b>
Finland	150	11	3	17	64 (269)	78 (244)	<b>323 (694)</b>
Austria	218	31	3	11	13 (53)	93 (286)	<b>369 (602)</b>
Liechtenstein	8	3	2	8	1 (3)	20 (43)	<b>42 (67)</b>
Chile	3	-	2	-	23 (26)	-	<b>28 (31)</b>
Mexico	15	-	2	-	19 (22)	9 (9)	<b>45 (48)</b>
Russian Federation	49	3	2	5	4 (5)	83 (179)	<b>146 (243)</b>
Cyprus	10	4	1	-	6 (10)	19 (66)	<b>40 (91)</b>
Sudan	-	-	1	-	-	-	<b>1 (1)</b>
Malta	6	1	1	-	3 (3)	7 (17)	<b>18 (28)</b>
South Africa	5	1	1	-	13 (14)	-	<b>20 (21)</b>
Indonesia	1	-	1	-	11 (13)	14 (22)	<b>27 (37)</b>
Portugal	9	2	1	2	6 (6)	34 (57)	<b>54 (77)</b>
Brazil	5	1	1	-	7 (14)	3 (3)	<b>17 (24)</b>
Mongolia	1	1	1	-	2 (2)	-	<b>5 (5)</b>

(unit: cases)

Countries/Regions	Patent & Utility models		Designs		Trademarks		Total
	Domestic	PCT	Domestic	Hague	Domestic	Madrid	
Malaysia	12	2	1	-	24 (31)	8 (10)	47 (56)
Cambodia	-	-	1	-	1 (1)	-	2 (2)
Latvia	1	-	-	-	-	10 (25)	11 (26)
Czech Republic	7	1	-	3	2 (2)	18 (47)	31 (60)
Seychelles	-	-	-	-	2 (8)	-	2 (8)
Saint Vincent and the Grenadines	-	-	-	-	-	1 (4)	1 (4)
Morocco	-	-	-	-	-	5 (15)	5 (15)
Sri Lanka	1	-	-	-	2 (2)	1 (1)	4 (4)
Puerto Rico	-	-	-	-	1 (1)	-	1 (1)
Philippines	3	-	-	-	6 (11)	4 (6)	13 (20)
Estonia	3	-	-	1	1 (1)	4 (7)	9 (12)
Bulgaria	2	-	-	-	-	17 (34)	19 (36)
Egypt	1	-	-	-	6 (7)	1 (1)	8 (9)
Samoa	1	-	-	-	2 (3)	-	3 (4)
United Arab Emirates	4	1	-	-	13 (13)	2 (3)	20 (21)
Hungary	7	1	-	1	2 (4)	7 (35)	18 (48)
Colombia	1	-	-	-	1 (1)	-	2 (2)
EUIPO	-	-	-	-	3 (3)	-	3 (3)
Kuwait	1	-	-	-	1 (1)	-	2 (2)
Netherlands Antilles	-	-	-	-	1 (1)	-	1 (1)
Armenia	1	-	-	-	-	2 (2)	3 (3)
Macao	1	-	-	-	-	-	1 (1)
San Marino	-	-	-	-	2 (2)	3 (5)	5 (7)
Tajikistan	-	-	-	-	2 (2)	-	2 (2)
Iraq	-	-	-	-	1 (1)	-	1 (1)
Romania	2	-	-	-	9 (9)	-	11 (11)
Monaco	-	-	-	3	4 (4)	11 (33)	18 (40)
Ukraine	1	1	-	2	-	5 (8)	9 (12)
Uzbekistan	1	-	-	-	3 (3)	-	4 (4)
Pakistan	-	1	-	-	4 (8)	-	5 (9)
Georgia	-	-	-	-	-	2 (2)	2 (2)
Belize	2	-	-	-	3 (3)	-	5 (5)
Kyrgyzstan	-	-	-	-	1 (1)	-	1 (1)
Cuba	1	1	-	-	1 (1)	2 (2)	5 (5)
Bahamas	-	1	-	-	3 (7)	-	4 (8)
Namibia	-	-	-	-	1 (1)	-	1 (1)
Virgin Islands (British)	-	-	-	-	24 (47)	7 (14)	31 (61)
Bermuda	2	-	-	-	1 (2)	2 (3)	5 (7)

(unit: cases)

Countries/Regions	Patent & Utility models		Designs		Trademarks		Total
	Domestic	PCT	Domestic	Hague	Domestic	Madrid	
Curacao	-	-	-	-	1 (2)	2 (2)	3 (4)
Myanmar	1	-	-	-	-	-	1 (1)
Andorra	-	-	-	-	1 (3)	-	1 (3)
Oman	-	-	-	-	1 (1)	-	1 (1)
Saudi Arabia	65	2	-	-	5 (7)	-	72 (74)
Cayman Islands	221	40	-	-	40 (163)	12 (54)	313 (478)
Viet Nam	4	-	-	-	24 (34)	48 (98)	76 (136)
Panama	1	1	-	-	3 (7)	-	5 (9)
Slovakia	1	-	-	-	-	5 (13)	6 (14)
Greece	9	1	-	-	3 (9)	5 (11)	18 (30)
Iceland	-	-	-	-	-	3 (10)	3 (10)
Belarus	-	-	-	-	-	5 (17)	5 (17)
Gibraltar	1	-	-	-	-	-	1 (1)
Croatia	1	-	-	3	-	5 (7)	9 (11)
The Hong Kong Special Administrative Region of the People's Republic of China	2	-	-	-	21 (43)	-	23 (45)
Norway	83	7	-	13	10 (16)	45 (166)	158 (285)
Saint Kitts and Nevis	1	-	-	-	-	-	1 (1)
Argentina	1	-	-	-	7 (14)	-	8 (15)
Costa Rica	-	-	-	-	1 (1)	-	1 (1)
Venezuela	1	-	-	-	-	-	1 (1)
Iran (Islamic Republic of)	1	-	-	-	-	2 (5)	3 (6)
Jordan	-	-	-	-	1 (1)	-	1 (1)
Lebanon	-	-	-	-	1 (1)	-	1 (1)
Ecuador	-	-	-	-	1 (1)	-	1 (1)
Serbia	-	-	-	1	-	1 (1)	2 (2)
Tunisia	-	-	-	-	1 (1)	-	1 (1)
Jersey(U.K.)	1	-	-	-	-	1 (6)	2 (7)
Mauritius	1	-	-	-	3 (3)	1 (1)	5 (5)
Poland	20	3	-	1	5 (5)	36 (130)	65 (159)
Slovenia	4	-	-	-	-	8 (21)	12 (25)
Lithuania	2	-	-	1	2 (2)	7 (16)	12 (21)
Kazakhstan	-	-	-	-	1 (1)	5 (6)	6 (7)
Peru	2	-	-	-	3 (4)	-	5 (6)
Guernsey	-	-	-	-	-	1 (2)	1 (2)
Others	-	-	-	-	-	14 (31)	14 (31)
Total	32,084	3,646	4,092	2,575	8,737 (13,969)	10,895 (23,504)	62,029 (79,870)

Note: Figures in parentheses include multiple applications

# Trials and Appeals

## Requests for trial and appeal

(unit: cases)

Category		2017	2018	2019	2020	2021
Appeal against examiner's decision to reject application	Patents	4,351	3,624	2,820	2,110	<b>2,196 (2,196)</b>
	Utility models	180	162	128	59	<b>33 (33)</b>
	Designs	90	102	58	50	<b>49 (49)</b>
	Trademarks	1,569 (2,295)	1,437 (2,046)	1,330 (1,868)	1,021 (1,615)	<b>1,104 (1,724)</b>
	Subtotal	6,190 (6,916)	5,325 (5,934)	4,336 (4,874)	3,240 (3,834)	<b>3,382 (4,002)</b>
Appeals against examiner's decision to dismiss amendment	Patents	1	1	-	-	-
	Utility models	-	-	-	-	-
	Designs	1	-	-	-	<b>1 (1)</b>
	Trademarks	-	-	3	-	<b>1 (1)</b>
	Subtotal	2	1	3	-	<b>2 (2)</b>
Appeals against examiner's decision of cancellation	Patents	-	-	-	-	-
	Utility models	-	-	-	-	-
	Designs	-	1	3	3	<b>3 (3)</b>
	Trademarks	-	-	-	-	-
	Subtotal	-	1	3	3	<b>3 (3)</b>
Trials for correction	Patents	136	128	127	119	<b>150 (150)</b>
	Utility models	4	-	2	3	<b>4 (4)</b>
	Designs	-	-	-	-	-
	Trademarks	-	-	-	-	-
	Subtotal	140	128	129	122	<b>154 (154)</b>
Invalidation	Patents	529	460	478	383	<b>408 (408)</b>
	Utility models	27	21	15	20	<b>12 (12)</b>
	Designs	194	207	215	188	<b>152 (152)</b>
	Trademarks	433 (486)	472 (559)	472 (541)	372 (433)	<b>291 (342)</b>
	Subtotal	1,183 (1,236)	1,160 (1,247)	1,180 (1,249)	963 (1,024)	<b>863 (914)</b>

(unit: cases)

Category		2017	2018	2019	2020	2021
Trials to confirm scope of IP right	Patents	671	512	348	374	<b>445 (445)</b>
	Utility models	29	20	21	17	<b>11 (11)</b>
	Designs	136	151	136	169	<b>155 (155)</b>
	Trademarks	90 (102)	158 (175)	103 (123)	108 (129)	<b>112 (123)</b>
	Subtotal	926 (938)	841 (858)	608 (628)	668 (689)	<b>723 (734)</b>
Cancellation trials on trademark registration	Patents	1	1	-	-	-
	Utility models	-	-	-	-	-
	Designs	-	17	-	-	-
	Trademarks	2,124 (2,474)	2,523 (3,011)	2,574 (3,193)	2,497 (3,003)	<b>2,395 (2,827)</b>
	Subtotal	2,125 (2,475)	2,541 (3,029)	2,574 (3,193)	2,497 (3,003)	<b>2,395 (2,827)</b>
Opposition of patent/utility model	Patents	109	150	174	146	<b>154 (154)</b>
	Utility models	1	4	1	9	<b>6 (6)</b>
	Designs	1	-	-	-	-
	Trademarks	-	-	-	-	-
	Subtotal	111	154	175	155	<b>160 (160)</b>
Grand total	Patents	5,689	4,876	3,947	3,132	<b>3,353 (3,353)</b>
	Utility models	240	207	167	108	<b>66 (66)</b>
	Designs	421	478	412	410	<b>360 (360)</b>
	Trademarks	4,216 (5,357)	4,590 (5,791)	4,482 (5,728)	3,998 (5,180)	<b>3,903 (5,017)</b>
	Total	10,566 (11,565)	10,151 (11,352)	9,008 (10,254)	7,648 (8,830)	<b>7,682 (8,796)</b>

Note1: Figures in parentheses include multiple applications.

Note2: Opposition of patents / Utility model has been enforced from March, 2017

\* Rejection refers to appeals against examiners' decisions of refusal and appeals against examiners' decisions to dismiss utility models.

\*\* Invalidation refers to invalidation trials and trials for invalidation of corrections.

Successful petitions

(unit: cases)

Category		2017		2018		2019		2020		2021	
		Accep-tance	Ratio	Accep-tance	Ratio	Accep-tance	Ratio	Accep-tance	Ratio	Accep-tance	Ratio
Ex partes	Patents	1,078	30.3%	1,370	31.1%	1,977	36.3	1,341	39.9	<b>1,008</b>	<b>36.8</b>
	Utility models	33	26.0%	40	20.5%	48	24.2	45	24.9	<b>16</b>	<b>28.1</b>
	Designs	43	31.9%	21	20.6%	27	32.5	20	40.8	<b>8</b>	<b>26.7</b>
	Trademarks	605 (896)	54.8% (58.9%)	1,026 (1,648)	58.3% (63.1%)	1,017 (1,607)	55.2 (60.4)	693 (1,063)	55.9 (60.4)	<b>536</b> <b>(884)</b>	<b>57.0</b> <b>(61.0)</b>
	Subtotal	1,759 (2,050)	35.7% (38.4%)	2,457 (3,079)	38.0% (42.1%)	3,069 (3,659)	40.5 (43.6)	2,099 (2,469)	43.4 (46.1)	<b>1,568</b> <b>(1,916)</b>	<b>41.6</b> <b>(44.8)</b>
Inter partes	Patents	616	46.2%	552	49.1%	653	53.4	382	42.8	<b>361</b>	<b>47.5</b>
	Utility models	45	54.9%	19	35.2%	16	35.6	8	24.2	<b>13</b>	<b>37.1</b>
	Designs	187	47.9%	210	51.0%	142	48.3	140	53.8	<b>141</b>	<b>46.2</b>
	Trademarks	2,436 (2,760)	78.1% (76.9%)	1,747 (1,962)	70.1% (70.2%)	2,753 (3,173)	74.0 (73.6)	1,877 (2,351)	70.6 (72.4)	<b>2,268</b> <b>(2,627)</b>	<b>78.8</b> <b>(79.1)</b>
	Subtotal	3,284 (3,608)	66.7% (66.9%)	2,528 (2,743)	61.9 (62.6%)	3,564 (3,984)	67.5 (67.8)	2,407 (2,881)	62.6 (65.0)	<b>2,783</b> <b>(3,142)</b>	<b>69.9</b> <b>(71.1)</b>
Grand total	Patents	1,694	34.6%	1,922	34.7%	2,630	39.4	1,723	40.5	<b>1,369</b>	<b>39.1</b>
	Utility models	78	37.3%	59	23.7%	64	26.3	53	24.8	<b>29</b>	<b>31.5</b>
	Designs	230	43.8%	231	44.9%	169	44.8	160	51.8	<b>149</b>	<b>44.5</b>
	Trademarks	3,041 (3,656)	72.0% (71.5%)	2,773 (3,610)	65.2% (66.8%)	3,770 (4,780)	67.8 (68.5)	2,570 (3,414)	65.9 (68.2)	<b>2,804</b> <b>(3,511)</b>	<b>73.4</b> <b>(73.6)</b>
	Total	5,043 (5,658)	51.2% (52.7%)	4,985 (5,822)	47.3% (49.8%)	6,633 (7,643)	51.6 (53.6)	4,506 (5,350)	51.9 (54.7)	<b>4,351</b> <b>(5,058)</b>	<b>56.2</b> <b>(58.1)</b>

Note1: Figures in parentheses include multiple applications.

Note2: The successful petitions refer to the number of petitions granted. These figures exclude cases where the registration was decided on the basis of an examiner's reconsideration before a trial and invalidation of a patent process. The figures in parentheses indicate the percentage of the petitions granted.

· Ex partes: Appeals against examiners' decisions of refusal / Appeals against examiners' decisions of cancellation / Appeals against examiners' decisions to dismiss amendments / Trials for correction

· Inter partes: Invalidation trials / Trials to confirm scope of IP rights / Trials for invalidation of correction / Trials for granting non-exclusive licenses / Trials for invalidation of registrations for extension of patent right term / Trials for invalidation of registration for renewals of trademark right term / Cancellation trials on trademark registrations / Cancellation trials on registrations of exclusive or non-exclusive licenses / Trials for invalidation on registrations for conversion of classification of goods

Comparison of domestic and foreign trial requests

(unit: cases)

Category		2017	2018	2019	2020	2021
Patents	Domestic	3,499	3,214	2,545	2,064	<b>2,293</b>
	Foreign	2,190	1,662	1,402	1,068	<b>1,060</b>
Utility models	Domestic	237	201	164	102	<b>63</b>
	Foreign	3	6	3	6	<b>3</b>
Designs	Domestic	373	419	381	386	<b>337</b>
	Foreign	48	59	31	24	<b>23</b>
Trademarks	Domestic	2,703	3,077	2,939	2,780	<b>2,726</b>
	Foreign	1,513	1,513	1,543	1,218	<b>1,177</b>
Total		10,566	10,151	9,008	7,648	<b>7,682</b>

Note: Multiple applications for trademarks and designs are treated as single applications.

## Income and Expenditures / KIPO Staff

### Income

(unit: USD)

Category	2017	2018	2019	2020	2021
Income from fees	428,025,022	446,163,758	443,443,731	484,871,681	<b>533,627,760</b>
Income carried over from the previous year	28,072,668	42,855,898	17,542,755	9,997,345	<b>48,094,637</b>
Internal income and others	119,661,120	148,403,121	115,788,238	109,041,593	<b>70,221,721</b>
Total	575,758,810	637,422,777	576,774,723	603,910,619	<b>651,945,020</b>

### Expenditures

(unit: USD)

Category	2017	2018	2019	2020	2021
Non-personnel resources (projects)	393,025,808	455,687,588	413,003,996	400,492,035	<b>426,200,090</b>
Personnel resources	106,532,589	116,102,191	116,951,668	122,678,761	<b>130,149,617</b>
Deposit for special fund	35,270,004	47,461,470	37,046,713	33,516,814	<b>5,680,937</b>
Total	534,828,401	619,251,249	567,002,377	556,687,611	<b>562,030,644</b>

### KIPO staff

(unit: number of positions)

Category	2017	2018	2019	2020	2021	
Examiners	Patents and utility models	832	875	839	830	<b>861</b>
	Designs and trademarks	165	162	191	198	<b>194</b>
Administrative judges	103	107	107	107	<b>107</b>	
Administrative staff	527	517	604	632	<b>649</b>	
Total	1,627	1,661	1,741	1,767	<b>1,811</b>	

### Academic and professional credentials of KIPO examiners

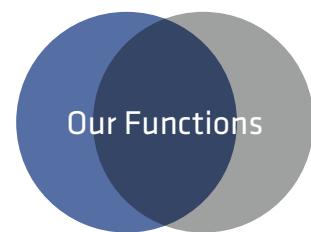
(unit: number of staff)

Category	Ph. D	Master's degrees	Patent attorney certificate only	Lawyer certificate only	Professional engineer certificate only	
Examiners	Patents and utility models	294	117	32	4	19
	Trademarks	6	9	7	1	0
	Designs	4	9	0	0	0
	Total	<b>304</b>	<b>135</b>	<b>39</b>	<b>5</b>	<b>19</b>

# About KIPO



The Korean Intellectual Property Office is the governmental authority in charge of affairs regarding patents, utility models, industrial designs, and trademarks. It was established in 1949 as an external bureau of the Ministry of Commerce and Industry under the name of Patent Bureau. In 1977, the Patent Bureau became an independent office of the Ministry of Commerce and Industry and took the name of Korean Industrial Property Office. In 2000, it was renamed the Korean Intellectual Property Office (KIPO).



The main functions of KIPO include: the examination and registration of intellectual property rights; the conducting of trials on intellectual property disputes; the management and dissemination of information on intellectual property rights; the promotion and enhancement of public awareness of invention activities; the advancement of international cooperation; and the training of experts on intellectual property rights.



In response to the competitive global environment where intellectual property is becoming increasingly valuable, we aim to advance Korea and its position in the world through innovative intellectual property.



We support technological innovation and industrial development by promoting the creation, protection, and utilization of intellectual property. We strive to provide world-class intellectual property services; to promote the economic and industrial use of intellectual property; and to create an environment respectful of the intellectual property system.



