

Promoting the Creation and Utilization of IP

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Virtual Reality Experience
As the era of the 4th industrial revolution approaches, many people are paying attention to virtual reality contents.

Linking R&D with IPRs

01 Analyzing Patent Trends of Government R&D Projects

Patent information can be utilized to ensure efficiency and productivity of government research and development (R&D) projects by analyzing patent trends and searching prior art. KIPO has provided patent trend analysis during the planning phase and/or task selection phase of medium and long-term R&D projects. The analyses results help propose direction to generate superior patents that have high potential in future markets.

A patent trend analysis examines worldwide patent information related to the research project and analyzes statistical information on the patent trends of major countries. Meanwhile, a prior art search of disclosed worldwide patents checks for any redundancy of similar patents, which will prevent overlapping investment.

In 2005, we began conducting patent trend analyses for government R&D projects as a pilot project. We have conducted 39,333 patent trend analyses and prior art searches for government R&D projects by 2016. R&D departments began performing their own prior art searches in 2017, but have still relied on KIPO to provide patent trend analyses. 623 patent trend analyses were supported in

2017 and 275 patent trend analyses in 2018.

The patent trend analyses results are published and made available on the Patent Map website (<http://www.patentmap.or.kr>). They are easily accessible by researchers to utilize for their research and development of technology.

02 Dispatching Patent Management Experts

In 2006, we launched a project to dispatch experts to universities and public research institutes to elevate the management of their patents. Patent management experts are sent by KIPO to these institutions to help establish a suitable patent management system, provide consultation services on IPRs. This project has contributed to raising IP awareness and building IP capacities of universities and public research institutes. In 2018, 14 patent management experts were dispatched for 539 consultation, 131 seminars and briefings, as well as 252 technology transfers.

03 Invention Interview Project

Also to support universities and public research institutes, KIPO has been facilitating the “Invention Interview Project” since 2010. To encourage only high quality patents, the Invention Interview Project invites patent attorneys and other experts to review researchers’ inventions before they proceed to the patent application.

With the successful pilot implementation in the previous year, we expanded “deal-based invention interviews” to meet the needs of 30 organizations. In 2018, we discovered 1,236 cases of excellent inventions from among 4,049 cases total. To prevent waste of patent expenses, 327 cases of inventions were turned down by organizations.

04 Product Unit Patent Portfolio Set-up Project

The “Product Unit Patent Portfolio Set-up Project” was set up in 2011 to assist the transfer of outstanding patent technologies from universities and public research institutes to private businesses.

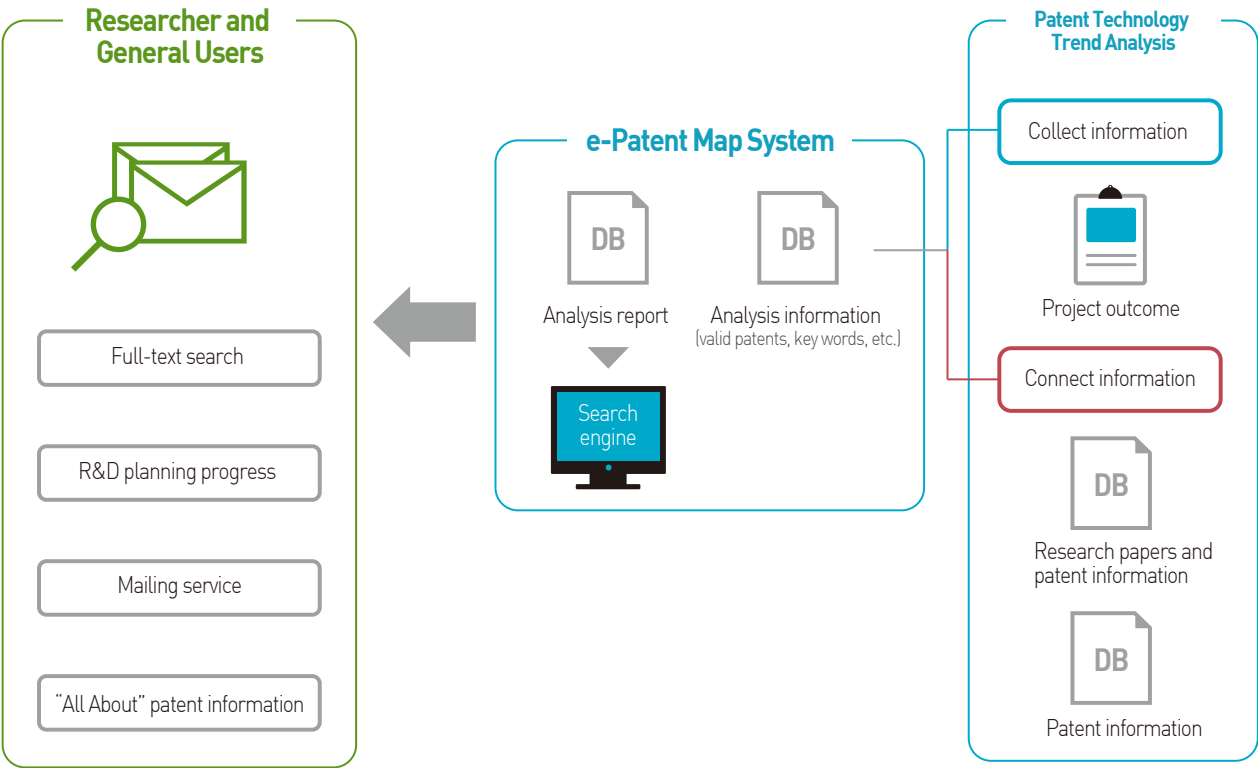
To facilitate the transfer of patents to businesses, this project helps organize patents to be grouped by product units according to the current market demand. Additionally, we offer concept review and prototype testing to verify patent commercialization. In 2018, KIPO supported 35 projects and the transfer of 82 technologies.

05 IP Utilization Network Set-up Project

In order to ensure a steady flow in the supply and demand of patent technologies, KIPO has organized the “IP utilization network (IP-PLUG) project” since 2015. IP-PLUG is a networking session that brings together diverse IP-related individuals and groups, such as users, suppliers, investors, brokers, utilization experts and other private trading agencies. They are able to share IP information, discuss difficulties and connect with partners for better utilization of IP. In 2018, 14 IP-PLUG sessions were hosted to connect 119 cases of patent technologies to SMEs.

KIPO also has been jointly hosting the “Public Technology Roadshow” with the Ministry of SMEs and Startups (MSS) since 2013. The platform promotes the transfer of outstanding patent technologies from universities and public research institutes to SMEs and helps develop them into new business opportunities. In 2018, we held two Roadshows helping to identify 1,061 cases of public technologies and 67 technology transfer MOUs were signed.

Patent trend analyses for government R&D



Regional IP Capacity Building

01 Regional IP Centers

To promote awareness and encourage IPRs as well as inventions at the regional level, we operate 27 regional IP Centers nationwide. These regional IP Centers pursue customer-oriented management by carrying out various activities such as comprehensive IPR consultation, counseling service, IP seminars and education courses.

02 Providing Regional IP Awareness

Regional IP forums and IP policy meetings
Following the *Framework Act on Intellectual Property* set in 2011, the demand for IP awareness at the regional level increased. Among many efforts, municipal and provincial governments were mandated to implement action plans for IP.

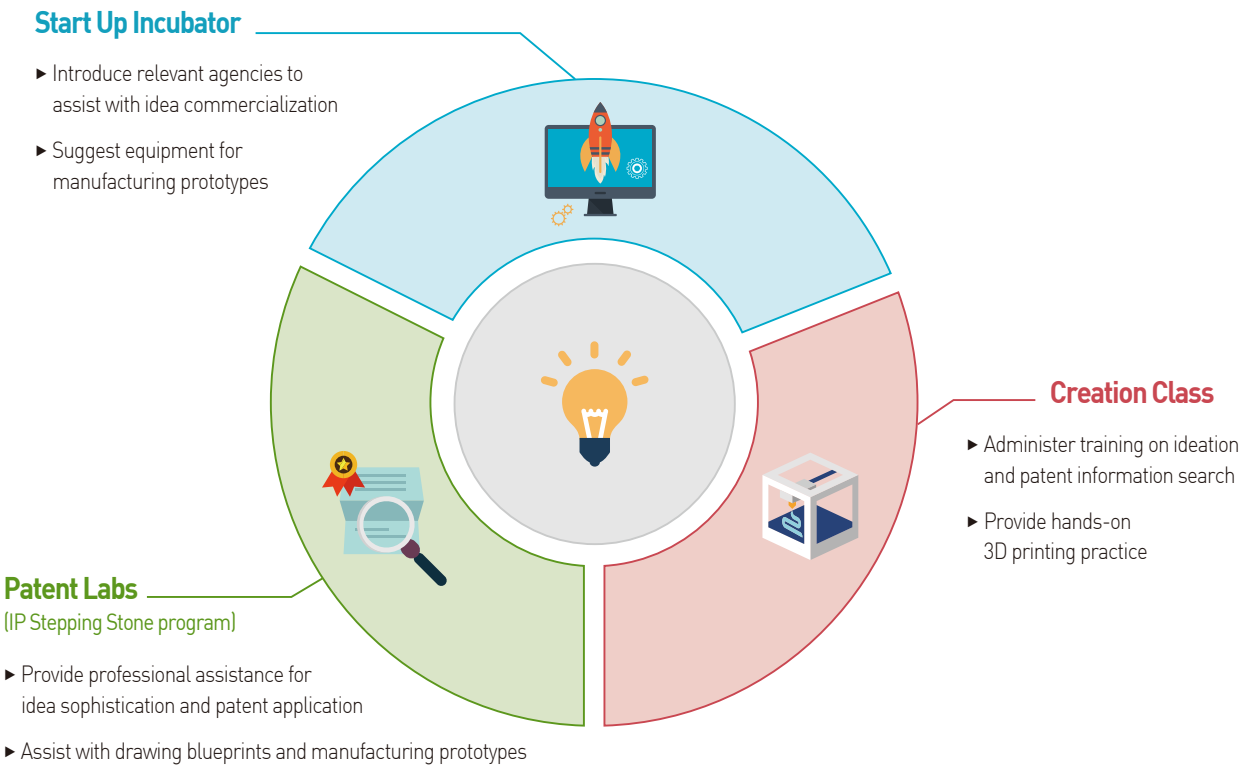
To this aim, KIPO began hosting regional “IP Forums” since 2012. By 2018, the IP Forums expanded to allow local participation in eight different regions, including Gyeongsangbuk-do, Gyeongsangnam-do, Gangwon-do, Jeollanam-do, Jeju, Busan, Ulsan and Incheon.

Moreover, KIPO and 17 regional governments inaugurated the Regional IP Policy Council in 2013 to discuss policies and methods for the creation, protection and utilization of IP between the national and regional governments. The Council organized various meetings in May 2018 in Seoul to discuss the operational direction of projects that support

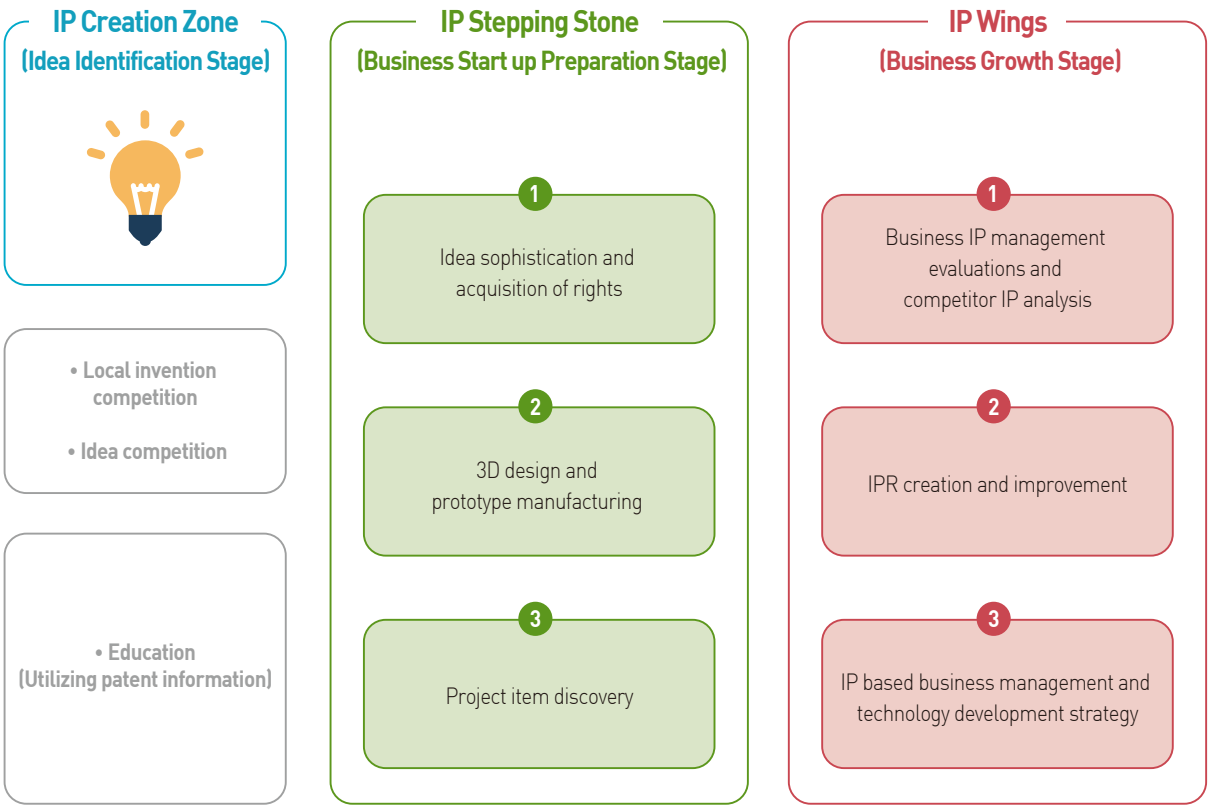
regional IP creation and the ways to strengthen regional IP policies.

IP sharing to support the socially disadvantaged
The “IP Talent-sharing Project” is an initiative that invites patent attorneys, designers and university students from various backgrounds to volunteer their IP talents and skills. The beneficiaries are the socially disadvantaged who need assistance to achieve IP creation. In 2018, 379 people offered their talents to 186 beneficiaries.

IP Creation Zone Program



IP Based Start Up Support Program



Enhancing the IP Capacities of SMEs and Promising Enterprises

Overall, there were 281 talent sharing projects with 74 cases that received IP consulting, design development followed with 63 cases, prior art searches with 61 cases, brand development with 51 cases, IP education with 14 cases and 18 cases for miscellaneous projects (i.e. writing up specifications).

National invention challenge for public safety

Specialized education and competitions are held to encourage the IP activities of those specifically working for public safety. Government employees and Korea’s armed forces who deal with national security and natural disasters are provided IP training and encouraged to submit their innovative ideas into a competition. We held a competition in 2018 that received 966 submissions. Thirty-three outstanding ideas were exhibited and awarded at the “Korea Innovative Safety and Security Expo 2018” and the “Korea Intellectual Property Expo 2018”.

03

Foster an IP Based Start Up Environment

Since 2014, KIPO has worked with local municipalities to set up the regional “IP Creation Zone” program to support local IP based start ups. The program invites local residents to participate in various programs that provide training and consulting to secure rights and the commercialization of creative ideas.

Accommodating different levels of expertise and needs, the program is structured into the “Start Up Incubator”, “Patent Labs” and “Creation Class”. In 2018, six additional IP Creation Zones opened and there is now IP Creation Zones in all major cities and provinces nationwide.

Another support program is the “IP Stepping Stone”, available to entrepreneurs who are preparing for their business start up. The program provides consultations based on patent trend analysis so that ideas can be made distinct from existing ideas for registration. In 2018, 935 ideas received support for patent filing. Out of which, 199 ideas successfully developed into business start ups.

To support businesses with less than 7 years of maturity, we began the “IP Wings Program” in 2017. Many times, early businesses face the most challenges related to IP. This program provides IP consulting and assistance for growth. In 2018, 425 start ups received consultations for business management and technology development strategies.

Like this, we aim to provide assistance to businesses throughout the full business life-cycle—starting with the individual entrepreneur to growing as a business. This will further allow local IP based start ups to flourish.

01

Expanding Financial Services Based on IP

To help SMEs obtain financing, KIPO has been working to offer financial services that capitalize on IP as intangible intellectual assets. Through a value assessment of the IPRs owned by SMEs, IP-based financing can be secured which allows patents and technologies to be used for loans and investment.

The IP-based guarantees and the IP-secured loan are a few of the most representative IP financial services. An IP-based guarantee is when the IP value of an SME is assessed to obtain a guarantee which is then used to borrow a loan from a commercial bank. And, an IP-secured loan is when a SME’s IP value is assessed and the IP itself is considered as collateral for a loan from a commercial bank. Furthermore, investment organizations, such as a venture capital company, can consider the assessment results to make decision when investing in companies with high-value IPs. To regulate the quality of the assessments, KIPO designates the agencies that assess the IP value while also sponsoring the cost of assessment for SMEs.

For the first time in 2013, we enabled SMEs to acquire loans using only their IPRs as collateral through the Korea Development Bank. Then in 2017, an MOU was signed among KIPO – Korea Technology Finance Cooperation – Korean commercial banks to expand benefits for SMEs, such as offering preferential interest rates for IP-based guarantees.

In December 2018, we held a joint press conference with

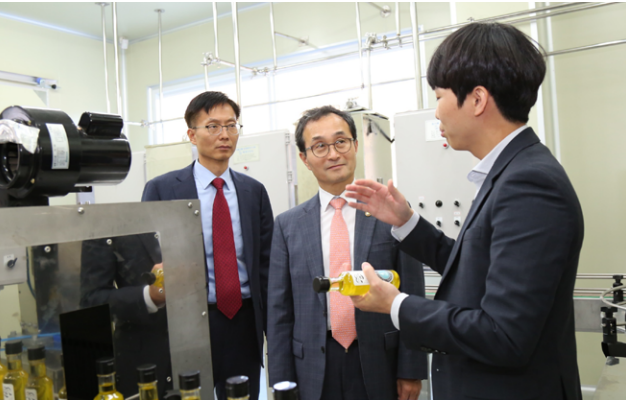


the Financial Services Commission (FSC) to announce the establishment of comprehensive actions which becomes a foundation to spread the scope of IP financing.

02

Fostering Global IP Star Companies

To assists SMEs reach their export potential, we concentrated effort on organizing a program which helps foster them into “Global IP Star Companies” through strengthening their IP creation and utilization.



KIPO identifies promising SMEs with high export potential and supports their entry and development in the global market. For a 3-year term, various services are provided such as financial assistance for IPR filing, trend analyses, strategy advice, as well as development of product, brand, packaging and materials for publicity.

Since the beginning of the program in 2010, KIPO has assisted 1,659 SMEs. In 2018 alone, 205 companies have been identified and many have succeeded in entering the global market even with no prior international exporting experience. Key corporate management indicators recorded an increase which reached 16.4% in revenue, 7.4% in employment and 13.8% in exports as of 2018.

Key corporate management indicators of Global IP Star Companies

(Units: %)

Key Corporate Management Indicators	2016	2017	2018
Revenue	5.9	6.9	16.4
Employment	7.3	8.2	7.4
Exports	6.9	7.9	13.8

Fostering the Development of an IP Workforce

01

Increasing IP Competency in Academic Institutions

IP courses in university

KIPO has supported universities since 2012 to foster researchers with practical IP capabilities. Great effort and emphases have been placed on establishing a foundation of systematic IP education through curriculum. Leading universities of IP education have been encouraged to

administer courses for IP-R&D and multi-disciplinary convergence that associates IP with other major areas of study, chiefly science and engineering.

Master of Intellectual Property (MIP) program

In 2010, KIPO played a pivotal role establishing a “Master of IP” degree program at the Korea Advanced Institute of Science and Technology (KAIST) and Hongik University. In order to foster chief intellectual property officers (CIPOs) and their understanding of IP management, the master’s program provides an interdisciplinary approach to IP-

Overview of IP courses in university

Category	2014	2015	2016	2017	2018
IP leading education institutions	9	12	15	17	17
Regular IP courses	418	611	1,023	1,451	1,410
Number of participants	16,002	20,028	28,936	43,664	45,178

Undergraduate and graduate IP education courses (Science and Engineering Departments)

		Education module								
		Stage	Year	Introduction to IP	Patents and creative thinking	IP creation	Patent information investigation	IP protection	IP utilization	R&D patent strategies
Course	Intro-duction	Freshman		Creative thinking and basic design		Basic creative design				
	Basic	Sophomore	Introduction to IP				Introduction to IP			
		Junior	Students can choose from the following courses: Patent analyses and invention application, Business startup, and IP I, and IP II							
		Senior		Compre-hensive creative design		Compre-hensive creative design				
	In-depth	Graduate students	R&D strategies from a patent viewpoint							

related subjects, such as engineering, law and business management. In addition, the program deals with important IP issues in new industries such as pharmaceutical biotechnology, AI and big data. In 2018, Dankook University and Dongkook University were selected by KIPO to sponsor the professional degree programs.

Furthermore, we introduced a scholarship program for SME employees. The program helps support staff who specialize in IP and business IP strategies.

02

Promoting Academic-Industrial Cooperation

Campus Patent Strategies Universiade

The “Campus Patent Strategies Universiade” is a competition hosted by KIPO since 2008 to raise collegiate interest in patent education, expand practical patent education at the university level, nurture engineers who possess patent-related knowledge and keep the industry supplied with innovative ideas.

The Universiade represents a unique type of cooperation among government, industry and universities. While KIPO arranges the competition, graduate and undergraduate students devise IP strategies and offer solutions with their academic advisors to the issues prepared by private companies. The private companies then review

the submissions and award monetary prizes to their top choices. Based on learned IP-related knowledge, students can quickly grasp the corporate R&D process and the participating companies receive creative new ideas.

In 2018, we modified the Campus Patent Strategies Universiade to improve its practicality for universities and businesses. Previously, the competition was structured into two parts–namely prior art search and patent strategy. Rather, the recent competition focused more on patent strategy, which improved the quality of solutions submitted by participants. In 2018, 956 teams from 57 universities and 28 companies participated in the Universiade.

Collegiate invention activities

As another way to boost activities of innovation and nurture creative inventors who are competent in IPR at universities, we have held the “University Invention Contests” since 2012. Leading up to each contest, summer camps are hosted where IP experts train university students to conduct prior art searches and prepare patent applications. Furthermore, exceptionally innovative ideas and IPRs receive additional support towards commercialization such assistance for the patent application fee, prototypes manufacturing, etc.

In 2018, the contest had a total of 4,959 invention submissions from 125 universities. Of these, 54 outstanding ideas received support for IPR registration. Their inventions are made available on the IP-Market–a website for transaction of technology.



Design to Business (D2B) Fair

In an effort to raise design rights awareness and reinforce national industrial competitiveness, the “Design to Business (D2B) Fairs” have been held since 2006. The



D2B Fairs are a distinct open innovation approach where companies have access to the creative designs of talented designers while designers are able to retain the IPRs of their creative designs.

At the Fair, companies present outdated designs in need of a revamping, and designers submit their re-designs. After signing a licensing contract, the companies will commercialize the winning design and the winners receive the royalties according to the product’s generated revenue. In 2018, 19 companies presented goods for the contest, and 5,578 designs from 75 universities were submitted, leading to 133 applications for design rights.

03 Fostering Creative Inventors

Management of invention school classes

The Act on the Promotion of and Support for Invention Education was enacted to provide legal requirement for education on inventing. Thus, education on inventions was designated as a formal subject in the elementary, middle, and high school curriculum. In 2018, “Introduction to Intellectual Property” was newly established as an elective subject the high school curriculum.

Furthermore, KIPO designated three universities as centers for invention education that train prospective and professional invention teachers. For youth, we operate “creative invention education centers” in order to provide invention education programs in a total of 201 schools in nationwide.

Through these activities, KIPO has contributed to enhancing IP awareness and continues to expand invention education for students as well as the general public.

Recognizing students and teachers involved in inventions activities

Through the various creativity and inventing activities hosted by KIPO, we are able to discover talented inventors and encourage the value of inventing. We continually



select and support notable students and teachers actively engaged in invention classes.

Held since 1988, the annual “Korean Student Invention Exhibition” has helped discover and nurture promising inventors to lead the knowledge-based society of the future.

KIPO has also organized the “Korean Student Creativity Championship” to nurture outside-the-box thinking among today’s youth. This championship, in particular, allows students to form teams and solve problems through collaboration. Their creativity is evaluated as they resolve various tasks given to them both in advance and during the event.

Furthermore, since 2011, KIPO has been awarding the “Grand Prize for Invention in Education” to teachers who contributed to promoting inventions in school.

Education for the next generation of creative entrepreneurs

Operating an education center for creative entrepreneurs of the next generation, KIPO administers various educational programs with KAIST and POSTECH aimed at talented middle and high school students. The 2-year educational program offers courses on core entrepreneurial skills, including creative problem solving and technology forecasting, while simultaneously fostering IP expertise. A follow-up program is also offered which helps students with the step by step processes of business start up—from idea conception to early business stages. As of 2018, the



program has worked with 1,476 next generation creative entrepreneurs.

04 Events to Promote Inventions

During the reign of King Sejong of the Joseon Dynasty, the world’s first rain gauge was invented on May 19, 1441. “Invention Day” was established to commemorate its significance and the spirit of innovation. Every year, KIPO hosts a ceremony on this day to promote the importance of inventions and inspire members of the general public.

In 2018, we celebrated the 53rd Invention Day by hosting a ceremony with the theme “Innovative Growth through Invention and Job-Creation through Patents.” Many key figures attended the ceremony, including the KIPO Commissioner and members of the Korean National Assembly. There, the Korean government expressed its determination to lead the 4th Industrial Revolution (4IR) through invention and innovation while supporting start ups and job creation. Additionally, 78 people received recognition for their contributions to leading Korea’s industrial development through their invention activities.

Many other exciting events were organized to further celebrate the occasion such as an exhibition of noteworthy inventions, a commemorative movie screening and a ceremony performance. We also selected the “Inventor of the Year” in recognition of how new products and

new technologies have contributed to our national competitiveness. The Inventor of the Year's photo and invention are publically displayed in the Inventor Hall of Fame as a way to inspire other inventors.

On December 6th, the “2018 Korea IP Exhibition” was held in Seoul as a combination of three exhibitions: the “Korea Invention Patent Exhibition,” the “Trademark and Design Right Exhibition” and the “Seoul International Invention Fair”. Sponsored in cooperation with the World Intellectual Property Office (WIPO) and the International Federation of Inventor’s Association (IFIA), the exhibits featured about 604 inventions, trademarks and designs from 32 countries around the world.

Every year in collaboration with WIPO and the Korea Women Inventors Association (KWIA), we host the “Korea International Women’s Invention Exposition” to encourage female inventors to create and commercialize their inventions. In 2018, the Expo was successfully held from

June 28 to July 1 at the KINTEX with about 373 inventions submitted by female inventors from 28 different countries and more than 7,000 visitors.

As an extension of the international expo, the “2018 IP Wave for Creative Women Leaders” was organized as a workshop for female inventors and business leaders who completed the WIPO IP management training. The workshop was held from July 2 to 3 with 83 participants from 18 different countries.

The “2018 Woman Idea Living Show” allows women to submit creative, fun and sophisticated ideas that can improve daily life. The ideas are evaluated and given support for patent filing and prototype manufacturing. The online community voted on the prototypes which were displayed online (<http://www.womanidea.net>). Selected inventors were invited to exhibit and present their ideas at the Women Idea Living Show where the final winner was chosen.



05 Off-the-job Training for Patent Attorneys

In order to certify as a patent attorney, a 2016 amendment of the *Patent Attorney Act* stipulates that certified lawyers and those who have passed the patent attorney bar exam must attend 250 hours of training, in addition to six months of on-the-job training. Since then, the International Intellectual Property Training Institute (IIPTI) began administering training courses to help fulfil the off-the-job requirements. The courses aim to produce skilled patent attorneys with high professionalism.

An off-the-job training course was held from January to February in 2018. A total of 211 out of 218 newly qualified patent attorneys completed the off-the-job training course. Another round of training was conducted for certified

lawyers from November to December 2018. Thirty-six participants successfully completed the program.

In the 2018 curriculum for the newly qualified patent attorneys, a great emphasis was placed on improving their capabilities to utilize their learned knowledge in the workplace. For this purpose, an advanced practicum was offered in practical fields such as filing IPR applications (i.e. application documents, specifications, written arguments, amendments, etc.), and composing administrative IPR trial and litigation documents (i.e. petitions, reply briefs, etc.).

To further enhance understanding of science and technology, as well as professionalism as patent attorneys, courses were provided on natural sciences such as physics, chemistry and state-of-the-art technologies related to the 4IR. In particular, the IIPTI published Understanding Science and Technology through Patents in 2018, a textbook on judging patentability of patent specifications based on scientific theories.

