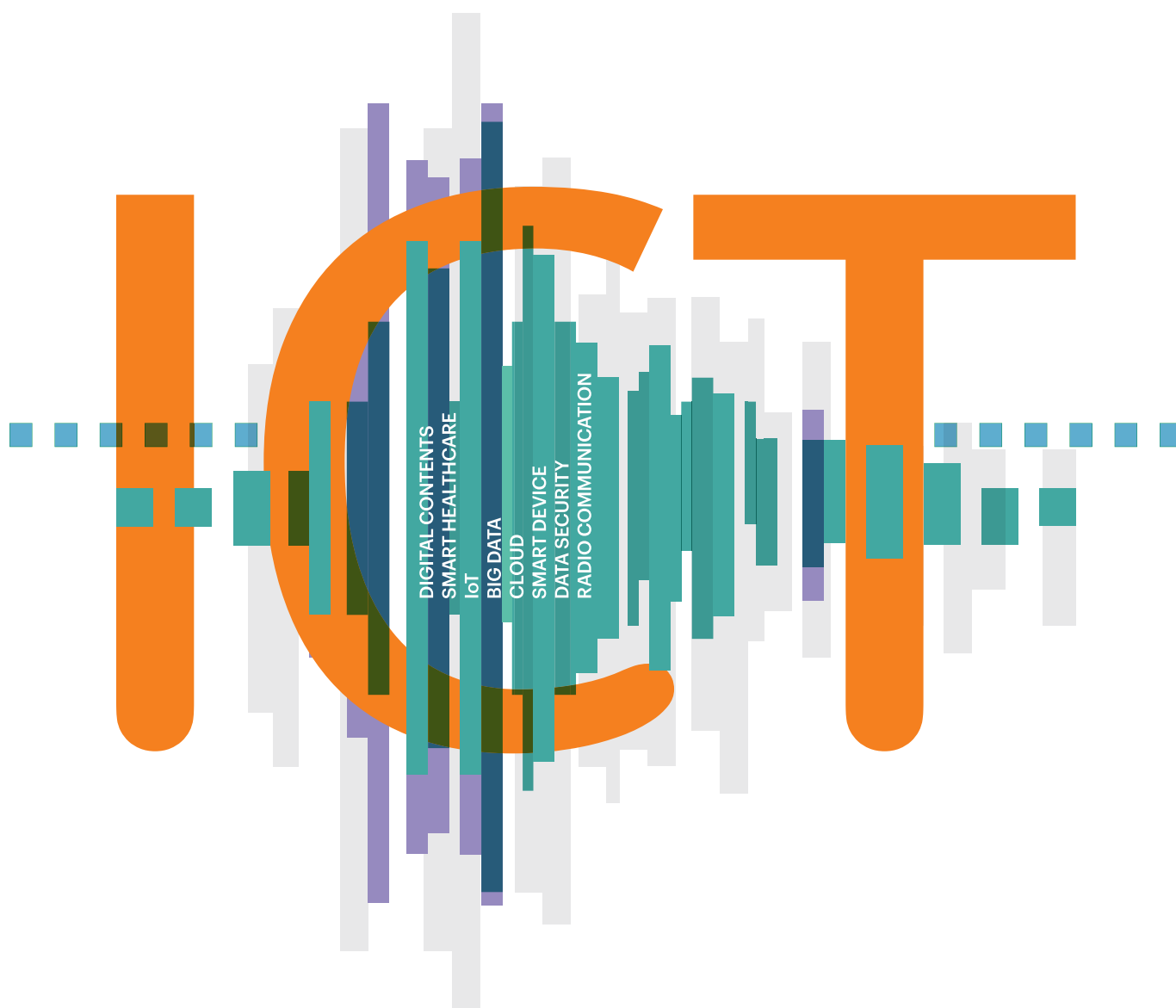


OUTSTANDING CASES ACHIEVED THROUGH GOVERNMENT GRANT FOR ICT

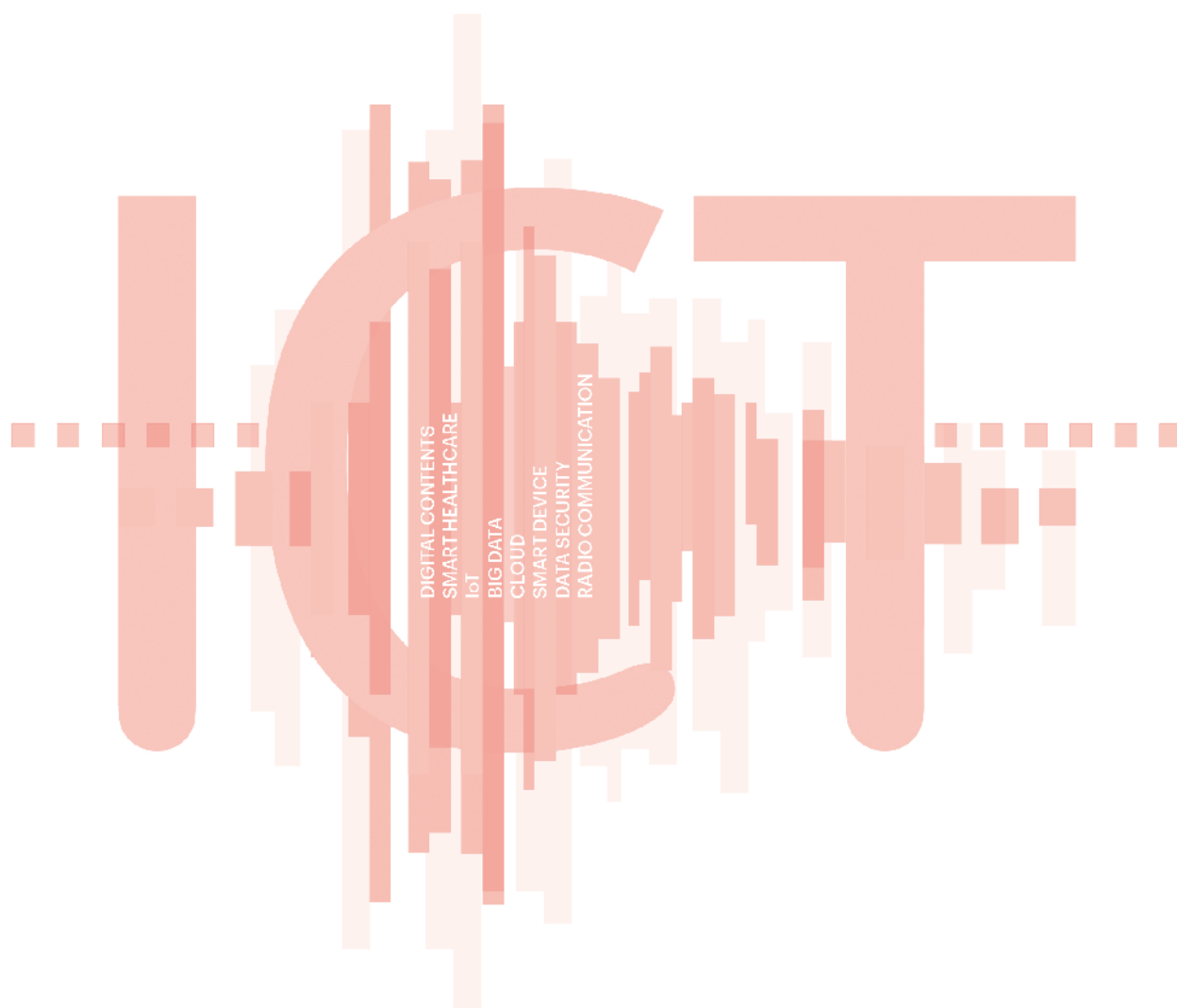


Ministry of Science and ICT



KCA Korea Communications Agency

OUTSTANDING CASES ACHIEVED THROUGH GOVERNMENT GRANT FOR ICT



Ministry of Science and ICT



KCA Korea Communications Agency

In order to create the source of future income and good quality jobs in the fields of ICT industry, the ministry of science and ICT is investing about \$18 billion each year(Broadcasting and communications development fund and Fund for Promotion of Information and Communications) while trying to promote the development of broadcasting contents convergence industry and also to focus on ICT new business discovery and venture ecology creation, small and medium-sized ICT company incubation and growth, and jobs and also making efforts for SW industries, 5G, IoT, big data, AI, and VR promotion.

The Korea Communications Agency(KCA) is responsible for fundraising, and its mission is to create a systematic resource system that can support the government's expenditures in an efficient and transparent manner, thus it is making best efforts for encouraging autonomous private sector's investment and improve the value of government funds by creating autonomous and creative business environment for execution, reducing the burden of unnecessary administrative duties and also creating the outcomes that meet the government's policy goals.

In addition, recently, under the leadership by the government, it is reinforcing strategic investments of both funds in accordance with the trends of ICT convergence and improving the flexibility and management efficiency of fund operation by integrating the different types of funds. When both funds are merged, then we can expect an improvement in flexibility and efficiency of funds operation, and thus leveraging the development of ICT industries.

The current example of excellence is the discovery of a success story resulting from the fair review phase and on-site interviews by evaluators. Especially, it is worthwhile to notice significant outcomes from the global part and job creation. The book of outstanding cases will be published in both English and Korea. Also, it is available as an e-book so that everyone can enjoy it in the mobile environment.

I would like to express my sincere thankfulness for those who cooperated with us on the publishing of the book. I hope we will be able to discover many outstanding cases and share them with everyone. In addition, I sincerely hope that many companies with excellent outcomes will be able to improve their national brand's reputations in the world and acquire the necessary global competitiveness.

President of KCA under the Ministry of Science and ICT
Seok-Jin Seo



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Introducing government grant for ICT

1

CHAPTER

- Introducing government grant for ICT
- Purpose and grounds of establishing government grant for ICT
 - Promotional system of the government grant for ICT
 - The status of the government grant composition for ICT
- Yearly key achievement through government support for ICT
- Status of Outstanding Cases through government support for ICT
 - The status of assigned support organizations
 - The status of assigned companies

1. Introducing government grant for ICT

The government grant for ICT aims to secure new growth engines in the contents and broadcasting industry, promote and drive ICT new businesses, and bridge the gaps in the network infrastructure. It is being used to create a venture ecosystem where new companies can grow and develop, and to develop ICT related standards in the information and communication broadcasting field.

2. Purpose and grounds of establishing government grant for ICT

Broadcasting and Communications Development Fund

Purpose of establishment The government grant for ICT was established to support the advancement of the broadcasting and communication industry, such as R&D, standardization, human resource training, service promotion, and infrastructure creation, etc.

Ground of establishment The Fund was established pursuant to Article 24 of the Basic Act for the Development of Broadcasting and Communications (establishment of the Broadcasting and Communications Development Fund).

Fund for Promotion of Information and Communications

Purpose of establishment To support the advancement of the information and communication industry, including R&D, standardization, human resource training, and industrial infrastructure creation, etc.

Ground of establishment Article 41 of the Information and Communications Industry Promotion Act (Establishment of the Fund for Promotion of Information and Communications).

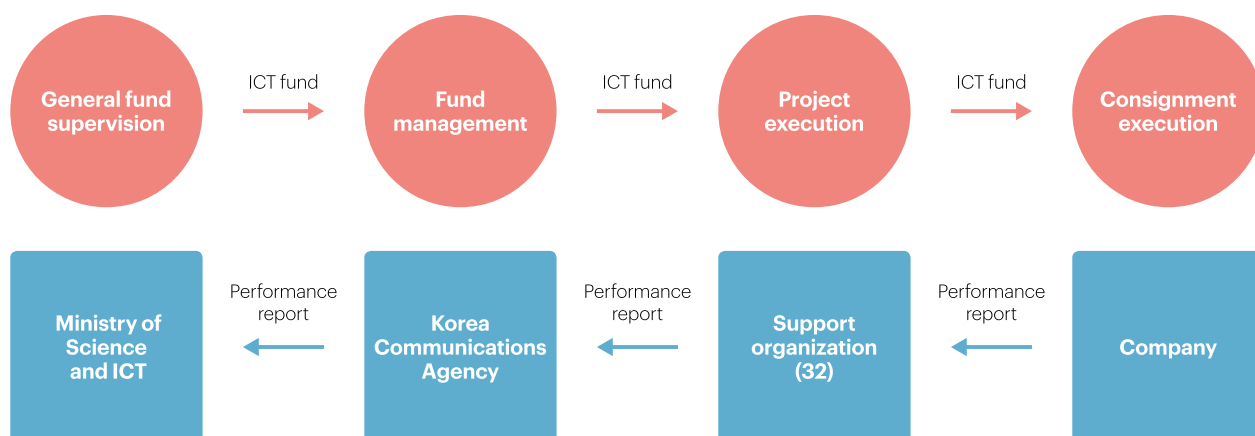
3. Promotional system of the government grant for ICT

Ministry of Science and ICT Establishment of fund-related policies and management and supervision of the fund projects.

Korea Communications Agency Execution of tasks such as planning, management and assessment of the fund projects.

Support organization Execution of fund projects by agreement or through a public contest held jointly with the Dedicated Division.

Company Execution of fund projects by agreement or through a public contest held jointly with the Execution Division.



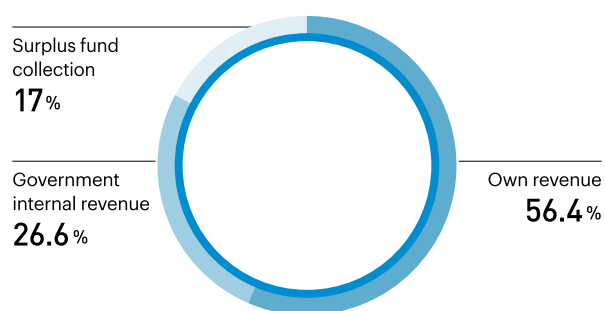
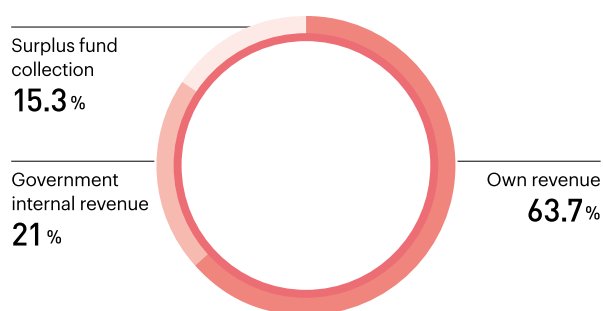
4. The status of the government grant composition for ICT

The budget allocated to 40 detailed projects amounted to \$292.08 million, which was divided into next-generation fusion content industry promotion projects (\$29.62 million), Information & communications Technology Promotion (\$29.36 million), which accounted for the highest share (20.19%) of the total budget.

The composition status of government grant invested in ICT

Broadcasting and Communications Development Fund		
Funding	Own revenue	Broadcasting company contribution
		Collection of loan principal etc.
		Spectrum assignment charge (45%)
	Government internal revenue	Collection of public funds
Project management	Surplus fund collection	Asset management reserve
	R&D	IITP (Ministry of Science and ICT)
	Except R&D	KCA (Ministry of Science and ICT) Korea Communications Commission

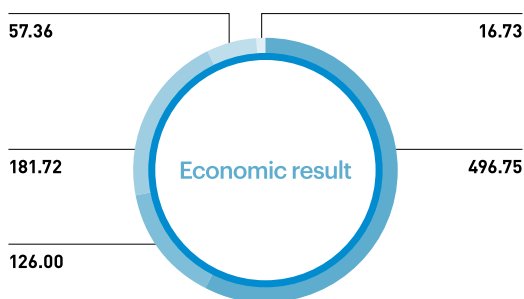
Fund for Promotion of Information and Communications		
Funding	Own revenue	Collection of loan principal etc.
		Spectrum assignment charge (55%)
	Government internal revenue	Public fund collection
Project management	Surplus fund collection	Asset management reserve
	R&D	IITP (Ministry of Science and ICT)
	Except R&D	KCA (Ministry of Science and ICT)



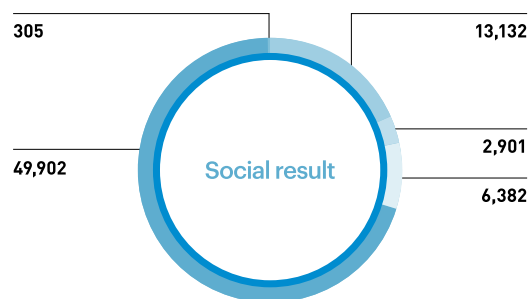
Fund	Category	2015	2016	2017	Increase ratio (%)
Broadcasting and Communications Development Fund	Number of projects (cases)	96	89	99	10[11.2]
	Budget (\$ million)	181.71	190.45	189.72	-0.73 (Δ0.38)
Fund for Promotion of Information and Communications	Number of projects (cases)	26	36	37	1 (2.8)
	Budget (\$ million)	63.01	101.56	102.36	0.80 (0.79)
Total	Number of projects (cases)	122	125	136	11 (8.8)
	Budget (\$ million)	244.72	292.01	292.08	0.007 (0.02)

5. Yearly key achievement through government support for ICT

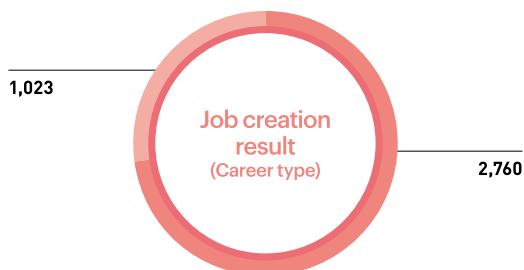
The government support for ICT invested a total of \$292.08 million in 40 detailed projects, thereby deriving economic benefits of \$878.56 million and creating an economic effect (Return on Investment) of more than 300%. Furthermore, 3,783 jobs were created, 13,132 workers were trained in ICT industrial professional fields, and the R&D outcomes of 305 startups were commercialized, resulting in diverse direct and indirect social achievements.



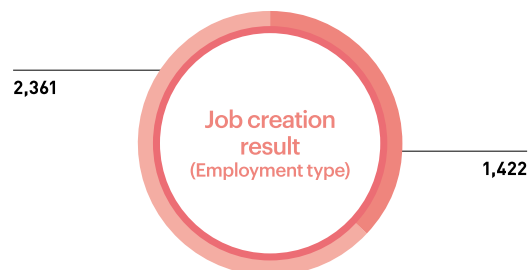
- Domestic revenue(\$ million)
- Oversea export(\$ million)
- Domestic investment attraction(\$ million)
- International investment attraction(\$ million)
- Cost reduction(\$ million)



- Nurturing talent(Number of people)
- Supporting start-up(Case)
- Promotion(Case)
- Consulting(Case)
- Infra using(Case)

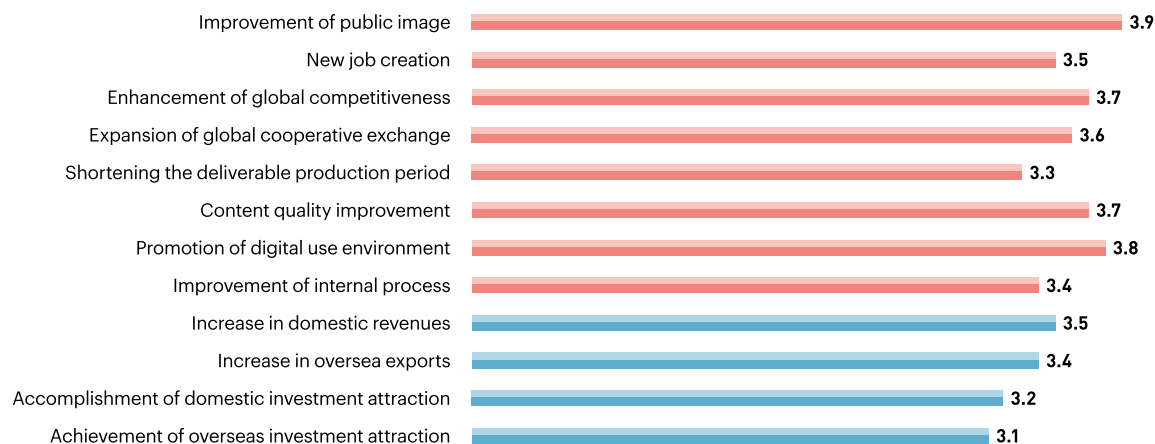


- Novice(Number of people)
- Experienced(Number of people)



- Permanent(Number of people)
- Temporary(Number of people)

The highest socio-economic effect of the Fund projects is the improvement of public image (3.9 points), followed by promotion of the digital use environment (3.8 points), content quality improvement (3.7 points), and raising global competitiveness (3.7 points).



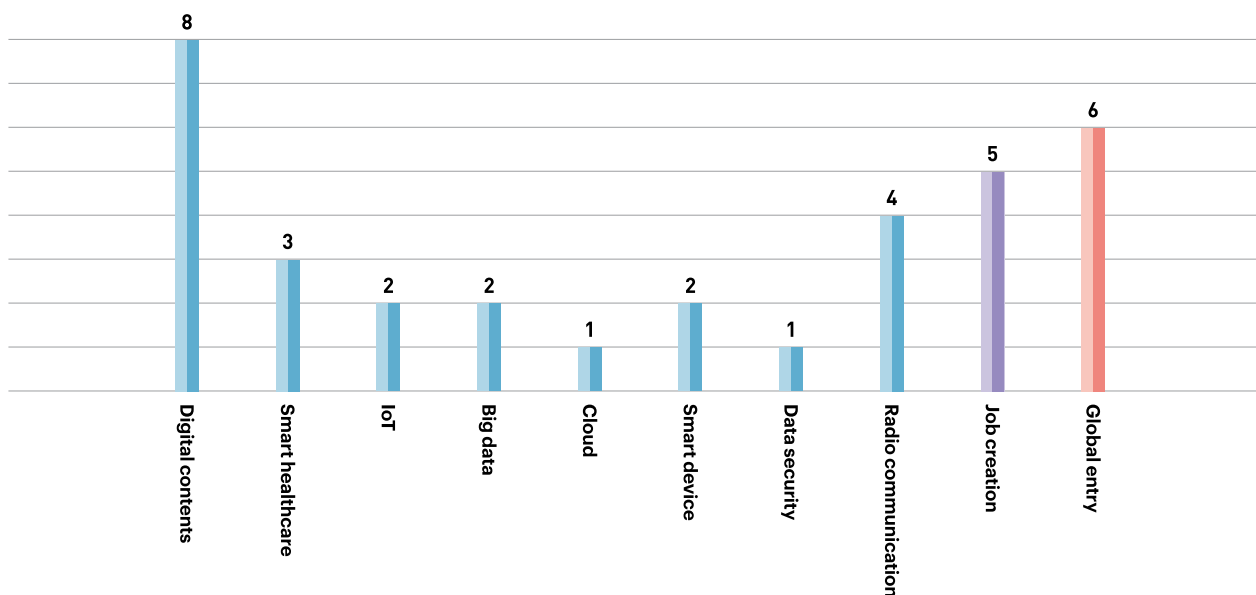
Compared with 2016, in the government support for ICT showed a growth rate of 40.6% in terms of domestic and international revenues, 88.6% in terms of domestic and international investment attraction, and -60.8% in terms of cost reduction, and 4.0% in terms of job creation.

Key achievement through government support for ICT (2015~2017)

Category			2015	2016	2017
Economic result	Domestic and international revenue	Amount(\$ million)	383.50	442.90	622.75
		Growth rate (%)	50.2	15.5	40.6
	Domestic and international investment attraction	Amount (\$ million)	50.09	126.75	239.08
		Growth rate (%)	△15.2	153.1	88.6
	Cost reduction	Amount(\$ million)	6.83	42.64	16.73
		Growth rate (%)	61.3	523.9	-60.8
	Total sum of economic benefit (\$ million)		440.42	612.29	878.56
Growth rate (%)		-	39.0	43.5	
Social result	Promotion of specialized human resources (persons)		4,891	9,373	13,132
	Startup support (companies)		133	228	305
	Advertising (cases)		929	1,563	2,901
	Consulting (cases)		4,247	4,805	6,382
	Use of ICT infrastructure (facilities etc.) (cases)		1,586	8,448	49,902
Job creation	Number of persons		1,121	3,636	3,783
	Growth rate (%)		181.7	224.4	4.0

6. Status of Outstanding Cases through government support for ICT

For the outstanding cases selected in 2017, cases from Digital contents were most with 8 case, 6 cases from Global entry, 5 cases from Job creation.

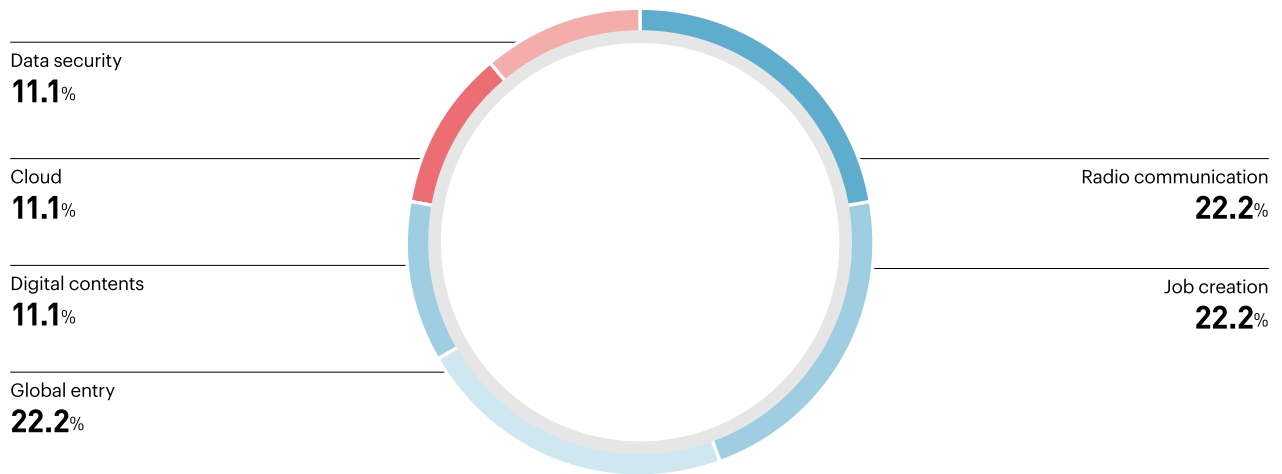


Outstanding cases per support organization

Support organization	Number of selected cases										
	Digital contents	Smart healthcare	IoT	Big data	Cloud	Smart device	Data security	Radio communication	Job creation	Global entry	Total
National IT Industry Promotion Agency	1		2		1	1			1	4	10
Institute for Information and Communications Technology Promotion									2		2
Korea Communications Agency	3										3
Korea Internet & Security Agency							1		1		2
Korea Radio Promotion Association	4							3	1		8
National Information Society Agency		1		2				1			4
Korea Electronics Association										1	1
Korea Entrepreneurship Foundation						1					1
Daegu Digital Industry Promotion Agency		1									1
Korea Mobile Internet Business Association										1	1
KNU Industry-Academic Cooperation Foundation		1									1
Total	8	3	2	2	1	2	1	4	5	6	34

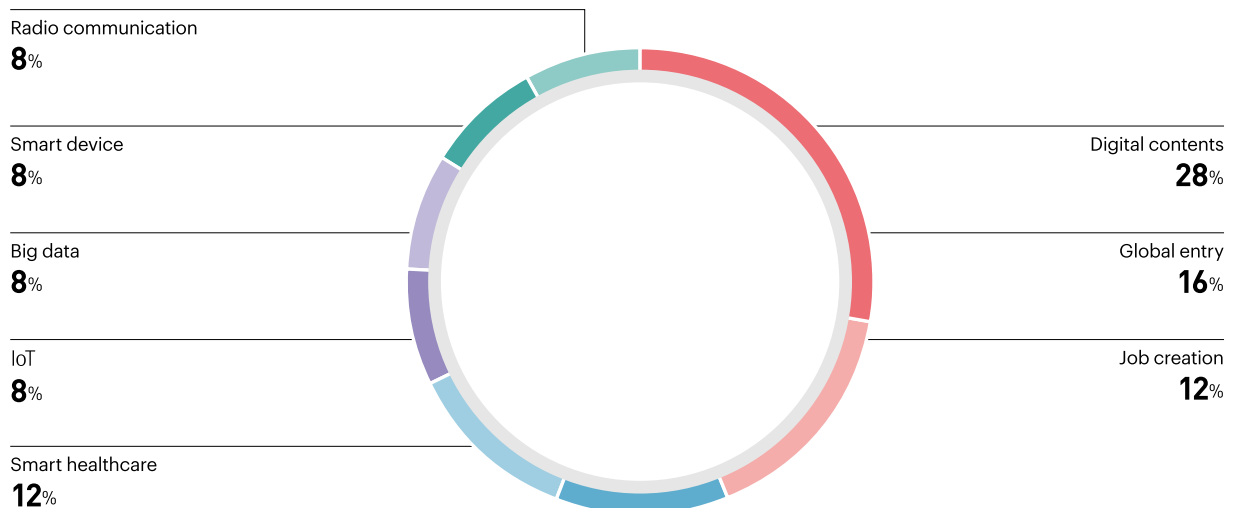
7. The status of assigned support organizations

The support organizations in the government grant for ICT exhibited that the largest number of achievements occurred in Radio communication, Job creation, and Global entry as 2 (22.2%) respectively, followed by 1 (11.1%) in Digital contents, Cloud, and Data security, respectively.



8. The status of assigned companies

The enterprise support projects in the government grant for ICT revealed that the largest number of achievements occurred in Digital contents as 7 (28%) followed by Global entry as 4 (16%), Job creation and Smart healthcare as 3 (12%), respectively. Other than those, IoT, Big data, Smart device, and Radio communication had 2 achievements (8%) respectively.



DIGITAL CONTENTS
SMART HEALTHCARE
IoT
BIG DATA
CLOUD
SMART DEVICE
DATA SECURITY
RADIO COMMUNICATION

Success stories of outstanding cases

CHAPTER 2

- DIGITAL CONTENTS
- SMART HEALTHCARE
 - IOT
 - BIG DATA
 - CLOUD
- SMART DEVICE
- DATA SECURITY
- RADIO COMMUNICATION

DIGITAL CONTENTS



Organization

Broadcasting program production support _ **Korea Communications Agency**

Company

Content support for next-generation broadcasting _ **CJ E&M**

Support for entry into strategic overseas markets _ **Holotive Global Co., Ltd.**

Strengthening the capabilities of smart content development _ **ulalaLAB Inc.**

Support for co-growth of digital contents _ **VIZinf Co., Ltd.**

Promotion of broadcasting and communication convergence services _ **Flybook**

Support for the development of market creation-type realistic contents _ **Brand Architects**

Support for the production of interactive programs _ **Jangyee Co., Ltd.**

DATA SECURITY

SMART DEVICE

Diverse types of contents are provided by the cross-media platform



Korea Communications Agency

Broadcasting and Communications Development Fund

- Support organization : Korea Communications Agency
- Project : Broadcasting program production support

Key achievements

- Promotion of next-generation broadcasting contents serviced via the cross-media platform.
- Support for Non-commercial broadcasting of cultural contents and documentaries
- Support for international co-productions, and promotion of overseas distribution for small and medium-size broadcasters
- MOU and investment attraction with foreign broadcasters and producers in the UK and China.

THE KCA HAS SECURED CROSS-MEDIA CONTENTS THAT CAN BE UTILIZED IN VARIOUS MEDIA ACCORDING TO CHANGES IN THE TYPES AND NATURE OF BROADCASTING CONTENT CONSUMPTION THROUGH THE GOVERNMENT GRANT FOR ICT BROADCASTING PROGRAM PRODUCTION SUPPORT. IN ADDITION, THE KCA HAS DISCOVERED BROADCASTING FORMATS THAT ARE SUITABLE TO CHANNEL CHARACTERISTICS, AND WHICH CAN CONTRIBUTE TO IMPROVING THE QUALITY AND CONTENT PRODUCTION CAPABILITIES OF SMALL AND MEDIUM-SIZE BROADCASTERS. IT HAS ALSO LAID THE FOUNDATION BY WHICH VARIOUS CONTENTS CAN BE FREELY WATCHED THROUGH VARIOUS CHANNELS.



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Broadcasting in diverse genres

Most TV programs in recent years have focused on commercial broadcasting of the drama and entertainment genres. It is understood that commercial broadcasting focuses on drama and entertainment because they are popular and attract high audience ratings, resulting in large advertising profits. However, this trend implies that some viewers have fewer opportunities to see non-commercial broadcasting such as documentaries or cultural programs.

The support project of the KCA is a broadcasting program production support project that assists non-commercial broadcasting so that viewers can watch more diverse genres amid the current commercially-oriented trend of the broadcasting environment. In response to the recent environment paradigm in which broadcasting and smart

media are fused, next-generation broadcasting contents have been promoted to service local culture and documentary contents through the cross-media platform. The cross-media platform is an integrated platform that provides contents to a variety of platforms and devices. As the boundary between broadcasting and the communication network has become blurred in recent years, the cross-media environment in which the same contents are provided conveniently has matured. Accordingly, the cross-media platform is attracting a great deal of interest as the next-generation platform in anticipation of a third media revolution.

The cross-media platform is an evolutionary model that is being driven mainly by terrestrial broadcasting companies that produce and own a wealth of contents. Terrestrial broadcasting companies that achieved popularity through the stable profit structure of advertising over a long period of time





are now responding to ongoing changes in this ever-diminishing profit-oriented structure.

Establishment of a business infrastructure for small and medium-size broadcasters

Unlike other support projects of broadcasting production, the KCA's broadcasting production support project is designed to assist small and medium-size broadcasters, thereby contributing to value-added creation not only through broadcasting but through program sales too. It is significant in that it is not aimed merely simple broadcasting production because it sets the scope of the project from production to broadcasting. It also supports the promotion of international co-productions and overseas market distribution and market entry for broadcasters. Recently, the KCA has signed an MOU for investment attraction with overseas broadcasters and producers in the UK and China, and expanded its overseas investment attraction opportunities through participation in content markets and pitching forums.

In addition, it has produced a trailer plan program and format-type broadcasting program, thereby establishing the

basis for a virtuous circle structure that could generate profits even in a short period and lead to re-investment.

A more transparent broadcasting work environment

The most sensitive area in the field of broadcasting program production is that of unfair trade in the outsourcing production system. The unfair trade environment in outsourcing jobs of the broadcasting market is a long-standing issue and a highly sensitive matter. Since the support projects of broadcasting production naturally reflects the government's policies as it is a government-funded support project, thereby making the standard contracts, and compliance with the minimum wage and legal working hours, reviews the measure to expand the opportunity to participate in the program production support projects by outsourcing producers. As such, the KCA has led the way in creating an environment in which the rights of broadcasting-related workers are ensured and in which citizens can obtain equal services.

“It can ensure the rights of workers in poor work environments, such as freelancers or production companies, by departing from the customary practice of “verbal contracts” - which ought to be eradicated- and by assisting small and medium-size broadcasters with the production of one or two more programs per year”.



Success Point

The KCA has supported small and medium-size broadcasters’ efforts to improve their production capabilities and generate profits using the know-how and skills it has accumulated in the ten years since 2008. These achievements are the results of the KCA’s tireless search for distribution routes regardless of local and overseas broadcasters. One of the reasons for the constant advancement of the broadcasting program production project is to support the production of cross-media broadcasting contents that suit consumer access through technical development.

Organization Introduction

The legal basis for the establishment of the KCA is Article 66 of the Radio Waves Act. Since then, it has contributed to expanding the public use of radio and promoting broadcasting, communication, and radio activities. As the promotion agency that leads innovative growth in broadcasting contents and communication radios, the KCA is dedicated to promoting and facilitating broadcasting and communication, strengthening the radio management infrastructure, and promoting sustainable management.

TIMELINE

1972	1981	1990	2006	2011
July Foundation of the Korean Radio Operator Association Inc.	May Acceptance of a consignment project from the government (inspection of radio stations).	August Re-organized as the Korea Radio Station Management Agency.	July Re-organized as the Korea Radio Promotion Association.	January Re-organized as the Korea Communications Agency (KCA).

ORGANIZATION OVERVIEW

PRESIDENT SEO, SEOK-JIN TYPE OF BUSINESS PUBLIC AGENCY ESTABLISHMENT JULY 21, 1972
WEBSITE www.kca.kr/open_content/en/index.jsp

Opening new horizons in global pop culture



CJ E&M

Broadcasting and Communications Development Fund

- Support organization : Korea Radio Promotion Association
- Project : Content support for next-generation broadcasting

Key achievements

- “Wild Korea” secured 50% of the intellectual property sharing ratio of the British Broadcasting Corporation (BBC), and its technical skills have been recognized (steady profit generation is expected in the future).
- Succeed in attracting investment from TERRA MATER, one of a global distributors, with the domestic UHD production technology.
- The industry’s technical competitiveness has been improved through technical collaboration with UHD experts.
- The basis for overseas entry basis has been established with the dispatch of UHD experts to overseas broadcasters.

CJ E&M PRODUCED THE UHD FORMAT “WILD KOREA” PROGRAM DURING THE PYEONGCHANG WINTER OLYMPIC GAMES THROUGH THE “CONTENT SUPPORT FOR NEXT-GENERATION BROADCASTING” PROJECT VIA THE GOVERNMENT GRANT FOR ICT, THEREBY CONTRIBUTING TO RAISING KOREA’S INTERNATIONAL PROFILE AND REPUTATION AND SUCCESSFULLY ADVERTISING THE PYEONGCHANG WINTER OLYMPICS. AN INVESTMENT WAS INDUCED FROM TERRA MATER, A GLOBAL DISTRIBUTOR, AND “WILD KOREA”, A KOREAN WILDLIFE DOCUMENTARY, WAS BROADCAST FOR THE FIRST TIME BY THE BBC. MORE THAN 50% OF THE IP RIGHT OF THE PROGRAM IS OWNED BY CJ E&M, AND IT WAS THE FIRST CASE OF A KOREAN PROGRAM BEING BROADCAST BY THE BBC. IN EFFECT, IT IS A MODEL CASE THAT HAS CONTRIBUTED TO IMPROVING THE TECHNICAL COMPETITIVENESS OF THE MEDIA SECTOR THROUGH TECHNICAL COLLABORATION WITH UHD EXPERTS AND TO GENERATING STEADY PROFITS. ANOTHER SIGNIFICANT ACHIEVEMENT WAS THE ANNOUNCEMENT OF THE EXCELLENT CONTENT PRODUCTION CAPABILITIES OF KOREAN COMPANIES TO RENOWNED INTERNATIONAL BROADCASTERS AND MEDIA-RELATED COMPANIES, WHICH MEANS THAT THE PRODUCTION OF NEW CONTENTS IN COLLABORATION WITH OVERSEAS BROADCASTERS CAN BE EXPECTED IN THE FUTURE.



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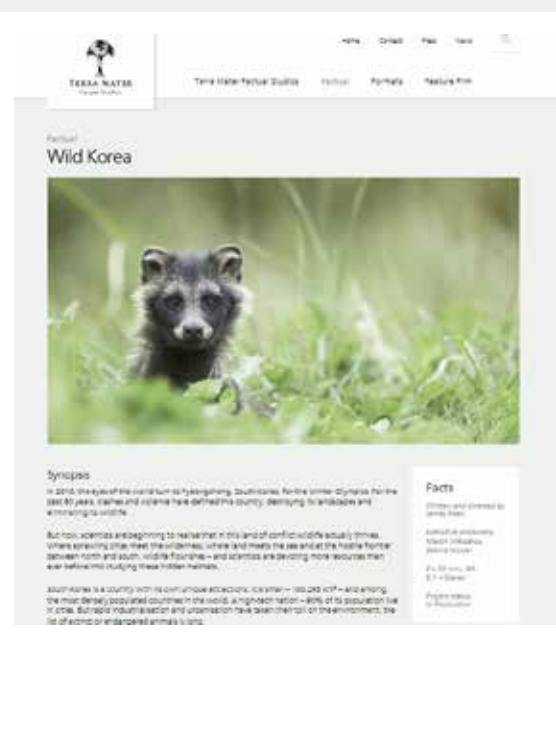
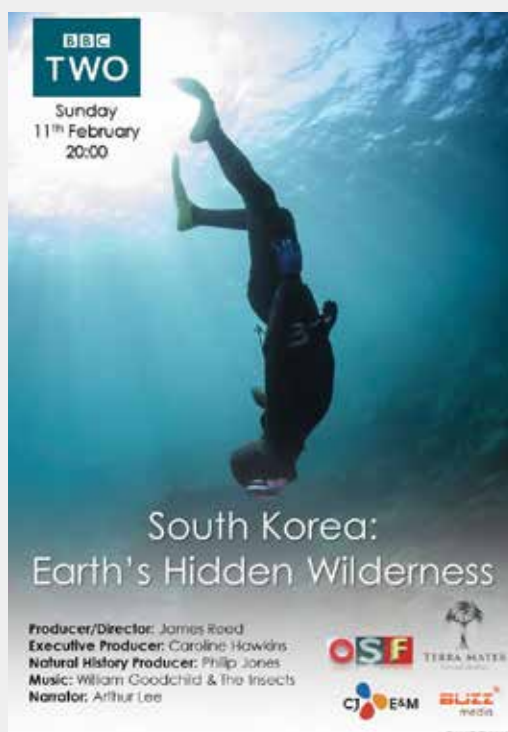
Global co-production and networking know-how of Factual Studio

CJ E&M was able to participate in co-productions with international major broadcasters through business matching at the 2016 Global UHD Network Day, which was hosted by the Korea Radio Promotion Association. The Global UHD Network Day is an event that drives the promotion of exchanges of UHD broadcasting contents through networking - such as pitching by local producers, business meetings, and welcome banquets - by inviting international major broadcasters that can co-produce or sell actual UHD contents. Korea is the only country to produce broadcast contents uniquely through government support, so that international broadcasters are interested in this area preferably. This is because the required expertise can be certified, and stable

production expenses can be secured with a government grant, as the support companies are selected by government agencies.

Advanced production system made by the best experts in each field and collaborative work with global distributors

The Factual Studio of CJ E&M owns networking production know-how. It is an advanced production system where the best experts in each field participate in production through co-production. The content planning was led by PD Lee, Jee-yoon, who had long years of experience in local public TV networks; and a measure of how to develop the IP in linkage with the overseas broadcasting infrastructure was established



from the beginning of the planning. Lee applied the unique CJ factual to plan the contents so that young viewers would be more likely to watch, rather than following the broadcasting programming format generally aimed at older viewers. The shooting technique was grafted by broadcasting techniques of the UK, and the final computer graphic work was performed in Korea with a production team consisting of the best experts in each field. In particular, it collaborated with TERRA MATER, a renowned global distributor, on sales activities around the world in addition to production during the content planning stage in order to maximize performance by prior planning for pre-sale and distribution later.

Synergy effect of inter-advertisement utilizing the Pyeong Chang Winter Olympic Games

Generally, a lot of attention is paid to the countries that host major international events such as the Olympic Games. In particular, overseas interest in Asian foods and cultures is currently very high. At the time of the 2018 PyeongChang Winter Olympic Games, when interest in Korea was naturally at a peak, a new type of documentary was unveiled on the theme of “the boundary of recovery between urban and natural environments in Korea”. Global interest in Korea was heightened by this documentary, which also helped to advertise the PyeongChang Winter Olympics.



Success Point

CJ E&M has timely planning capability. It created a synergy effect interactively through the advertisement of the Olympic Games and a documentary, introducing Korean cultures at a time when Korea was the subject of global interest and attention due to the 2018 PyeongChang Winter Olympics. The company cherishes employees as its core competence, so that many experts with proper capabilities in each field are arranged in the company.

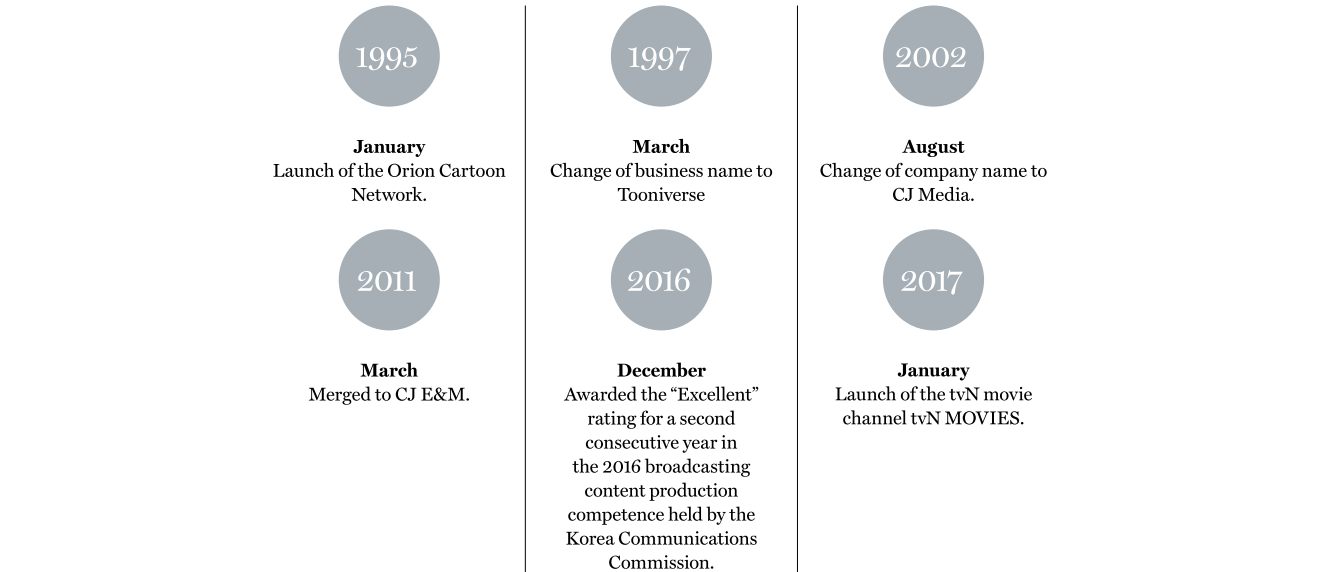
It has the system by which production team consisting of the best experts in the following fields: planning, shooting, CG, and distribution can work with lightning speed. In addition, it has made efforts to construct a network focusing on new documentary formats that depart from existing documentary formats. Generally, the main viewers of documentaries are older people, but CJ E&M produced a program that even young viewers are likely to watch by applying its own “factual” technique. As the BBC became the first window for the program, the company made a concerted effort to improve the content quality, recognizing the increased viewer's attention and value assessment.

It has also increased sales by developing a sales system called pre-sale and post distribution around the world in collaboration with global distributors. Thanks to the government grant for ICT, CJ E&M was able to meet the demand for UHD contents and contribute to boosting UHD content both quantitatively and qualitatively. As a result, CJ E&M has contributed to ensuring Korea’s competitiveness at a time when it could have collapsed due to the indiscriminate inflow of UHD contents from overseas.

Company Introduction

CJ E&M, as Korea’s No. 1 content company opening new horizons for global pop cultures,” is a major Asian total content company that is leading the trend through various media contents and platform services. Under its business philosophy of “Only One Spirit,” CJ E&M pursues the “The First”, “The Best” and “Differentiation”. Its major business areas include various contents businesses related to the global pop culture, including media contents, movies, music, conventions, performance, animation, and media solutions, etc.

TIMELINE



COMPANY OVERVIEW

CEO HEO, MIN-HEOI TYPE OF BUSINESS CABLE BROADCASTER(PP) ESTABLISHMENT SEPTEMBER 15, 2010
WEBSITE www.cjenm.com/index_en.html

Korea's hologram technology captivates China!



Holotive Global Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : Korea Radio Promotion Association
- Project : Support for entry into strategic overseas markets

Key achievements

- Proposal of a new performance format combining dome video, hologram, and performance.
- Global project to create branded performances and establish platformed performance halls.
- RS project in a partnership departing from conventional sub-contracting.
- Co-production of new cultural content formats by Korea and China.
- Expression of Chinese traditional culture through state-of-the art technology in Korea.

THE COMPANY DEVELOPED A 360° DOME CINEMA IN COMBINATION WITH HOLOGRAM TECHNOLOGY AS PART OF A CO-INVESTMENT PROJECT WITH GUANGZHOU WYAN CULTURE & MEDIA Co., LTD. IN CHINA AND PRODUCED AND PERFORMED “CHEONWOEL JEON GI” ON A REGULAR BASIS. EQUIPPED WITH KOREA'S ADVANCED TECHNICAL SKILLS, THE COMPANY IS PREPARING FOR OVERSEAS ENTRY INTO MANY CITIES IN CHINA AND THE MIDDLE EAST.



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Korea's hologram technology captivates China!

Holotive Global had an opportunity to combine its entertainment and advertising businesses, which it conducted separately, through the ICT support project. It used its hologram and mapping technologies to create new videos and media, while presenting Korea's advanced technologies in collaboration with traditional cultural theater troupes in China. It also had an opportunity to provide diverse and high-quality cultural contents from China. The technology has provided a foothold for companies to focus on technical development and content production along with regular profit generation by utilizing the technology not only for cultural contents, such as drama, but also as an outdoor advertising platform for companies. Having produced a new form of performance in combination

with dome cinema, hologram, live performance, and real-time interactivity, Holotive Global is now scheduled to expand the global platform by platforming the performance stage itself and by producing performances with various themes and stories in addition to “CheonWoel Jeon Gi”.

Research and development via projects utilizing traditional cultures

Since China's explosive economic growth, a variety of service industries have been developing steadily and many businesses utilizing various new media have emerged. However, China lacks a full understanding of cultural content production compared to Korea, and work efficiency in China is low as Chinese people work by rule of thumb. Thus, persuasion and



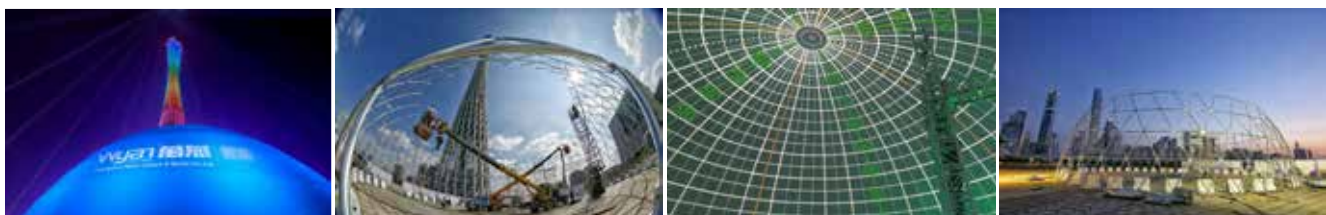


patient efforts are needed before they will be able to lead the production as much as possible. In addition, greater understanding of the so-called “slow culture” of China and constant communication are needed. As the Chinese market places emphasis on their cultural tradition, it is important to research and develop projects that exploit their traditional cultures.

The government grant for ICT that serves as a bridge to the Chinese market

Due to the characteristics of small and medium-size enterprises (SMEs) that produce cultural contents, the

generation of steady profits by completing the RS project, which diverged from the existing concept of one-off subcontracting work, was quite successful. In addition, high-quality contents could be produced consistently by re-investing the profits into various content productions. By contracting reliable partnerships with specialized cultural content companies in China, various projects requiring ideas and Korean technologies could be undertaken inside China, and a bridgehead for entry to the Chinese market based on such references could be secured.



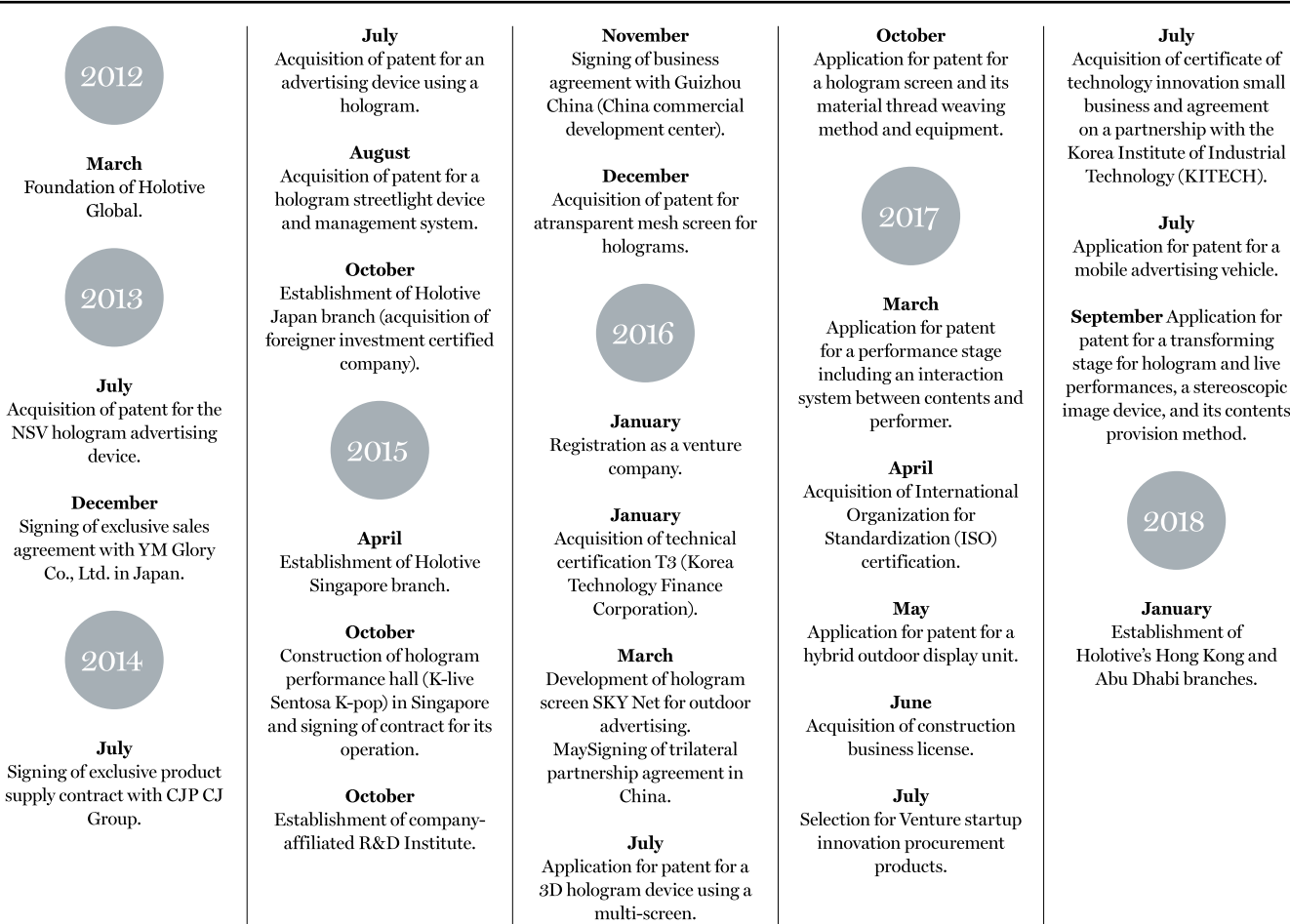
Success Point

As mutual understanding between China’s slow (“man man di”) culture and Korea’s quick (“balibali”) culture was needed due to their inherently opposing natures, steady communication was attempted by Holotive Global to resolve the difference. From Korea’s viewpoint, production schedules were drawn up with a comfortable margin, and budgets, including stay expenses and reserve funds, were sufficiently operated so that a global project could be successfully completed.

Company Introduction

Holotive Global, a dedicated total platform hologram company, aims to add new levels of enjoyment to communication between human beings. It possesses a new hologram fusion technology and related products, and provides specialized hardware and solution contents for holograms based on its in-house R&D. It has pioneered the hologram video advertising business, and is moving beyond the local market to the global market, based on its R&D technical skills and content production competitiveness.

TIMELINE



COMPANY OVERVIEW

CEO KANG, IN-CHUL TYPE OF BUSINESS SERVICE, MANUFACTURING, AND CONSTRUCTION BUSINESS ESTABLISHMENT MARCH 2012
WEBSITE holotive.co.kr

Smart factory platform designed to increase production efficiency



ulalaLAB Inc.

Broadcasting and Communications Development Fund

- Support organization : National IT Industry Promotion Agency
- Project : Strengthening the capabilities of smart content development

Key achievements

- Built WimFactory at Adidas manufacturing factories in China and Vietnam: First POC conducted after a discussion about test line construction at a meeting with Adidas shoes manufacturing factory staff in 2017.
- Built WimFactory at Nike shoes manufacturing factories in Indonesia: WimFactory construction started in earnest in 2017 after completing the platform test with the first POC in 2016 (total production line is expected to be complete, \$0.88 million)
- Signed a contract for a smart factory solution co-project with Atlas Copco Korea and co-launched the smart fastening solution "WICON A".
- Signed a contract for overseas export of WimFactory with Cefinity, a global company.
- Acquired eight technical patents for a power (battery) performance control management system for IoT terminals, wireless WICON terminals, systems, specific sensors, and data exchange systems, a control and management platform through IoT module terminal of detachable type, a smart factory system based on the automatic collection of machine operation information, and sensor controller and sensor assembly.

“WICON” OF ULALALAB WILL HELP TO ACHIEVE THE SMART FACTORY FASTER IN THE NEW ERA OF THE FOURTH INDUSTRIAL REVOLUTION. WIMFACTORY WAS DEVELOPED TO PREVENT THE MANIPULATION OF COLLECTED DATA BY INTER-WORKING WITH CLOUD, AS WELL AS PREDICTING DEFECTS THAT MAY OCCUR IN THE NEAR FUTURE.



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Exclusive “smart factory” of ulalaLAB that moves beyond factory automation

The term “smart factory” refers to a system that collects and analyzes data beyond simple factory automation. If the smart factory is combined with the AI-based industrial data cloud, the current circumstances inside a factory can be grasped not only from the factory itself but from anywhere else in the world via the Internet.

The factory circumstances can be observed without having to stay and manage the factory, and data can be managed and alarms set remotely. Since an alarm can be set to go off whenever factory performance deviates from certain threshold data, it can respond to machinery defects in real time. Defects are recognized by analyzing machinery operation patterns, and prediction and correction services

are also provided to notify the user about 30 minutes before an actual defect occurs.

Potential demand identified!

ulalaLAB started from the market that did not know the concept of the “smart factory”, which was the basis for “WICON A”. It actually provided training for its staff as well people who did not fully understand the concept of the smart factory.

Even if many people were not even aware of the conceptual terms, that did not mean that factories did not want the features of “WICON A”. The features were needed and would be preferred, but they were functions whose concept was difficult to implement. ulalaLAB pioneered the market by



developing a product that had not yet been defined, although all factories needed to live up to the company's name.

“WICON”, a platform concept loved by many!

The WimFactory platform designed for the Fourth Industrial Revolution is characterized by quick and easy installation. Previously, a long-term project was needed to replace a machine installed with smart factory-enabled software. Due to the prohibitive cost, SMEs as well as large conglomerates had to bear a significant burden. However, ulalaLAB resolved this problem by attaching wireless IoT to existing processing lines, and in so doing, it was able to deliver not only convenient installation but also very low cost, thus earning widespread appreciation.



The name “Ulala!” was inspired by the French exclamation “Ooh la-la!” to reflect the idea of surprise in the face of a great technology like WICON!



Success Point

ulalaLAB devised and presented a methodology to assist SMEs in making decisions related to production efficiency, rational operation, and competitiveness rather than focusing on automated system integration, and also provided a smart factory platform based on data collection and analysis without changes in existing facilities and processes. ulalaLAB enabled the quick and easy installation of the smart factory. Its strength lies in the monitoring system which can check data in real time. It configured the user-friendly platform in such a way that users can employ it without the need for additional training or instruction.

Company Introduction

ulalaLAB is an IoT research-oriented company that provides WimFactory, a cloud and machine learning-based smart factory IoT platform for the analysis of industrial data based on the industrial IoT device WICON, which was also developed by ulalaLAB.

TIMELINE

2011

August
Foundation of ulalaLAB Corporation.

2015

March
Recipient of the "Top 10" prize at the K Champ Venture Startup Contest hosted by KT.

June
Recipient of the Grand prize at the Fail Conference Pitching of Dankook University.

December
Selected as a "Grand Prize Company" for investment in Zhangzhou Bohai New District in China.

2016

May
Signed an MOU with Micro Sensor, a sensor development company in China, for a joint project to build a smart factory in China.

August
Signed an MOU with Atlas Copco Korea for a joint project for a smart factory.

September
Winner of the Prime Minister's Prize in the excellent enterprise sector of creative economy at the National Productivity Awards.

November
Venture company association president prize awarded in Creative Economy Start-up Award.

November
Recipient of the Grand Prize in the ITU Global SME category.

November
Opening of the WimFactory project information session.

November
Investment attraction (\$0.35 million from KAIST and KOSIGN private cooperative, \$0.44 million from TIPS).

2017

March
Launch of Korea smart factory supply project and registration as an execution company.

May
Firstmass production of WICON completed and received in Korea.

July
Partners discovery in Beijing China and opening of office.

August
Signing of an MOU with Penta Security Systems for strengthening data security in smart factories.

September
Signing of a business agreement with BMT for aelectricitysmart factory.

November
Signing of a third business agreement with Alibaba cloud and Kevins for market expansion of cloud-based smart factory.

November
ulalaLAB attracted JW asset's investment \$0.44 million)

November
Signing of technical cooperation partnership with Ajman University Innovation Center in the UAE.

November
Conclusion of partnership agreement for distribution in the Middle East with Mohammed Al Fardan Group.

November
Cooperative agreement on smart factory for entering the European market with Swiss Smart Factory & Switzerland Innovation Park Biel/Bienne.

November
Signing of joint development contract for a smart farm with NongMok Yu Pin in China.

December
Signing of a smart factory solution joint project contract with Atlas Copco Korea and joint launch of the smart fastening solution WICON A.

2018

March
Signing of exclusive distribution partnership in Malaysia with Kaize (Cosmiqo) of Singapore.

COMPANY OVERVIEW

CEO KANG, HAK-JU TYPE OF BUSINESS SOFTWARE DEVELOPMENT ESTABLISHMENT AUGUST 09, 2011
WEBSITE www.ulalalab.com

Leading the MR contents market beyond AR/VR



VIZinf Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : Korea Radio Promotion Association
- Project : Support for the co-growth of digital contents

Key achievements

- Korea Institute of Nuclear Nonproliferation and Control (KINAC): Development of an operating system for a VR content training program using FTX Oculus.
- Exhibition of human body, car, bike, and dinosaur-related contents: These contents are expected to be exhibited in the Science and Technology Training Institute for gifted children from middle and high schools, Gwacheon National Science Museum, Seodaemun Museum of Natural History, Seoul Museum of Science, and Seoul Museum of History.

SELECTED FOR THE DIGITAL CONTENT CO-GROWTH SUPPORT (RAPA) PROJECT, VIZINF Co., LTD HAS DEVELOPED A FIELD TRAINING EXERCISE (FTX) CONTENT BASED ON A SPACE EXPERIENCE VR TECHNOLOGY TO DEFEND NUCLEAR FACILITIES FROM EXTERNAL PHYSICAL ATTACKS TOGETHER WITH KINAC. THE COMPANY IS CURRENTLY DEVELOPING A MIXED REALITY (MR) CONTENT TECHNOLOGY BEYOND AR AND VR.



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VR as a solution for real field training

VIZINF has also developed a simulation content to cope with assumed external attacks by terrorists or by ramming a vehicle into nuclear facilities. Jointly developed with KINAC, it is an FTX content combined with VR technology to defend nuclear facilities from external physical attacks. An instructor wears a head-mount display (HMD) indoors for defense and control, and the training results can be searched and visualized.



MR beyond AR and VR

CEO Park, Sang-hoon, a major in computer engineering, aims to combine real-time videos with the development of highly interested VR content technology, in computer graphics, VR/AR, and information visualization even up to MR.

The company has developed core MR application technologies, such as user interaction and spatial scanning using a Holo Lens; simulation contents, such as drone, human body exploration, 3D drawing, dinosaurs, and auto mobiles; and is currently making efforts to become a leader in the MR content market, which is expected to grow exponentially in the near future.

Currently, the company's MR contents are scheduled for exhibition in museums and science museums, and the company is planning to develop a business network and participate in global exhibitions with the aim of exporting its products as global overseas contents.



Success Point

Despite many trials and errors, VIZinf is pursuing continuous growth and is now approaching the stabilization phase.

“We were able to launch a startup company at university along with some students through the government grant for ICT. Now, we are planning to create a social learning space where students can experience working at a company and to foster ICT professionals in conjunction with the university system.”

CEO Park has created various education contents utilizing MR and now offers training in AR, VR, and MR at the Science Training Institute of Dongguk University. VIZinf is developing various contents utilizing MR, and improving its experience and capabilities in a variety of fields including commerce, education, and art.

Company Introduction

VIZinf, which was founded once the “VR-LAB” had been well established after starting from VR R&D production, is dedicated to creating a new future by fusing reality and the virtual world through creative ideas. It provides MR, AR, VR, CG, visualization technology-based realistic interactive content production and creative multimedia application software development services.



TIMELINE

2016	2017	2018
<p>April VR-LAB support project of K-ICT digital content in open-type campus (first year).</p> <p>December Foundation of VIZinf Co., Ltd.</p>	<p>January VR-LAB support project of K-ICT digital content in open-type campus (second year).</p> <p>November Participation in the software-centered university exhibition (KINTEX).</p> <p>November Participation in the 2017 Korea Tech Show (COEX).</p> <p>December KCA President Prize awarded as distinguished 2017 fund policy (the government grant for ICT of the Ministry of Science and ICT).</p>	<p>January VR-LAB support project of K-ICT digital content in open-type campus (third year).</p>

COMPANY OVERVIEW

CEO PARK, SANG-HUN TYPE OF BUSINESS VR CONTENT DEVELOPMENT ESTABLISHMENT DECEMBER 2016
WEBSITE www.vizinf.com

From book recommendation to delivery, identifying consumers' hidden needs



Flybook

Broadcasting and Communications Development Fund

- Support organization : Korea Communications Agency
- Project : Promotion of broadcasting and communication convergence services

Key achievements

- Development of Flybook, a mobile book recommendation service.
- Expansion of the project model to a digital signage service called “Flybook Screen” via a mobile app.
- Commercialization completed at Banpo Library in Seocho-gu.
- Adoption of Flybook discussed with the Con Kyobo Book Center, Busan City Library, and Seongnam City Library.

FLYBOOK HAS DEVELOPED A MOBILE BOOK RECOMMENDATION SERVICE CALLED “FLYBOOK” APP, IN WHICH THE EXISTING MOBILE APP WAS EXPANDED TO A DIGITAL SIGNAGE SERVICE CALLED “FLYBOOK BOOK SCREEN” THROUGH THE SUPPORT PROJECT OF BROADCASTING AND COMMUNICATION FUSION SERVICE PROMOTION IN THE GOVERNMENT GRANT FOR ICT. THE EXISTING BOOK RECOMMENDATION SERVICES OF BOOKSTORES WERE BASED ON REVIEWS BY READERS. FOR EXAMPLE, IF CONSUMERS TEND TO READ LOTS OF SELF-DEVELOPMENT BOOKS AND LEAVE REVIEWS ON THEM, STEADY SELLING BOOKS OR NEW BOOKS IN THE FIELD OF SELF-DEVELOPMENT ARE RECOMMENDED TO THOSE CONSUMERS, OR, IF CONSUMERS BUY AND LEAVE REVIEWS ON MARKETING BOOKS, STEADY SELLING BOOKS OR NEW BOOKS IN THAT PARTICULAR FIELD ARE RECOMMENDED. HOWEVER, FLYBOOK'S RECOMMENDATION SYSTEM IS DIFFERENT IN THAT IT IDENTIFIES CONSUMERS' PREFERENCES, SUCH AS CURRENT CONCERNS, DATING STATUS, GENDER, OR AGE, THROUGH SURVEYS AND RECOMMENDS BOOKS BASED ON THEIR PERSONAL FEATURES TO ENCOURAGE CONSUMERS WHO ARE NOT INTERESTED IN BOOKS TO TAKE UP AND ENJOY READING. FLYBOOK HAS MADE A PROFIT BY IDENTIFYING HIDDEN NEEDS AMONG CONSUMERS.



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Bring books and people closer together!

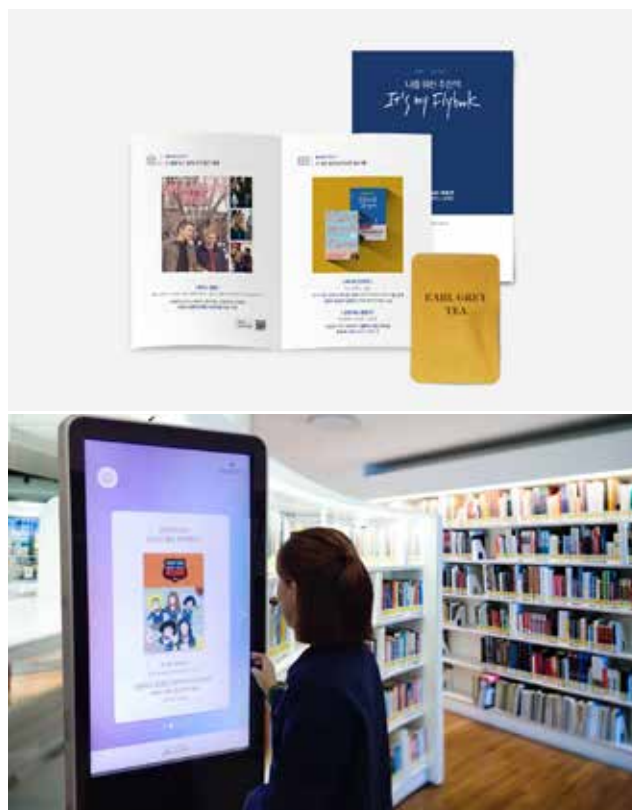
It is estimated that seven out of ten adults in Korea read at least one general book per year currently. Thus, Flybook was founded to encourage people to read more books in a society whose members read few books. Although Flybook started out with the good intention of contributing to society, starting up was not easy. The response of consumers to Flybook was indifferent initially, although the founder of Flybook, who recommends personalized tailored books according to each consumer's age, gender, and occupation, had quit his well-paid job. He could not foresee the difficult task of advertising and marketing, given that apps for general consumers can be found at every online store. During the initial struggle to launch the company, some consumers who downloaded the app and received book



recommendations made the following inquiries: “Can I loan the recommended book?” or “Can you deliver the book to me?” Then, the company started a “book delivery” system, and consumers started to appreciate the service which facilitated the purchase and delivery of recommended books, beyond mere recommendations of personalized tailored books.

Flybook has been extended to digital signage through the government grant for ICT

The expansion of Flybook into a digital signage service was not easy even if the idea and the actual product were excellent. The main reason for this was a lack of capital and trust from others as it was a startup business. However, Flybook was able to overcome this difficulty through the government grant for ICT. With the support of government funds and reliability, the company completed the commercialization of its digital signage service by combining “Flybook” with the Banpo Library in Seocho-gu. Now, the company is scheduled to introduce the digital signage service to libraries and general bookstores and aims to install the service in all national libraries.



Success Point

The success points of this project are as follows: First, it began by recommending personalized books only, rather than bestselling or steady selling books, simply by identifying the hidden needs of consumers. Second, books were recommended after seeking the advice of book-reading experts or publishers at its early stage. Third, recommendations were based on the questions and answers of consumers, and a database with more than 20,000 reviews was made so that recommendations could be made based on each consumer's age, occupation, and personal circumstances. Fourth, communication with consumers was unparalleled. Flybook opened an exclusive communication space only for readers in Facebook, and operated a "silent reading party" for offline communication where readers could read their preferred books in the same place.

Company Introduction

Flybook developed a book recommendation app based on a rather contrarian idea. Despite the massive popularity of smartphones, and the decline in printed books, the company developed a book recommendation app that went against the trend and created a new demand.

It has earned steady profits in Korea through its "personalized tailored book recommendation and delivery" app.



TIMELINE

<div>2013</div> <div>September Foundation of Flybook.</div>	<div>2014</div> <div>August Certification as a venture company.</div> <div>October Launch of the Mobile service "Flybook".</div> <div>November Winner of the "Excellence" award in the Government 3.0 Public Data Use competition.</div>	<div>2015</div> <div>June Winner of the Grand Prize at the Korea SNS Awards.</div> <div>October Launch of the book subscription service "Flybook Plus".</div> <div>November Primer investment attraction.</div>	<div>2017</div> <div>December Winner of the Grand Prize at the Smart Media Awards.</div>
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COMPANY OVERVIEW

CEO KIM, JUN-HYUN TYPE OF BUSINESS SERVICE ESTABLISHMENT SEPTEMBER 2013
WEBSITE www.flybook.kr

Our cultural heritages become more fun and easier with digital art



Brand Architects

Broadcasting and Communications Development Fund

- Support organization : Korea Radio Promotion Association
- Project : Support for the development of market-creation type realistic contents

Key achievements

- A total of 70,000 people visited the exhibition.
- Discovery of commercial success potentials of digital art exhibition utilizing the artworks of Korean traditional culture.
- Providing opportunities to access Korean cultural heritages in a fun, easy manner through digital art exhibition and having visitors take pride in Korean Heritages.

BRAND ARCHITECTS OPENED AN EXHIBITION CALLED “DRAW THE WIND (SHIN YUN-BOK AND JEONGSEON)” FEATURING BOTH ORIGINAL ARTWORKS AND DIGITAL ART IN COOPERATION WITH THE KANSONG ART AND CULTURE FOUNDATION THROUGH THE SUPPORT PROJECT OF MARKET CREATION-TYPE REALISTIC CONTENTS DEVELOPMENT IN THE GOVERNMENT GRANT FOR ICT. OUR CULTURAL HERITAGES THAT MAY BE BORING OR DIFFICULT WERE TRANSFORMED INTO FUN, EASILY ACCESSIBLE DIGITAL ART THROUGH THE EXHIBITION. THE PROJECT COULD NOT BE HELD DUE TO LACK OF FUNDS, BUT THE DIFFICULTY WAS OVERCOME, AND THE EXHIBITION WAS A SUCCESS THANKS TO THE GOVERNMENT GRANT FOR ICT, WHICH BECAME THE STEPPINGSTONE FOR THE COMPANY’S GROWTH.



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Analysis of the need of the organization by field and customers as consumers

Brand Architects planned exhibitions that could target not only people older than their 50s as the existing main targets of Kansong but also people in their 20s and 30s. In visualizing the painting works, stories of the works should be assigned beyond mere simple movements. For example, the actual sword dance by a human cultural asset was motion-captured to give vitality to the visualization of artworks instead of adding simple animations to the painting works. In this process, consultations with the best experts in each area were sought along with integrated and organic cooperation. Through this process, history distortion was minimized thanks to the supervision of professional curators in the interpretation and modernization stories of the heritages.

Success possibility of the digital heritage project

The number of visitors to the “Drawing the Wind” exhibition was approximately 70,000, which proved the possibility of the digital heritage project. It drew positive response from the visitors by pursuing the harmony rather than the simple layout of digital contents. Brand Architects proposed a methodology by analyzing the expected problems when heritages and digital contents were mixed. It also discovered that high-division digital contents could disrupt the beauty of the heritages and overcame the problem through exhibition route planning. As a result, the project was evaluated as excellent in both final assessment contents and services in the realistic content support project by the Korea Radio Promotion Association in 2017.





Exhibition planning by configuring the lab-type group

Digital content experts, marketers, designers, and curators are configured as a lab-type group planning and conducting exhibitions. During the video content configuration, painting works were implemented through technical improvements as well as in-depth learning of the stories after collecting opinions from experts in related fields. In contrast with the existing digital art types that add simple animations or movements only, Brand Architects brings the painting works to life through motion captures with the aid of 3D and CG techniques that were actually used in movie production. In addition, the company visualized the painting works with short drama format to make the daily lives of ancestors realistic and fun through storytelling.



Best outcome planned against all odds

The communication between digital content producers and artists was not easy. The artists emphasized the depth and meaning of the artworks, which did not match public preference, whereas the digital content producers lacked the depth in cultural art as they were more technical-oriented. Brand Architects had no benchmarking cases due to the lack of existing cases of large-scale exhibitions of cultural heritages and digital contents. To overcome this, the company conducted exhibition planning with high technical understanding and cultural depth as it understood the characteristics of two different business parties: digital content producers and artists. In addition, it planned various secondary contents in parallel to raise the level of the final deliverables in addition to three digital contents proposed at the time of request for government task selection. It has made efforts to produce excellent deliverables through additional activities aside from the tasks planned at the time of project selection such as design and marketing.

Success Point

As for the success points of this project, first, it was based on constant communication and persuasion. Art galleries and art society preferred conservative exhibition, concerned that the media art planning exhibitions lacked artwork depth and meanings. Note, however, that Brand Architects persuaded them to make the exhibitions match the public level for the success of the exhibition. Second, it was based on networking. The project was a success because the company had reliable internal and external networks. Third, it was based on capital. Despite the fact that the capital was not sufficient, the project could be completed successfully thanks to the government grant for ICT.

Company Introduction

Brand Architects is a company designing integrated brand experiences with top local content planners, designers, artists, and marketers as members. It conducts ceaseless research to make emotional and special brand experiences that leave a spiritual trace. The main business sectors are integrated brand consulting, brand experience (space design, art cultural project consulting, exhibition and theme park planning & design digital content planning, and movie/video/music/digital content licensing.

TIMELINE

<div>2016</div> <div>April Brand consulting of Incheon International Airport Terminal 2 (Samil PricewaterhouseCoopers).</div> <div>April Robot VR project in the Pyeong Chang Winter Olympics (selected as support project by the Korea Creative Content Agency).</div> <div>November Digital interactive “Magic Forest” exhibited and hosted (for six months).</div>	<div>December Agency for music licensing contract of the 2017 audio product demo songs for Samsung Electronics.</div> <div>2017</div> <div>February Overall planning of photo exhibition in New York for photographer Young Gil Kang (Tenri Gallery in New York).</div> <div>April “Kansong realistic media exhibition” (selected as support project by the Ministry of Science and Technology).</div> <div>May Overall planning of Corning MasterPix X Photographer Young Gil Kang’s photo exhibition (Gallery Well).</div>	<div>October CorningMasterPix frame design.</div> <div>November The “Draw the Wind (Shin Yun-bok and JeongSeon)” exhibition opened as the project supported by the Ministry of Science and Technology.</div> <div>November Agency for music licensing contract of the 2018 audio product demo songs for Samsung Electronics.</div> <div>December Planning of “Corning MasterPix” exhibition in the Seoul Art Show.</div>	<div>December Agency for licensing contract of Fox Movie for the 2018 display for LG Electronics.</div> <div>2018</div> <div>March Planning and development of music distribution service platform “MUSESTOCK.”</div> <div>April Brand consulting of “Fandom Entertainment” Korea-China entertainment enterprise.</div> <div>July SKT flagship store service design consulting.</div>
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COMPANY OVERVIEW

CEO LIM, JOON-YOUNG TYPE OF BUSINESS BRAND CONSULTING AND DIGITAL CONTENT DATE ESTABLISHMENT APRIL 01, 2016
WEBSITE www.brandarchitects.co.kr

The cultural art ecosystem is created with broadcasting contents that communicate with viewers



Jangyee Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : Korea Communications Agency
- Project : Support for the production of interactive programs

Key achievements

- It pioneered the overseas market-related broadcasting contents through the team contest quiz show “the Rival” and “Dudream Science-Vietnam” content production and sales.
- Signed a co-project contract on broadcasting format with DienQuan* M&E, one of the three largest products in Vietnam whose revenue is expected to reach.
- Network creation based on broadcasting contents and social contribution campaigns and job creation.

JANGYEE HAS PRODUCED RECORDED VIDEO CONTENTS OF KOREAN TRADITIONAL INTANGIBLE CULTURAL PROPERTIES AND INTANGIBLE CULTURAL PROPERTIES DESIGNATED BY THE UNESCO AND DEVELOPED AND SUPPORTED RELATED PRODUCTS. IT HAS BEEN COMMITTED TO THE PROMOTION OF BROADCASTING CULTURAL CONTENTS IN MANY WAYS. IN AUGUST 2017, IT CO-PRODUCED WITH VIETNAM NTV AND BROADCAST THE QUIZ SHOW CALLED “THE RIVAL” WHEREIN VIETNAMESE STUDENTS WHO STUDIED IN KOREA PARTICIPATED. IT HAS SIGNED A CO-PRODUCTION CONTRACT FOR FIVE BROADCAST FORMATS INCLUDING THE QUIZ SHOW “THE RIVAL” WITH DIENQUAN* M&E, ONE OF THE THREE LARGEST PRODUCERS IN VIETNAM. CURRENTLY, THE INTERACTIVE PROGRAM CO-PRODUCED BY THE TWO COMPANIES IS BROADCAST THROUGHOUT VIETNAM, AND BROADCAST FORMATS AND TECHNOLOGIES WILL BE SHARED CONSTANTLY IN THE FUTURE AS WELL.



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It produces and develops novel and various broadcast programs based on several years' experience of outsourcing producers of broadcasters

Jangyee believes that the most important thing in a broadcasting program is not the technical part but to have passion and eagerness to produce a better program at all times. The Good Insight from the Korean Broadcasting System (KBS) is the viewer's communication program that is the fruit of passion and eagerness. The efforts to produce a high-quality, high-level current affairs program for viewers and their achievements resulted in the production and development of the quiz show “the Rival.” Thus, Jangyee is still planning and deciding new broadcast programs based on various media and experiences of conference or overseas broadcast programs.



Human network creation through value sharing of the community rather than temporary achievements

Currently, most Southeast Asian students who are living in Korea become high-ranking government officials, but when they return to their countries, they do not have a good impression of Korea. Jangyee believed that this was a national loss overall, so it devised a method to let them have a good impression of Korea by making a connecting link with them. Accordingly, Jangyee focused on forming a cultural community shared by both nations and making a good impression on foreigners through Korean broadcasting programs.

The expectation has been realized. Outstanding achievements have been made in terms of business as the emotion of the Vietnamese people is similar to that of Koreans, and Vietnamese people like to watch broadcasting programs. Currently, an offline meeting called supporter “Irum” has been founded through the program Good Insight in KBS, performing various future-oriented social campaigns and job creation for the youth including “I give you vitamin.”

Entry into the East Asian markets where the participation rate of broadcasting viewers is high

Jangyee plans to expand the business to the Southeast Asian markets including Vietnam. In particular, pioneering the broadcasting program market in Vietnam is promising since Vietnam has a high participation rate of viewers unlike Korea. It has also attempted various quiz shows to make people from Korea and various nations and classes participate in science quiz shows integrating Korean cultures. Currently, the broadcasting programs are expanding very rapidly among the locals through various social networking services (SNSs) including Facebook in addition to broadcasting media.



Success Point

As for the success factors of this project, first, it provided a solution and produced broadcasting contents to facilitate interactive communication with viewers by encouraging them to participate in broadcasting programs. Second, the formation of relationship through various SNSs without limitation on broadcasting media resulted in offline meeting. Based on this network creation, it made efforts to share community values such as creation of an ecosystem where cultural artists can live together and job creation, which led to the project achievement. Third, the possibility of specialized Korean broadcasting contents was proven overseas by identifying the cultures and preferences of foreigners, which were different from those of Koreans.

Company Introduction

Jangyee is a broadcasting and communication business-related company that aims to make humanity and culture flourish through tradition and future by discovering and introducing Korean traditional cultures and intangible cultural assets worldwide. Its major business sectors are the development of broadcasting programs and services for viewers, support for traditional and new artists’ discovery, and development of art products. It developed contents for the promotion of the main stadium in the 2014 Incheon Asian Games. In addition, it plays a role in advertising Korea to the world through new and various attempts in broadcasting and cultural content fields such as development of interactive content for the National Folk Museum of the Korea Children’s Museum, development of viewer services in the Good Insight program in KBS, and opening of Korea-China Global Join Forum.

TIMELINE



COMPANY OVERVIEW

CEO CHOI, CHUL TYPE OF BUSINESS EXECUTION OF BROADCASTING AND COMMUNICATION-RELATED PROJECT PRODUCTION
DATE ESTABLISHED MARCH 29, 2012 WEBSITE supportersirum.modoo.at

SMART HEALTHCARE



Company

Development of ICT convergence sports contents _ **Cloud Gate Co., Ltd.**
Development of human care contents _ **M3 Solutions Co., Ltd.**
Leading company to apply ICT wellness care _ **Medi Plus Solution Co., Ltd.**

DATA SECURITY

SMART DEVICE

Various screen sports enjoyed by men and women of all ages



Cloud Gate Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : Daegu Digital Industry Promotion Agency
- Project : Development of ICT convergence sports contents

Key achievements

- Development of five interactive screen sports contents (soccer, archery, baseball (pitching), baseball (T-betting), and rugby).
- Development of integrated launcher that can select five games in a single booth.
- Shop opened through commercialization (Legend Sports Heroes Gangnam Branch).

CLOUD GATE DEVELOPED THE “LEGEND SPORTS HEROES” CONTENT THROUGH THE “SUPPORT FOR THE DEVELOPMENT OF ICT-FUSED SPORTS CONTENT” PROJECT THE GOVERNMENT GRANT FOR ICT. IT DEVELOPED THE “LEGEND SPORTS HEROES” GANGNAM BRANCH THROUGH THE 2017 DEVELOPMENT DELIVERABLE. THE \$4.39 MILLION INVESTMENT ATTRACTION FROM PONY CANYON WAS SUCCESSFUL, AND TWO BRANCHES IN JAPAN AND EIGHT BRANCHES IN KOREA ARE CURRENTLY OPERATING. “LEGEND SPORTS HEROES” IS AN INDOOR SPORTS THEME PARK WHERE EVERYBODY REGARDLESS OF AGE AND GENDER CAN ENJOY BY COMBINING VARIOUS SPORTS EVENTS (BASEBALL, SOCCER, ARCHERY, AND SHOOTING) AND PLAY.



Oh, David
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Screen sports and diversity are combined

The industrial scale of the current screen sports in Korea is pegged at \$2.19 billion, exhibiting a steady growth trend. Note, however, that the screen sports market in Korea concentrates too much on golf and baseball, and other sports events are not available.

Aside from golf, baseball is also growing in the screen sports. Considering such trend, Cloud Gate developed an indoor sports theme park where various sports events can be enjoyed in addition to baseball.

Previously, limited sports events such as golf and baseball were enjoyed by users; now, however, everyone can enjoy various sports events through screen sports theme parks developed by Cloud Gate. Cloud Gate has been positioned as the leader in the screen sports market with “Legend Sports

Heroes” following the existing screen baseball playground “Legend Baseball Zone.”

Advanced technology and unique content

Cloud Gate developed a simulation system that enabled realistic and detailed game operation based on precise system control and accurate reading data by the software. This system can implement various sports including soccer, rugby, pitching, archery, and T-batting in a single platform. In addition, it has the advantage of scalability, i.e., can add a sports event gradually. Cloud Gate implemented active and sophisticated realistic animations by utilizing the motion capture data of real users. It also developed a system that could customize characters to match each user's ethnicity and



nationality. It implemented the realistic AI of players based on real-time reading data so that users could enjoy the game more dynamically. In addition, it increased convenience through system development wherein simple control could be done through the kiosk. Furthermore, it devised how to read information about motion angle and speed of sports equipment used by users in real time and applies them to the simulation. It developed “infrared optical technology,” “tracing and reading technology of moving objects,” and “3D depth computation technology of mobile objects” utilizing a Lidar sensor that tracks balls, arrows, and bullets as well as vision sensors that read a contact position on the screen and strength accurately and applied these highly advanced technologies to the system so that users can experience entirely different contents from the existing ones.

Ensuring space efficiency via the technology and various contents

Since “Legend Sports Heroes” provided various contents, it secured more customers than the existing screen sports had; at the same time, it captivated the hearts of “investors” with its space efficiency. Cloud Gate utilized and advanced technologies such as motion capture, vision sensor, and Lidar sensor -- which were limitedly used in baseball only -- and developed a sports theme park where various sports events could be enjoyed in a

single platform. The existing interactive sports contents had limitations in terms of installation space such as column layout and ceiling height, which made prospective investors reluctant to invest considering such environmental constraint. Note, however, that Cloud Gate overcame the environmental constraint as it developed various contents and changed sports events according to the running environment in the installation. It also ensured convenience of use for consumers through the kiosk and expanded the scalability to other sports events through the AR and VR versions within the existing facility.

Contribution to cost-effectiveness and quality of life of citizens

Cloud Gate provides an opportunity for modern people who avoid outdoor activities due to environmental pollution such as radioactivity and fine dust to spend more time on physical activities as well as exercise opportunity by combining digital culture for modern people who lack exercise due to the harmful effect of digital culture. Possible results include the reduction in various social costs, which include not only the reduction in social costs of medical expense, incidental expense, and loss of future income and productivity but also the reduction in social conflict cost due to the strengthened communication with neighbors and stress resolution by exercising.



Success Point

The rapid identification of market movement and quick response to the market movement have become the springboard for the growth of Cloud Gate. It could employ many talented workers through the government grant for ICT, and it held excellent manpower naturally; thus having the strength to prepare various contents ceaselessly beyond the “Legend Baseball Zone.” Due to the synergy effect within the company, “Legend Sports Heroes” could be invented, and Legend Sports Heroes with various contents had the strength to enter the overseas markets. Since Cloud Gate can provide customized contents by nation considering the different preferences in sports, its future growth potential is very bright as it has already positioned itself as one of the strong global SMEs.

Company Introduction

Cloud Gate was founded with the goal of growth as a company that developed and operated interactive sports systems based on superior technical skills. It has expanded its business into various business sectors by pioneering new business combined with sports based on IT. Currently, the main brands are “Legend Baseball Zone,” a screen baseball brand, and “Legend Sports Heroes” as an indoor sports theme park brand. The company aims to stand high as the global leader in the micro-theme park business sector utilizing the brands.

TIMELINE

<div>2015</div> <div><div>January</div><div>Interactive game developer Cloud Gate Co., Ltd. founded.</div><div>March</div><div>Development of high-speed vision sensor.</div><div>May</div><div>Trademark application filed for Legend Baseball Zone.</div><div>August</div><div>Completion of development of Legend Baseball Zone beta version.</div></div>	<div>2016</div> <div><div>January</div><div>Three patent applications filed for baseball game system, etc.</div><div>February</div><div>Sincheon Legend Baseball Zone directly managed by HQ opened.</div><div>April</div><div>\$3.95 million investment attraction from three renowned local investors (Bokwang Venture Capital, SJ Investment Partners, Central Investment Partners).</div><div>May</div><div>20th Legend Baseball Zone contract signed.</div><div>August</div><div>30th Legend Baseball Zone contract signed.</div></div>	<div>2017</div> <div><div>August</div><div>Business agreement of Legend Baseball signed with Capcom, a Japanese corporation.</div><div>October</div><div>Legend Baseball Game Land “Chiharadai branch” location test executed.</div><div>January</div><div>\$7.02 million investment attraction from five renowned local investors.</div><div>April</div><div>Won the Innovation Brand award in the “2017 Korea Top Brand Awards” for two consecutive years.</div><div>June</div><div>Legend Sports Heroes Brand launched, Gangnam branch managed directly by HQ opened.</div></div>	<div>2018</div> <div><div>October</div><div>Opened 100th branch of Legend Baseball Zone in Korea, license signed with MLB for screen baseball for the first time in Korea.</div><div>November</div><div>Participated in “IAAPA Expo,” the largest theme park exposition in the world.</div><div>November</div><div>ISO 9001:2015 quality management system acquired.</div><div>November</div><div>Two branches of Legend Sports Heroes opened in Japan.</div><div>December</div><div>Gimpo Airport branch in Lotte Department Store opened.</div><div>December</div><div>Branch in AEON Mall MakuhariShintoshin opened in Japan.</div></div>	<div>2019</div> <div><div>January</div><div>Participated in “CES 2018,” the largest IT exhibition.</div><div>February</div><div>Legend Sports Heroes Noon Square Branch in Myeongdong launched, Busan Seomyeon branch opened.</div><div>March</div><div>Legend Sports Heroes GwangjuSangmu branch and JamsilLotte World branch opened.</div></div>
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COMPANY OVERVIEW

CEO OH, DAVID TYPE OF BUSINESS SERVICE DATE ESTABLISHED JANUARY 06, 2015
WEBSITE www.legendheroes.co.kr/en

Dementia prevented with healthcare technology



M3 Solutions Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : Kyungpook National University Industry-Academic Cooperation Foundation
- Project : Development of human care contents

Key achievements

- Development of Dementia cognition function improvement program “Better Cognition”.
- Patent cognition learning and evaluation system registered in 2017.
- Expansion of smart healthcare services to dementia care centers, university hospitals, and care hospitals.

M3 SOLUTIONS DEVELOPED BETTER COGNITION, A PROGRAM TO IMPROVE THE COGNITION FUNCTIONS OF PATIENTS WITH DEMENTIA FOR THE PREVENTION AND REHABILITATION OF COGNITION DISORDER AND DEMENTIA THROUGH THE SUPPORT PROJECT OF HUMAN CARE CONTENT DEVELOPMENT IN THE GOVERNMENT GRANT FOR ICT. AIMING FOR “HEALTHCARE TECHNOLOGY FOR HUMANS”, M3 SOLUTIONS IS COMMITTED TO THE DEVELOPMENT OF PRODUCTS AND SERVICES THAT HELP IMPROVE THE QUALITY OF LIFE OF CUSTOMERS THROUGH THE FUSION AND APPLICATION OF IT. THE COMPANY EXPANDED THE SERVICES TO DEMENTIA CARE CENTERS, UNIVERSITY HOSPITALS, AND CARE HOSPITALS THROUGH THE SUPPORT PROJECT, AND IT IS ALSO PREPARING FOR OVERSEAS MARKET ENTRY.



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Healthcare technology for all

According to the Korea Health Industry Development Institute, the socioeconomic cost related to dementia in Korea is expected to increase from \$10.27 billion in 2013 to \$37.92 billion in 2050. To cope with this, the company developed a program that improved cognitive functions for patients with dementia for the prevention of the disease, which can afflict anybody in this aging society.

“Actually, one of our employees had a family history of dementia, which was why we founded this company. The employee said he wanted to prevent dementia that may come later in his life, so those with the same thinking quit their jobs and founded the new company. Dementia can afflict anybody”.





Better Cognition, which combines medical expertise and interest

M3 Solutions customized the program by developing contents and programs that enabled cognition learning by 12 cognitive sectors required for the cognition learning of brain activation based on the medical expertise of neurosurgeons. The product model was devised in booklet format at the early stage of the company; at the later stage, however, a program that could be easily accessible and handled conveniently by kiosk, computer, tablet, and smartphone was produced as digital technology was advanced further, and the contents to be implemented had many limitations. It also produced various contents for examinees to perform cognition learning interestingly and applied the game characteristics to the content difficulty level properly to prevent boredom.

The early model of Better Cognition had no game characteristics, the elderly who experienced the early model got bored and lost concentration after 5 to 10 minutes. Thus, contents with game characteristics were developed based on the feedback. Through the improvements, a fun program without boredom that could be enjoyed for 30 min to 1 hour was completed. Better Cognition could check the state of examinees as it provided a function to analyze the dementia correlation through the learning state and score system.

New attempts for “dementia” prevention technologies

The Better Cognition content reflected the artistic and game characteristics to the content development design so that users can perform “brain activation cognition learning for a long time in an interesting way. To do this, the company focused on research to find a measure to increase program use accessibility and convenience for examinees in the clinical test so that it could develop a customized program interface for dementia and cognition rehabilitation. It provides a comprehensive package product such as not only contents but also group and individual educations and home visits.



Success Point

Lee, Sun-woo, the CEO of M3 Solutions, believes that the company should put the value that the company pursues first to become a successful company. While acknowledging the role of the government support in the company's success, he thinks that the company would have failed had the intention of the support project and company's vision not been matched. "Each company should know what it is pursuing and check whether the intention of the government support project is suitable for it. I think companies would not survive if they receive the support to sustain their business for one or two years only."

Company Introduction

M3 Solutions Co., Ltd. is a venture company established in August 2015. The company aims for "healthcare technology for humans" and strives for the development of products and services that can help improve people's quality of life through fusion and applications of IT. The company is doing business based on the belief that the satisfaction of the employees will lead to customer satisfaction based on ceaseless innovation and communication with customers.



TIMELINE

<div>2015</div> <div>August</div> <div>M3 Solutions founded.</div>	<div>August</div> <div>Human care contents selected as development support project by the Ministry of Science, ICT, and Future Planning (host organization).</div> <div>September</div> <div>Contract signed with Chungbuk National University Hospital to develop a program that improves the dementia cognition functions.</div> <div>November</div> <div>Selected as the development support project of startup growth tasks by the Small and Medium Business Administration (host organization).</div>	<div>November</div> <div>Dedicated R&D institute certified.</div> <div>2017</div> <div>January</div> <div>Venture company certified.</div> <div>January</div> <div>Registered partnership with the Samsung Electronics Wireless Division.</div>	<div>2018</div> <div>February</div> <div>Patent registered for cognition learning and evaluation system.</div> <div>May</div> <div>Better Cognition trademark registered.</div> <div>May</div> <div>Annexed R&D Lab registered.</div>
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COMPANY OVERVIEW

CEO LEE, SUN-WOO TYPE OF BUSINESS SOFTWARE DEVELOPMENT AND CONTENTS PRODUCTION DATE ESTABLISHED AUGUST 04, 2015
WEBSITE www.m3solutions.co.kr

Smart healthcare for improvement of quality of life



Medi Plus Solution Co., Ltd.

Fund for Promotion of Information and Communications

- Support organization : National information Society Agency
- Project : Leading company to apply ICT wellness care

Key achievements

- Development of health care solution for cancer survivors.
- Chronic and severe disease management service “Second Wind” and “Second Doctor” services started.
- Health examination portal service “Be healthy” expected to be launched (August 2018).
- “Second Wind” certified first class in the Food and Drug Administration (FDA).
- Acquisition of certification of “Second Wind” as a medical equipment manufacturing item from KFDA.
- Skill service launched for hypertension, diabetes, and growth management in the Amazon Alexa platform in the USA.
- Development of KT smart bands “Neo Fit I” and “Neo Fit II”
- Own smart band “Dofit” expected to be launched (August 2018).

MEDI PLUS SOLUTION LAUNCHED THE CHRONIC DISEASE MANAGEMENT SERVICE “SECOND WIND”, SEVERE DISEASE MANAGEMENT SERVICE “SECOND DOCTOR”, AND SMART BAND “DOFIT”. THE COMPANY RESEARCHES AND MAKES ALL EFFORTS TO PROVIDE THE BEST HEALTHCARE SERVICES FOR A HEALTHY, HAPPY LIFE. IT IS NOW PROVIDING HEALTHCARE CONTENT SERVICES IN EARNEST AND FACING THE TRANSITION OF PROFIT SOURCE THROUGH BUSINESS EXPANSION VIA GLOBAL ENTRY.



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Development of services that improve the “quality of life” beyond individual health management dimension

In the smart healthcare industry, a variety of services are launched by various companies as ICT and biotechnology are fused and advanced, and the market has steadily increased as much attention has been paid to the Fourth Industrial Revolution.

Medi Plus Solution has clinicians, nutritionists, exercise experts, and engineers to maintain its leading position in the industry by utilizing technologies such as big data and AI.





Patient-oriented, individually customized healthcare services

Unlike the existing healthcare services that provide general recommendations and advice for uniform health management, “Second Wind” and “Second Doctor” from Medi Plus Solution provides a personalized, customized healthcare service that is closer to the individual prescription. In other words, even if the same disease is found in the white-collar sedentary worker and a self-employed restaurant owner, different healthcare services are applied according to their personal characteristics considering their behaviors one by one such as dietary habits, activities, and life pattern. The “Second Wind” service was developed to be linked with blood pressure meter, blood glucose meter, weight scale, and smart band for convenient use by users. The company is scheduled to enter the overseas markets with the pioneered technical skills in Korea through “Second Wind”, “Second Doctor”, and “Dofit”, the smart band to be launched in 2018.

Service model planning and business drive in linkage with financial institutions

Medi Plus Solution is interworking with various organizations to promote its own chronic and severe disease services “Second Wind” and “Second Doctor”. In linkage with Korea University Anam Hospital, the Catholic University of Korea Seoul St.

Mary's Hospital, and the Korean Prostate Society, it has facilitated service promotion through the application of education fee, and the services will be launched in conjunction with financial institutions such as Shinhan Card and Samsung Life Insurance.

It has also signed the follow-up service agreement on severe diseases with the Korean Prostate Society and the precision medicine-hospital information system (P-HIS) contract with the Korea University Medical Center.

Innovative technical development and research compared to existing projects

Since the “Second Wind” service was developed to be linked with the blood pressure meter, blood glucose meter, weighing scale, smart medicine checker, smart band, and Bluetooth, users can fully take advantage of the service conveniently. Before, the old version of the service “Geonganghae (Be Healthy)” was limited to providing fragmentary information such as description of existing health examination programs and reservation. Note, however, that the current version of the service recommends the most needed examination programs for users through the additional examination recommendation algorithm after receiving information about the medical examination through interview, past data, and family disease history and provides follow-up services.



Success Point

As for the success factors of this project, first, it achieved the development and upgrade of the management services through the development of major products, technologies, and contents, certification, and patent applications. Second, it realized service expansion, support, and improvements through service model planning and project drive in linkage with financial institutions such as Shinhan Card and Samsung Life Insurance. Third, the company has made all-out efforts to reduce the increasing medical cost due to the increase in the population of the elderly and longer life expectancy and provide the best healthcare services for healthy and happy lives. Fourth, it has employed new workers and has striven for startup, new employment, and training through the mandatory English language class once a week for all employees.

Company Introduction

Medi Plus Solution Co., Ltd. is a company pursuing ceaseless research and efforts to provide the best healthcare services for healthy and happy lives. It has driven earnest healthcare contents services based on service stabilization and advancement. The company is embracing the transition of profit source due to business expansion through global entry, and it has expanded the healthcare contents service items steadily. It aims to maintain its leading position in the industry by utilizing the AI and voice recognition platform as a pioneer.

TIMELINE

<div>2012</div> <div>December Medi Plus Solution Co., Ltd. founded.</div> <div>2013</div> <div>July Office opened in Ogeum-dong, Songpa-gu, Seoul.</div> <div>November Company-affiliated R&D institute established.</div> <div>December Development of health management solution for cancer survivors.</div> <div>2014</div> <div>Development of chronic disease assessment index (CDI)</div>	<div>2015</div> <div>April Capital increase. SeptemberOffice moved to Ogin-dong, Jongno-gu, Seoul.</div> <div>September Office moved to Ogin-dong, Jongno-gu, Seoul.</div> <div>September “Second Wind” registration of the first class completed in the FDA in the US.</div> <div>November Certifiedasventure company (R&D company).</div> <div>December “Second Wind” certified compliant with the medical equipment manufacturing and quality control standard (GMP).</div> <div>December “Second Wind” certified as a medical equipment manufacturing item by the Ministry of Food and Drug Safety.</div>	<div>December Awarded the Grand Prize in the Contest of Healthcare & IoT Excellence Services hosted by the Daily Healthcare Demonstration Project Division in the Ministry of Science, ICT, and Future Planning.</div> <div>2016</div> <div>February R&D service business certification completed.</div> <div>August Selected as the company of “Speed Dating for K-Champ fostering” hosted by KT (development of system to provide sleep information analysis modules).</div> <div>August Selected as the incubator company of the fourth K-Champ Lab in the Gyeonggi Center for Creative Economy & Innovation, contract signed.</div>	<div>November The company's core technology smart band product, KT's “NEOFIT,” was launched.</div> <div>2017</div> <div>February Participated in the exhibition “2017 MWC(4YFN)” in Spain through the excellent venture company selected by the Gyeonggi Center for Creative Economy & Innovation.</div> <div>March Selected as the Grand Prize winner in the Win-Win Supporters “Startup Contest.”</div> <div>June Co-research agreement signed with the Korea University Research Management System.</div>	<div>June Selected as the host company in the “health management service project targeting health-risk people” supported by the National Information Society Agency.</div> <div>2018</div> <div>February Co-project agreement on after-care services for patients with prostate cancer signed with the Korean Prostate Society.</div> <div>April Agreement on the development of AAL project healthcare big data platform signed with the Ministry of Land, Infrastructure, and Transport.</div> <div>May MOU for the “development of P-HIS to provide patient-tailored medical services” signed with the Development Project Division of P-HIS in the Korea University Medical Center.</div>
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COMPANY OVERVIEW

CEO BAE, YOON-JUNG TYPE OF BUSINESS BUSINESS SERVICES DATE ESTABLISHED DECEMBER 24, 2012
WEBSITE www.medisolution.co.kr/en

IoT : INTERNET OF THINGS



Company

Creation of IoT convergence pilot complex _ **E CUBE Labs**
Creation of infrastructure for IoT promotion _ **Welt Co., Ltd.**

DATA SECURITY

SMART DEVICE

Urban efficiency increased with IoT waste bins



E CUBE Labs

Fund for Promotion of Information and Communications

- Support organization : National IT Industry Promotion Agency
- Project : Creation of IoT convergence pilot complex

Key Achievements

- 1 domestic patent, such as development and certification of major products, technologies, and contents, and 5 patents applied overseas.
- Market creation, sales record improvement, export contract signed, investment attraction, and collaboration: two MOAs signed with local governments in the US (Chula Vista, Washington D.C.).
- Won the bid in Baltimore City in the US (three-year period, \$13.17 million).
- Advertisement of excellent smart city implementation case of Goyang City via the Gold Prize it won in the WeGO Sustainable City Awards.
- Development of cluster at major cities in the US via Goyang City through GCTC paper presentation (hosting the discussion meeting and exchange between Goyang Industry Promotion Agency and LA Sanitation in Los Angeles).

E CUBE LABS INSTALLED “SOLAR-POWERED WASTE COMPACTING BINS”, “LOAD AMOUNT DETECTION SENSOR” AND “VEHICLE TRACKER” IN GOYANG CITY OF GYEONGGI-DO THROUGH THE “CREATION OF IoT CONVERGENCE PILOT COMPLEX” IN THE GOVERNMENT GRANT FOR ICT, APPLYING IoT FUSION SOLUTIONS THAT CAN EFFICIENTLY COLLECT AND PROCESS WASTE GENERATED IN GOYANG CITY. GOYANG CITY HAS BEEN AWARDED THE GOLD PRIZE OF THE ‘We Go SUSTAINABLE CITY AWARDS’ BY THE WASTE MANAGEMENT SOLUTION OF E CUBE LABS. CURRENTLY, E CUBE LABS SUPPLIES THE PRODUCT SAMPLES TO 40 COUNTRIES. THE COMPANY IS SCHEDULED TO OPERATE PILOT PROJECTS WITH VARIOUS LOCAL GOVERNMENTS IN KOREA AND OTHER COUNTRIES AND EXPAND THE BUSINESS ITEMS THROUGH ADDITIONAL CENTER DEVELOPMENT.



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State-of-the-art technology facilities and regular waste bin

E CUBE Labs is a startup company that aims to improve waste processing environment and increase urban efficiency by applying advanced technology to waste bins. Urban waste bins are increasing as society is developed. Despite the technological advances, most waste products are still dependent on the service of city cleaners and waste collection cost is increasing annually. This type of waste collection process has many problems such as dangerous waste processing environment and inefficient waste management.

To solve this problem, the company developed “Cleanflex” that notifies the waste load amount by combining the IoT technology with waste bins in cities, and “Cleancube” that compresses waste by utilizing solar energy. In addition, it also

launched “Clean City Network (CCN)” and “Collection Vehicle management Platform (CCNx)” for efficient management of waste bins, attracting a lot of attention in the market.

Leaping forward to the smart city technology beyond the environmental market

The waste management industry is a new specialized field around the world with a market scale of approximately \$438.87 billion, although it is not active in Korea. The waste management industry will grow since many people generally pursue a high level of quality of life as the society becomes even more advanced. The problem is that the waste collection cost in specialized waste management companies accounts for approximately 60% of the total sales in their financial structure.



The collection cost is high in advanced countries due to the high minimum wage.

Thus, various endeavors have been steadily attempted to reduce the cost of the related industries. The company has provided a basis by which industries utilizing IoT-based sensors can be expanded into related industries through the entry to the U.S. market where those industries are advanced in many forms. Accordingly, the company is expected to have industrial ripple effects such as creating many jobs in the future. It also entered the U.S. market through the oneM2M format and the accumulated data about the overseas demonstration cases in the oneM2M server. The company provides industrial insights based on the local and overseas practical live data.

Moreover, with the MOU signed between Goyang City and major cities in the U.S., efficient and practical data can be collected, which is expected to be utilized as policy and academic materials significantly. This valuable data will be used as a foundation to create smart cities in the future by analyzing the lifestyles of the citizens in addition to the environmental purpose. E CUBE Labs has signed the bidding

contract of \$13.17 million with Baltimore City in the U.S. for three years based on the excellent case of Goyang City performing through the government grant for ICT. It is scheduled to expand the business scope further through the local government and overseas market entry.

Simple ideas that change the world

The CEO of E CUBE Labs decided to establish a startup company when he was a university student in Yonsei University, later venturing into the IoT waste bin business. The startup, which started with a simple curiosity to ask if technology can be applied to chores that were difficult to do by humans, has changed the cities and environment in Korea and overseas gradually. The startup story made by CEO Kwon has delivered meaningful implications that a simple idea can change the society greatly by applying technologies. This is possible if we do not give up even after failures and pursue challenges without cease.



Success Point

Initially, the plan was to commercialize the products and start the business in earnest, but the waste collection management industry was conservative and managed by local governments, which made the pilot project progress much slower than initially thought. The monitoring solution, nevertheless, could be implemented throughout the local community in Goyang City by means of the support project, and the products could be improved gradually after various feedbacks from local government officials and citizens. Although the waste collection management system could not be completely overhauled, monitoring of waste generation based on the IoT technology and securing data that can be used to improve the collection efficiency by the local government were a great help in the project.

Company Introduction

E CUBE Labs is a venture company founded by the youth, formed from a simple idea of compressive waste bins in 2011. With the motto of “change the world with creative ideas!,” the company is striving for budget reduction and cleaning streets by developing an innovative waste collection management solution that enables more efficient collection than traditional waste collection method.

TIMELINE

<div>2011</div> <div><div>July</div><div>E CUBE Labs Co., Ltd. founded.</div></div> <div><div>July</div><div>Grand Prize awarded in the 'Europe-Korea Business Plan Competition' hosted by the European Union Chamber of Commerce in Korea.</div></div> <div><div>August</div><div>Selected as the "Environment Improvement Idea Support Project in Seven Asian Nations" hosted by British Council-LRQA.</div></div> <div><div>October</div><div>Grand Prize awarded in the '2011 Youth Startup Contest Korea' hosted by the Dream Biz Forum.</div></div>	<div><div>2012</div><div>August</div><div>Venture company certified.</div></div> <div><div>2013</div><div><div>June</div><div>ISO 9001/14001 certification acquired.</div></div><div><div>July</div><div>For the first time in Korea, Vodafone Korea- E CUBE Labs partnership signed.</div></div><div><div>December</div><div>Minister Prize awarded in the "Korea Creative Economy Grand Prize" hosted by the Ministry of Science, ICT and Future Planning.</div></div><div><div>December</div><div>Pollutec Innovation Badge awarded in the International Environment Exhibition.</div></div></div>	<div><div>2014</div><div><div>May</div><div>'Green Certificate' acquired from the Korea Environmental Industry and Technology Institute.</div></div><div><div>June</div><div>Received the 2014 Korea Green Management Excellent Award (Green technology category).</div></div><div><div>June</div><div>Frost& Sullivan, M2M Green Excellence in Technology innovation awarded.</div></div><div><div>July</div><div>European certification mark CE acquired (solar-powered waste compacting bins) NovemberQuality certification K mark acquired (solar-powered waste compacting bins).</div></div><div><div>November</div><div>Quality certification K mark acquired (solar-powered waste compacting bins).</div></div></div>	<div><div>2015</div><div><div>October</div><div>Pilot IoT project in Bukchon Seoul.</div></div><div><div>December</div><div>Promising company in ICT field (K-Global 300): Ministry of Science, ICT and Future Planning.</div></div></div> <div><div>2016</div><div><div>November</div><div>'The Most Loved Companies in Korea' awarded by the government (Prime Minister).</div></div><div><div>December</div><div>Products installed and operated in Goyang City in Gyeonggi-do (230 products).</div></div></div>	<div><div>2017</div><div><div>June</div><div>Gold Prize awarded from the Global Collaborations of the World e-Governments Organization (WeGO) (Goyang City).</div></div><div><div>October</div><div>Won the tender bidding in Melbourne Australia (400 solar-powered waste compacting bins).</div></div></div> <div><div>2018</div><div><div>January</div><div>Won the governmental tender bidding in Baltimore USA (\$14.04 million).</div></div><div><div>February</div><div>Product installation and operation in Everland in Yongin, Gyeonggi-do (150 solar-powered waste compacting bins).</div></div></div>
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COMPANY OVERVIEW

CEO GWON, SUN-BEOM TYPE OF BUSINESS MANUFACTURING ESTABLISHMENT JULY 01, 2011
WEBSITE www.ecubelabs.com

Convenient and stylish healthcare smart belt



Welt Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : National IT Industry Promotion Agency
- Project : Creation of infrastructure for IoT promotion

Key Achievements

- Continuous sales increase expected in the future due to the commercialization tasks supported.
- More than 5,000 sets are expected to sell within six months after launch.
- Sales were successful through the collaboration with renowned international brands, thereby having a basis for overseas entry including Japan and the USA.

WELT LAUNCHED A SMART BELT MOUNTED WITH WEARABLE MODULE FOR HEALTH MANAGEMENT BY REGULARLY ANALYZING CONSTANT BIO-SIGNALS, GOING WITH THE MOTTOS THAT “TECHNOLOGY FOR HEALTH IS DEVELOPED”, AND “IoT DEVICES MANAGE MY HEALTH NATURALLY”. EXISTING WEARABLE DEVICES MOUNTED IN WATCHES, FOR EXAMPLE, COULD MEASURE SIMPLE DATA SUCH AS THE NUMBER OF STEPS. THE SMART BELT OF WELT, MEANWHILE, COULD MEASURE VARIOUS AND MEANINGFUL BIO-INFORMATION SUCH AS BOWEL MOVEMENT OR WAIST CIRCUMFERENCE AND SUPPORT GOAL MANAGEMENT, WHICH COULD ALSO BE USED IN PREVENTIVE MEDICINE. THE COMPANY IS SCHEDULED TO LAUNCH A PRODUCT IN CONJUNCTION WITH A FAMOUS BRAND, AND PLANS TO MANUFACTURE A PRODUCT THAT COLLECTS BIO-INFORMATION USING EARPHONES IN THE FUTURE, EXPECTING TO BECOME A LEADER IN THE SMART HEALTHCARE MARKET.



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Maximizing convenience and collecting various pieces of bio-information

The smart belt is a fusion product of authentic belt and user interface (UI), which basically maximizes convenience. The company has a business motto that “there may be people who never used the smart belt but there will be no people who used the smart belt only once”.

A typical watch type device that represents existing wearable devices is known to be inconvenient due to the need to be frequently recharged, so users may not be interested in wearing such a device.

The smart belt, however, can last for approximately two months approximately if fully charged, solving the inconvenience of frequent recharging. A belt type is advantageous because it is always worn. The belt-type wearable device is the first

implementation in the world, although some correction mechanism-type wearable devices were launched before.

Goals and daily activities can easily change with the collection of various pieces of bio-information

The data obtained by a watch type wearable is difficult to be used in health management due to simple bio-information focusing on the number of steps. But if a belt is used, it has the advantages of obtaining approximately 10 pieces of bio-information such as waist circumference, overeating, bowel movement, and travel path. The daily habit record of users is linked with a smartphone, and the customized goal activity can be adjusted daily.



Driving stylish design and various sales strategies

It is surprising to know that the Welt smart belt is a smart device because its design is actually very stylish. Without changing everyday routine (wake up in the morning, wearing a formal suit and belt, and work in the office), users can follow the daily routine naturally. In addition, the company set the two-track sales strategy for early survival of the company as a startup. One track is its own brand sale and the other is partnership with other existing fashion brands. Welt has manufactured its own smart belt as well as collaborated with other fashion brands simultaneously. The belts are collaborately being sold in Beanpole, and more than \$0.18 million of sales was achieved in just six months after launch. An entry to overseas markets is also underway, including Japan and the USA. The sales in Japan are conducted by an agency, and the sales in the USA are performed online via cloud funding.



Success Point

The success factors of this project are based on the following. First, convenience was raised by removing existing inconvenient barriers and fusing traditional belts and UI in terms of user's viewpoints. Second, its utilization was raised by incorporating various pieces of bio-information, which depart from the existing simple bio-information collection, and linking the data with a health management program. Third, the two-track sales strategy utilizing its own brand and existing fashion brands was successful to get better sales than expected.



Company Introduction

CEO Kang, Seong-ji, who was a medical doctor before, had an opportunity when he was employed in the Wireless Division in Samsung Electronics where he had an idea of establishing his own business by making people able to manage their own health before they were ill. Welt is a spin-off company of Samsung Electronics and it is a specialized health care service company that develops a wearable device. The first product of Welt is a health care smart belt. The smart belt that manages the health at the closest position can analyze user's waist circumference, overeating habits, and daily activity habits, producing valuable insights. Welt aims to achieve the state-of-the-art preventive medicine without disease and maintain user's health by managing the user's daily living habits through the belt-type wearable smart belt and other diverse products, which will be launched in the future.

TIMELINE

<div>2014</div> <div>October</div> <div>First prize in the in-house idea contest in Samsung Electronics and start of in-house venture task.</div>	<div>2016</div> <div>December</div> <div>Selected as one of K-Global 300 Company.</div> <div>October</div> <div>Minister Prize from the Ministry of Science, ICT and Future Planning (first prize in IoT new product development project).</div>	<div>September</div> <div>WonD-CAMP</div> <div>July</div> <div>Samsung Electronics spin-off and Samsung Venture Investment attraction.</div> <div>June</div> <div>Included in Presidential Economic Delegation to the 130th anniversary of diplomatic relations between Korea and France.</div>	<div>January</div> <div>WELT disclosed @ CES 2016</div> <div>2017</div> <div>June</div> <div>Minister Prize from the Ministry of Commerce, Industry and Energy (Won the Consumer Goods Showcase Korea).</div>	<div>May</div> <div>No. 1 Pre-order company in crowdfunding (Wadiz).</div> <div>March</div> <div>Exhibited in Korea International Medical & Hospital Equipment Show (KIMES).</div> <div>January</div> <div>Collaboration with fashion brand Beanpole.</div>
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COMPANY OVERVIEW

CEO KANG, SEONG-JI TYPE OF BUSINESS IOT ESTABLISHMENT JULY 2016
WEBSITE www.weltcorp.com

BIG DATA



Company

Support of data-based future strategy policies _ **Sundo Soft Inc.**
Strengthening industrial competitiveness based on big data _ **Big Value Co., Ltd.**

DATA SECURITY

SMART DEVICE

Coping with disasters and calamities based on big data



Sundo Soft Inc.

Broadcasting and Communications Development Fund

- Support organization : National Information Society Agency
- Project : Support of data-based future strategy policies

Key Achievements

- Big data technology applied and analyzed in frequent electricity-related disasters due to environmental and electrical factors.
- Development of electrical fire prevention and prediction algorithm and implementation of electrical disaster prevention and prediction pilot platform.
- Participation prize awarded in the excellent case contest of public big data in 2017.

SUNDO SOFT DEVELOPED AND PROVIDED AN “ELECTRICAL FIRE PREVENTION AND PREDICTION MODEL” IN DAEGU METROPOLITAN CITY THROUGH THE “BIG DATA-BASED INTELLIGENT ELECTRICAL FIRE PREVENTION AND PREDICTION PLATFORM DEVELOPMENT” PROJECT OF THE GOVERNMENT GRANT FOR ICT. THE COMPANY CAN PROVIDE A BASIS TO COPE IN ADVANCE WITH FREQUENT ELECTRICAL DISASTERS AND CALAMITIES CAUSED BY COMPLEX ACTIONS. THIS IS DONE ACCORDING TO ENVIRONMENTAL AND ELECTRICAL FACTORS THROUGH THE RESULTS ANALYZED BY APPLYING THE SCIENTIFIC BIG DATA TECHNOLOGY. SUNDO SOFT IS SCHEDULED TO CONDUCT INTELLIGENT IT-APPLIED PREDICTION INDUSTRIALIZATION TO REDUCE ELECTRICAL SAFETY DISASTERS THROUGH THE EMPIRICAL EXPANSION PROJECT EXECUTION BASED ON CASES IN DAEGU METROPOLITAN CITY.



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Geographic Information System (GIS)-based software utilizing big data

Sundo Soft started as a subsidiary company of Cubes that introduced GIS for the first time in Korea. Cubes was conducting navigation-related projects based on the GIS technology. The navigation market growth, however, slowed down, and the company had to find a new business area. The CEO of Yoon, Hoon-joo decided to apply big data analysis, which was the core technology in the Fourth Industrial Revolution, to the spatial data utilization competence of Cubes as the solution to the new business model, and started Sundo Soft business as a subsidiary company of Cubes in 2014.

Since then, Sundo Soft has been regarded as an expert in spatial big data field by improving the specialty in big data based on the understanding on spatial data. Despite this, it had many

difficulties in running the business due to the low accessibility to major spatial data in Korea, even if the company tried to utilize the specialty. In the meantime, the company can share data about electrical safety inspection results of Daegu Metropolitan City held by the Korea Electrical Safety Corporation, and the specialized competence of public big data held by Sundo Soft can be employed to improve the lives of the public.

Development of electrical safety map through spatial big data

As human casualties and property damage have increased due to electrical fire accidents of Seomun Market in Daegu and Soraepogu in Incheon in recent years, a lot of attention has



been paid to government policies in relation to disasters and safety. Sundo Soft developed an electrical safety map that displays vulnerable areas to electrical safety through spatial big data analysis for the preventive purpose of electrical fire accidents with the Korea Electrical Safety Corporation the government grant support, in accordance with the social issue and policy attention.

Sundo Soft developed an electrical fire prevention and prediction algorithm and implemented an electrical disaster prevention and prediction platform to cope in advance with the electrical disasters and calamities, utilizing the spatial big data technology based on the electrical safety inspection data of Daegu Metropolitan City shared through the government grant execution. It developed the big data analysis-based solution that can reduce electrical disasters and damage scale by identifying the causes of electrical disasters as well as the electrical safety map that can be utilized as foundational data of decision making on electrical disaster prevention and prediction. Through this, the electrical safety map of Daegu can be

submitted as a task deliverable by the pilot project, and the submitted electrical safety map will be utilized as basic data to prevent electrical disaster safety accidents in Daegu in the future.

Utilization of ICT technology for public good

Sundo Soft expanded the business scope by striving for the improvement of public good via the combination of advanced ICT and ethical social issue.

The government grant for ICT support helped in developing leading technologies and improving cost-effectiveness and time efficiency, as well as raising the quality of life of citizens by applying the technologies to the society again. The success of Sundo Soft is characterized by a virtuous cycle that task execution performance is followed by the expansion of a new business range, which provides the implication about utilization of ICT for public good.



Success Point

Sundo Soft introduced GIS term into Korea for the first time, and produced a large number of GIS talented staff for the past 20 years. The company has evolved to become an upgraded spatial big data company that can propose a new vision by finding a fine difference after comparing the current and future variables through GIS and big data.

The reason for its steady growth after it was positioned as a leading company in the industry is due to the staff competence. The staff can be historians through spatial big data or environmental, tourism, marine, statistical, energy, and bio-related big data specialists.

Furthermore, the visions of Sundo Soft are to make customers conveniently specialize their knowledge by communicating with the world using spatial big data, and to make the company change the society by thinking and moving ceaselessly with sense of duty in all new business ventures.

Company Introduction

Sundo Soft, committing to various solution developments after it started as a subsidiary company of Cubes, was established as a

developer in May 1987 and founded a technical research center. Based on this foundation, it is striving for optimal big data analysis and content development that are suitable for local markets with the business such as big data and related software system development, consulting and technical support, and solution development. It has contributed in advancing the informatization in Korea and leading the technology in industrial development.



TIMELINE

<div>2016</div> <div>Real-time spatial distribution of harmful air pollutants.</div> <div>Development of mapping technology and management system.</div> <div>Development of GIS-based real-time fine dust service app.</div>	<div>Project that develops a big data-based national environment map and improve service system Daejeon, Sejong, Chungnam branches founded, spatial GIS patent registered.</div> <div>2017</div> <div>Development of visualization system in the public platform for electrical safety, implementation of intelligent electrical fire prevention and prediction platform based on big data.</div>	<div>Outsourcing research of big data analysis on moving to rural farms and hometown in Jeollabuk-do.</div> <div>Big data pilot analysis project of the Korea Rural Community Corporation.</div> <div>Development of disaster information linking and sharing technology by disaster type (storm and flood or typhoon).</div>	<div>2018</div> <div>Development of data distribution services utilizing big data-based electrical fire prediction model.</div> <div>Commercialization project of scenario-based situation display system by category.</div> <div>Ontology-based knowledge base-applied intelligent counseling.</div>	<div>(Chatbot) Registration of electrical fire prevention and prediction platform program utilizing service program registration AI.</div> <div>Registration of collection, analysis, and visualization system program based on real-time big data.</div> <div>Large scale IoT data collection and real-time monitoring GIS.</div>
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COMPANY OVERVIEW

CEO YOON, HOON-JOO TYPE OF BUSINESS SERVICE- GEOGRAPHIC INFORMATION INDUSTRY, SYSTEM DEVELOPMENT, SYSTEM INTEGRATION BUSINESS ESTABLISHMENT JANUARY 2014 WEBSITE www.sundosoft.co.kr/eng/main/main.html

Real estate big data company going global, beyond korean real estate market



Big Value

Broadcasting and Communications Development Fund

- Support organization : National Information Society Agency
- Project : Strengthening industrial competitiveness based on big data

Key Achievements

- Development of 'villasise.com' service by which market prices of 1.4 million villas in Seoul /Gyeonggi-do can be found.
- The service is mounted in Shinhan Bank branches and their mobile service "SoL," expanding the service in the market in a short time.
- It attracted investment from the banks and bank group-affiliated investment companies.
- It contributes to citizens' housing stability by providing the market price information about townhouse and multi-family villas.
- Four articles in the local newspapers and 103 articles in Internet-based newspapers through the press release distribution.

BIG VALUE IS A STARTUP COMPANY THAT SOLVES UNSTRUCTURED REAL ESTATE PROBLEMS, WHICH WERE DISADVANTAGEOUS IN TERMS OF POLICIES, FINANCE, AND SERVICES DUE TO THE REAL ESTATE DATA STRUCTURE FOCUSING ON LARGE APARTMENT COMPLEXES IN THE PAST, USING THE TECHNOLOGY AND SERVICES. BIG VALUE CAN OVERCOME THE PROBLEMS DUE TO NEWLY FOUNDED COMPANY AND DRIVE NEW BUSINESSES THROUGH THE GOVERNMENT SUPPORT FOR ICT. IT COULD ALSO WIDELY ADVERTISE THEIR TECHNOLOGIES IN THE NEWSPAPERS AND INTERNET-BASED NEWSPAPERS THROUGH VARIOUS PUBLIC RELATIONS AND SUPPORT ACTIVITIES SUPPLIED BY THE GOVERNMENT AGENCIES AS WELL AS SECURE THE OPPORTUNITY TO EXPAND THE MARKET.



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New attempt to change the existing stagnate real estate market using big data

In Korea, only the real estate market prices of large apartment complexes (100 households or larger) have been provided, and for villas, the market prices had not been supplied even if their prices are inexpensive due to the asymmetric information supply, which had a negative impact on citizens housing stability. Furthermore, financial services were concentrated on high-price apartments rather than inexpensive villas, resulting in inequality and discrimination in financial services for villas. Since the real estate market in Korea was monopolized by existing companies that held real estate big data, there were no competing companies based on the AI technology advancement and real estate big data technology.

Accordingly, Big Value tried to drive production of contents

suitable to local market and commercialization by researching overseas real estate big data services and analyzing all of local real-estate market and real estate-related political and legislative changes.

Complete refinement of space-based public real estate information

The matching results of space-related open information from around 40 institutions showed that a considerable amount of data that could be difficult to be utilized directly were discovered due to the limitation of administrative processing and de-identification.

To overcome the limitation of the public information, real estate information was refined after exhaustive search of information



in the target region during the project period thereby raising the information utilization level to 95%, which was just 30% to 40% in the past raw information, providing a basis of the automatic market price calculation.

The company invested much time and effort to establish big data system, research infrastructure, and data processing process suitable to the local environment by employing and training data scientists with Masters or higher degrees to focus on large scale data processing and utilization at its early stage. As a result, the market price calculation work was shortened to be processed within 0.1 sec, which took three hours or longer previously, and all data that required subjective determination were changed to objective data analysis, resulting in presentation of analysis results that can be easily understood by users.

Development of accuracy verification system of calculated market prices

The real estate market price calculation process, which was a realm of subjective determination, was replaced with AI algorithm to improve the learning of all reference values from the information. For the first model design, real transaction price information based on the past mortgage information in Shinhan Bank was utilized and the market price calculation algorithm with high accuracy could be secured successfully. For the market price accuracy, three times of verification were conducted by requesting the market price verification from the large appraisal corporation. The verification result was successful that the accuracy was reasonable in terms of

commercialization. The construction of the accuracy verification system was highly encouraging results in the real estate market, which caused a great sensation.

Development of commercialization system of market price information and signing of contract of system commercialization

In addition to the market price research, the company manufactured and launched the commercial product that can be utilized in commercial banks immediately in consultation with Shinhan Bank that participated in the consortium about the utilization measure and proliferation strategy. The high-quality commercial product that contained various voices from the staff in commercial banks by analyzing the work process was launched. During this process, knowhow of how to utilize the information in the real estate market was obtained, which could play an important role in the project success. The commercialization could be achieved immediately at the time of the project completion as the commercial product was reviewed and contracts were made with commercial and regional banks simultaneously. The system could be maintained stably, and the business foundation could be strengthened due to the conclusion of the contract. The company will design a standardized cadastral, land, and building information system for China and Southeast Asia markets beyond the local real estate market, and integrate pan-Asian markets to become the front runner in the real estate big data field.



Success Point

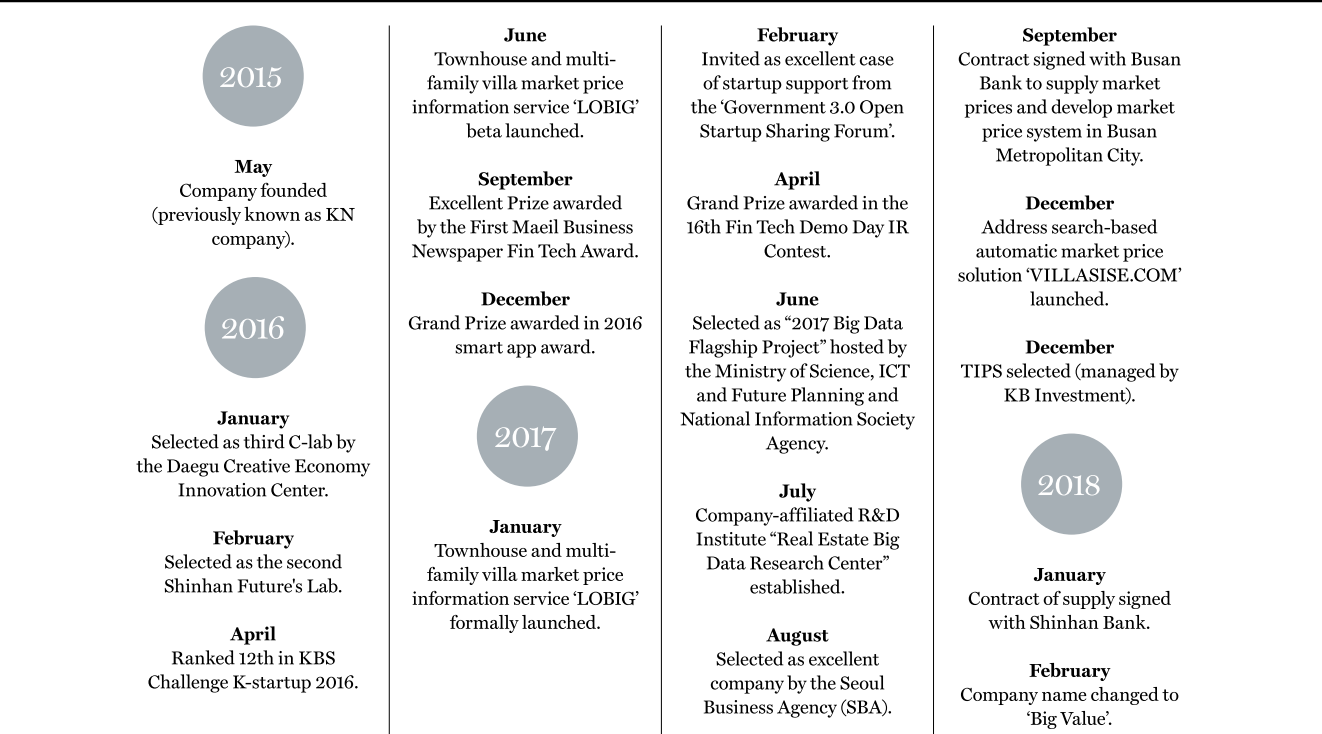
The success factors of this project are the following. First, the founding members were able to understand real estate and finance with practice competence since they were employed in banking sector previously. Thus, the project could start with fast appraisal of unstructured real estate market prices, which was set clearly as the direction of the early technical development. Second, the company raised the credibility and overcame the limited human resources as the newly founded company through the government grant for ICT” and “big data flagship of the NIA”. Third, the project plan could be established based on thorough investigation and analysis in the selection process of the government support project, and concrete business plan could be confirmed after adjustment and modification by the experts in the selection committee. Through the series of systematic processes, the company could drive the project with

clear objectives for commercialization by refining information and improving and verifying the algorithm and the best achievements could be accomplished in a short period time.

Company Introduction

Big Value is a fin tech company that provides market prices of townhouse and multi-family villas to financial institutions for the first time in Korea by developing an AI real estate automatic appraisal system based on big data. With the motto “Understand the world through information and change the world with technology to contribute to human-centered world without discrimination,” the company drives its business in real estate big data information and platform development, AI real estate appraisal information (market prices) supply, and real estate finance solution supply.

TIMELINE



COMPANY OVERVIEW

CEO KOO, LEUM TYPE OF BUSINESS SYSTEM SOFTWARE DEVELOPMENT ESTABLISHMENT MAY 19, 2015
WEBSITE www.bigvalue.co.kr/?lang=en/

CLOUD



Organization

Promotion of cloud services and strengthening of company competitiveness _
National IT Industry Promotion Agency

DATA SECURITY

SMART DEVICE

Ecosystem built for the growth of cloud industry



National IT Industry Promotion Agency

Broadcasting and Communications Development Fund

- Support organization : National IT Industry Promotion Agency
- Project : Promotion of cloud services and strengthening of company competitiveness

Key Achievements

- Project completion time reduced by approximately 50% and development cost reduced by 74% thanks to the cloud platform environment support.
 - A total of 15 public and private companies through cloud-aided consulting supports.
 - Improvements of informatization for SMEs and mid-standing companies and supply of cloud market proliferation basis.
- Promotion of specialized human resources in Korea through online and offline cloud training.

THE NATIONAL IT INDUSTRY PROMOTION AGENCY ACHIEVED THE CLOUD USE PROLIFERATION IN PRIVATE SECTORS SUCH AS IMPROVEMENTS OF CLOUD-FRIENDLY REGULATION, SAFE CLOUD USE ENVIRONMENT SUPPLY, AND INNOVATION SUPPORT OF CLOUD SME AND INDUSTRY THROUGH THE PROJECT OF PROMOTION OF CLOUD SERVICES AND STRENGTHENING COMPANY COMPETITIVENESS. THE CLOUD INDUSTRY GROWTH ECOSYSTEM WAS DEVELOPED THROUGH STRENGTHENING TECHNICAL CLOUD COMPETITIVENESS, PROMOTION OF CLOUD-SPECIALIZED WORKFORCES, AND PROLIFERATION OF AWARENESS ABOUT CLOUD FOR CITIZENS.



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Strengthening the competitiveness of local cloud industry

To develop the cloud computing field, which is the essential infrastructure in the Fourth Industrial Revolution, cost reduction and work innovation were pursued through the proliferation of cloud use in public and private sectors, and strengthening the vulnerable competitiveness of the local cloud industry was progressed. As a result of these efforts, the sales of the local cloud market grew by 27.3% compared to the last year to achieve \$1.32 billion, and the number of companies in the cloud market increased to 700 as existing IT and software companies entered to the market.

Although the cloud industry in Korea was late by five years compared to that of advanced nations such as the USA, not only local companies but also national competitiveness will be

strengthened by the government-driven cloud industry promotion.

“The cloud will be scheduled to be introduced to the entire society to cope with the change in future society and regulation improvements in major fields such as finance, medical, and education sectors. We hope this can be helpful to raise the quality of life of citizens and national innovation growth”.

Proliferation of cloud use in the private sector

The National IT Industry Promotion Agency accomplished the supply of legislative and regulatory environments through discussion about regulatory improvements regarding the extended application of cloud services in companies and public institutions in Korea and overseas and constant regulation



enforcement and improvements via feedback. In addition, it supported the operation of the K-ICT cloud innovation center, which promoted cloud-based company founding of preliminary entrepreneurs, individual developers, and SMEs and startup companies and supported software development environments for commercialization.

Furthermore, it supported expert consulting to supply cloud services of ICT companies and introduced the optimized cloud for business environment of private companies. It supported a cloud platform environment for 748 developers from 47 companies in 2017, and assisted cloud adoption consulting for 15 public and private companies. As a result, project completion time could be shortened by approximately 50% and the development cost was reduced by 74%.

Building ecosystem for the growth of cloud industry

In the cloud field, global companies led the market. Thus, local SME software companies were difficult to enter the market and achieve growth. However, the cloud industry foundation team in the National IT Industry Promotion Agency achieved the accomplishment of global entry by making cloud leading companies and SME software companies to work collaboratively through the GSIP (Global Software as a Service (SaaS) Promotion). In addition, it provided a basis for cloud market expansion and informatization improvements by

supporting SME and mid-standing companies to adopt cloud services targeting nationwide industrial complexes rather than individual industrial complexes. Furthermore, a customized curriculum in three fields (IaaS, PaaS, and SaaS) was developed, and specialized workforces were promoted in local cloud field through online and offline cloud education. Lately, cloud curriculum and textbooks were developed, and long-term workforce promotion road map was established. The number of trainees in the cloud specialized education in 2017 was 804.

Cloud industry development through the government grant for ICT

The National IT Industry Promotion Agency created cloud-friendly circumstances through the government grant for ICT, thereby improving industrial regulations and publishing an authoritative interpretation book. It adopted pan-ministerial cloud services through the policy consultative group by establishing the execution plan based on the Cloud Computing Act every year.

Moreover, it introduced the cloud to the innovation center industrial complexes to supply and adopt the cloud services for large, medium, and small-sized startup companies, and drove the project of specialized workforce promotion actively. As a result, the agency contributed to the national growth significantly along with the industrial advancement in local cloud market.



Success Point

The expansion rate of the local cloud computing industry has been very slow due to the cost burden, security concern, and association with other business. To overcome this difficulty, it proposed solution measures using various methods such as introduction of tax relief for cloud-adoption companies, driving the GSIP project with leading companies, and providing cloud services for nationwide industrial complexes.

Organization Introduction

The National IT Industry Promotion Agency supports information and communication industries, and strengthens the information and communication industry by creating the promotion foundation. It also strives for contribution to the national economy advancement. With the mission of re-creation of dynamic national economy through ICT, its goal is to position as the central ICT agency that leads the future with imagination and challenge.



TIMELINE

2009

August
NIPA founded.

November
Affiliated Software
Engineering Center
founded.

2014

March
Affiliated Software Policy
Research Center opened.

June
Affiliated Information and
Communication Technology
Promotion Center opened.

2015

June
Moved to Chungbuk
Innovation City (Jincheon).

2016

November
Affiliated Software
Engineering Center merged
with NIPA and closed.

ORGANIZATION OVERVIEW

PRESIDENT KIM, CHANG-YEONG **TYPE OF BUSINESS** PUBLIC AGENCY **ESTABLISHMENT** AUGUST 24, 2009
WEBSITE www.nipa.kr/eng/main.it

SMART DEVICE



Company

Operation of a first-generation venture mentoring program _ **Zipdoc Co., Ltd.**
Promotion of creative ICT companies _ **OGQ Co., Ltd.**

DATA SECURITY

SMART DEVICE



From the company that needs help to the mentor that gives it

Zipdoc Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : Korea Entrepreneurship Foundation
- Project : Operation of a first venture generation mentoring program

Key Achievements

- Participated in overseas global partnership contract support program for overseas entry (Shanghai and Shenzhen in China).
- Selected as K-Global 300.
- Investment attraction of \$4.39 million (Altos Ventures, Kakao Investment, Capstone Partners, and Korea Development Bank (KDB)).
- Challenge! Ministerial Prize of the Ministry of National Defense awarded in K-Startup 2017.

ZIPDOC ATTRACTED \$4.39 MILLION OF INVESTMENT FROM KAKAO, KDB, AND ALTOS VENTURES ETC. BY ADVANCING “ZIPDOC” INTERIOR COMPARISON QUOTE BROKER PLATFORM THROUGH THE OPERATION PROJECT OF FIRST VENTURE GENERATION MENTORING PROGRAM IN THE GOVERNMENT GRANT FOR ICT. CURRENTLY, ITS ACCUMULATED TRADE AMOUNT REACHED \$79 MILLION, AND 400 PAID PARTNERS ARE HELD. THE COMPANY WAS AWARDED BY MINISTERIAL PRIZE OF THE MINISTRY OF NATIONAL DEFENSE IN 2017 “CHALLENGE! K-STARTUP”.



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Growing from a closing business to an excellent company

Zipdoc was founded with \$0.01 million capital in 2015, and now \$4.39 million of investment was attracted from Kakao, Altos Ventures, KDB, and Capstone Partners. Its current accumulated trade amount amounts to \$79 million, which has been greatly successful. However, the company experienced a number of failures and difficulties behind this success. The CEO of Zipdoc Park, Seong-min who worked in the interior-related business for many years before the startup opened an online interior business by introducing a reverse auction with confidence. However, the understanding and marketing capability of employees including Park, Seong-min in online business were insufficient, and the size of online interior market as of the early startup time was small, resulting in low profit





compared to spent expense. At last, “Zipdoc” was closed. The CEO of Zipdoc, however, believed in online interior market confidently that it had future potential. Thus, he challenged again to re-establish the company without giving up despite of the financial difficulties. Fortunately, Zipdoc could get the government grant for ICT, which could become the key to the new start and success.

The government support project transferred the knowhow about project platform advancement and fund to re-establish the team with competent members, as well as providing education about new vision, mission, and entrepreneurship needed for the company when Zipdoc lacked fund and venue. Zipdoc that received assistance from the government before has become the successful company as the best practice example to other companies.

“Zipdoc” that buys trust and satisfaction from customers

Zipdoc selected trusted interior companies that were competent and had few complaints from customers to have a partnership, and introduced a system by which one to three companies that met the customer need were matched to minimize the damage of the reverse auction. To solve the information asymmetry, the interior standardization was implemented by the web and app-based services, and employees from Zipdoc were dispatched to the construction site for mid-supervision to raise the quality. In addition, the company was also committed to the satisfaction of

partner companies by introducing escrow service and free photo shooting service. Due to these efforts, Zipdoc achieved \$79 million of construction payment and 400 interior companies were partnered with Zipdoc as of May 2018.

Discriminative and innovative factors during the project execution

In Zipdoc, each team is led by a professional builder with more than 15 years of industry experience in each field and these workforces have changed the market greatly. The interior contracts, which were created inconsistently, were standardized and supervision services were enforced in the middle of the construction for the first time in the industry. It also adopted three-year warranty and internal staff members were responsible for warranty work, improving the satisfaction of consumers.

In particular, Zipdoc changed the enterprise system using the real-time operation and in-house development via internal staff for qualitative improvement and consistent upgrade of the program, which was outsourced externally before. That is, employees of Zipdoc developed the app and web so that work management through CMS internally, and responses through partners’ apps externally were now viable. Furthermore, Zipdoc holds a wide range of offline marketing experiences such as TV CF, subway and taxis for the first time in the industry, and it is now conducting various methods of marketing including keyword advertisement.

Success Point

Zipdoc made efforts always to find the method that satisfied customers by searching for the potential needs of the customers. It also established its own strategy that could be differentiated from other companies, and leaped forward step-by-step to earn the trust from customers and partners. Zipdoc chose entrepreneurship as the most important factor of the success in the face of numerous difficulties among various efforts. The CEO Park, Seong-min could take education about entrepreneurship through the government support project, which became the driving engine of the company growth.



Company Introduction

Zipdoc runs the “Zipdoc” platform that matches customers and interior companies and provides comparison quote and brokerage services in interior constructions. It aims to make all happy by connecting customers who want spatial renovation and companies. It strives to create an environment where all interior companies and customers work together with Zipdoc through the Zipdoc platform.

TIMELINE

<div>2015</div> <div>July Zipdoc Co., Ltd. founded.</div> <div>August Formally service launched.</div>	<div>2016</div> <div>April Investment attracted from Bigbang Angels and FIDES Investment Management.</div> <div>September Zipdoc 2.0 launched.</div> <div>December \$0.97 million of investment attracted (Capstone Partners, Seoul Investment Partners).</div>	<div>2017</div> <div>June Grand Prize awarded in Regional Qualifying Round of Seoul in 2017 Korea Startup League.</div> <div>June Zipdoc app 3.0 launched.</div> <div>August Investment attraction of \$4.39 million (Altos Ventures, Kakao Investment, Capstone Partners, and Korea Development Bank (KDB)).</div>	<div>August Achievement of 4,000 quote requests per month and \$4.83 million trade amount.</div> <div>November Ministerial Prize of the Ministry of National Defense awarded in Challenge! K-Startup 2017.</div> <div>December Construction comparison quote and brokerage platform Zipdoc Construction launched.</div>	<div>2018</div> <div>February Participated in MWC 2018 4YFN (4 Years From Now).</div> <div>February Zipdoc construction application (Android/iOS) launched.</div> <div>February Achieved accumulated trade amount \$61.44 million.</div> <div>March Achieved monthly trade amount \$7.02 million.</div>
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COMPANY OVERVIEW

CEO PARK, SEONG-MIN TYPE OF BUSINESS ONLINE INFORMATION SUPPLY BUSINESS ESTABLISHMENT JULY 22, 2015
WEBSITE www.zipdoc.kr

Image platform that connects authors and consumers



OGQ Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : National IT Industry Promotion Agency
- Project : Promotion of creative ICT companies

Key Achievements

- Attracted investment from NAVER, Central Investment Partners, and Pandora TV.
- Achieved 120 million downloads via OGQ background Google market.
- Patent application for idol font utilizing idol handwriting.
- Multiple patent and trademark applications for NAVER OGQ market friends characters.

OGQ LAUNCHED THE OGQ BACKGROUND SHARING APP BEFORE NAVER OGQ, AND IT ACHIEVED 120 MILLION GLOBAL DOWNLOADS. FROM THIS APP, THE COMPANY REALIZED THE IMPORTANCE OF THE COMMUNICATION BETWEEN AUTHORS AND USERS THEREBY OPENING THE NAVER OGQ MARKET.



Shin, Cheol-ho
CEO

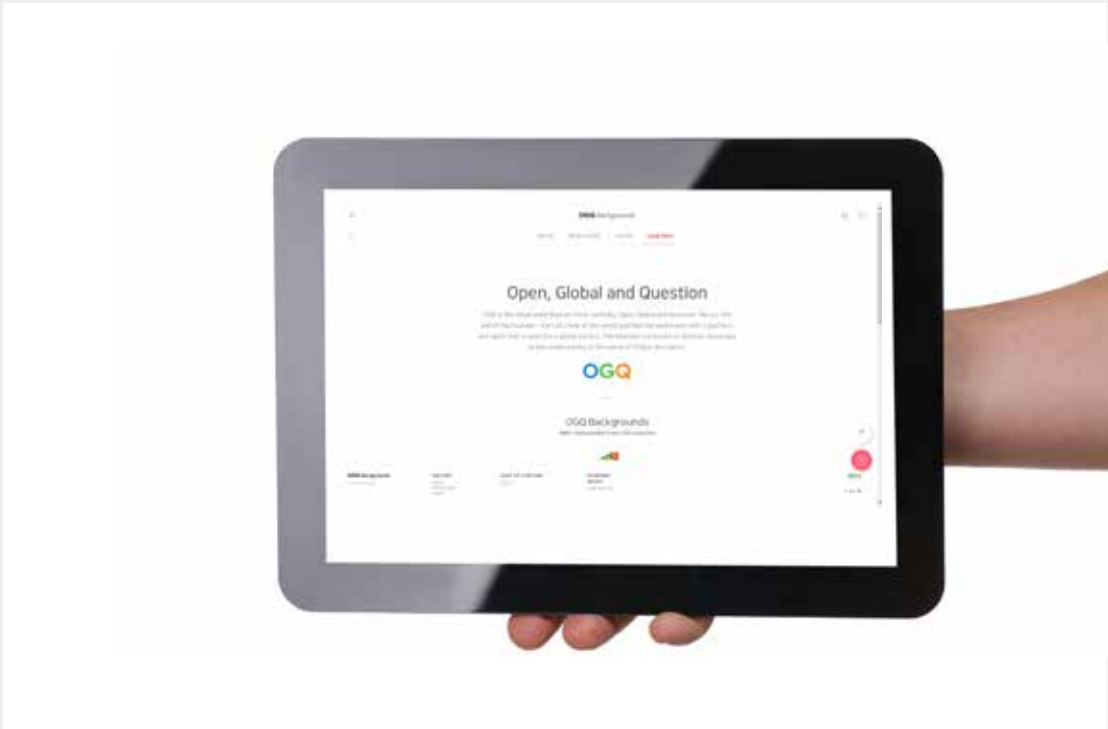
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Market potential of image download

As monthly subscription of unlimited music downloading platforms increased, more users are paying the subscription fee than before rather than illegally searching and downloading music files. Few users, however, pay the image download still. Most authors of images do not earn their fair payment too. OGQ started the business to share the fair profit of the work by authors through the reduction in distribution cost, and establish the platform that induced purchase from consumers with payment.



Expansion of awareness about image copyright

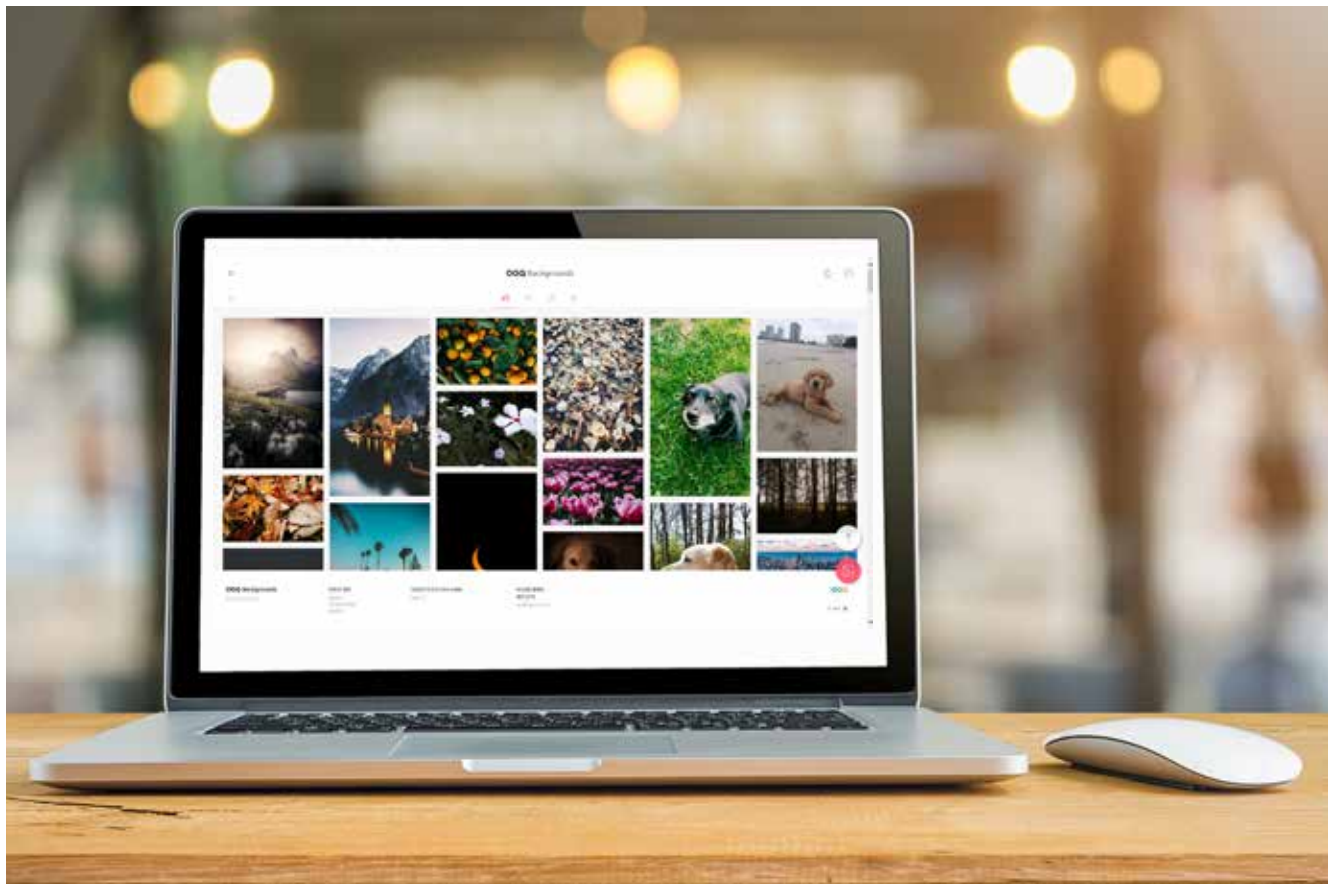
Few users pay the fair price of image when they download and use the image. The number of images posted in the Internet without mentioning sources would be numerous assuming that 600,000 comments are posted daily in the Naver blog. Previously, a price of single image was \$17 to \$26 to buy it, so virtually no B2C trade exists. Even if the work is sold, only tiny proportion (0.1%) of the profit is paid to the original author. Naver OGQ is a window that connects authors and consumers directly, and a single image is sold at \$0.18 to \$1 per image due to the elimination of distribution margin, and 70% up to even 100% of the profit is paid to the author. If images preferred by people can be purchased directly from authors with inexpensive price, copyright infringement would be resolved.

New experience opened via B2C

The reason for the high satisfaction of authors using Naver OGQ market is due to the fair profit distribution for authors as well as closeness between users and sellers.

“It is quite satisfactory to communicate directly with users. I can reflect the consumer's need to my work right away. I think the most advantage of the OGQ platform is to get the joy that makes users happier than before”.

Every user can post a comment about the work I posted in the detailed review page, and support the author as a fan. This is why the use satisfaction of the authors is high. The high proportion of purchase payment returned to authors gives more energy to authors for their work activities.



Success Point

OGQ is a platform company which requires authors who use the platform. Since authors have their own production works, which can be many, OGQ believes that the most important task is to provide a service for authors to perform their work activities steadily as a creator and respect every author as an individual. To do this, the company is considerate for image authors to have a fair portion of their profit from selling their works (70% of the profit is back to the author). The reason for the survival of the current OGQ is the environment of consideration by which authors are encouraged to keep their creative work as well as motivated to participate in the platform voluntarily.

Company Introduction

OGQ is a specialized digital resource company that holds various services including watch master and phone theme shop in addition to OGQ background app, which recorded 130 million downloads globally since it was established in 2011. Naver OGQ market was opened in May 2018 thereby supplying digital resources to Korea and internationally.



TIMELINE

<div>2011</div> <div>February Established as application software development and supply company.</div> <div>September Selected as 'Best App' in the Korea Mobile App Award.</div>	<div>2015</div> <div>December Selected as global top 8 'Google Play Best App'.</div>	<div>2017</div> <div>May Cooperated with Konan Tech for AI-based image platform services.</div> <div>October Investment attracted from Naver.</div>	<div>2018</div> <div>March iConnect acquired and merged.</div> <div>May Naver watch face service 'Watch Master' acquired.</div> <div>May Naver OGQ market opened.</div>
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COMPANY OVERVIEW

CEO SHIN, CHEOL-HO TYPE OF BUSINESS DIGITAL SERVICE ESTABLISHMENT FEBURARY 2011
WEBSITE www.ogq.me

DATA SECURITY



Organization

Securing of cloud reliability and user protection _ **Korea Internet & Security Agency**



DATA SECURITY

SMART DEVICE

Cloud reliability is secured through the development of coping system of user information leakage



Korea Internet & Security Agency

Broadcasting and Communications Development Fund

- Support organization: Korea Internet & Security Agency
- Project: Securing of cloud reliability and user protection

Key Achievements

- Contribution to promotion of cloud information protection specialized companies and successful operation of security certification system.
- Safe private cloud use foundation of public agencies is supplied.
- Execution of SaaS security certification system and revision of the certification guideline.

THE KOREA INTERNET & SECURITY AGENCY DEVELOPED A COPING SYSTEM OF USER INFORMATION LEAKAGE TO MINIMIZE USER DAMAGE DUE TO INFORMATION LEAKAGE OVER THE CLOUD ENVIRONMENT THROUGH CLOUD COMPUTING INDUSTRY PROMOTION AND TO RESOLVE THE ANXIETY DUE TO INFORMATION CONSIGNMENT AND MANAGEMENT. IT CREATES A FOUNDATION OF INDUSTRIAL PROMOTION FOR LOCAL INFORMATION PROTECTION AND SAFE CLOUD USE ENVIRONMENT THROUGH THE SUPPORT CLOUD-BASED SECURITY SERVICE, SOLUTION DEVELOPMENT AND DEMONSTRATION, AND COMMERCIALIZATION. IT COMPLETED SaaS SERVICE DEVELOPMENT AND PILOT APPLICATION BASED ON SAFE CLOUD AFTER SELECTING TWO COMPANIES IN THE MEDICAL SECTOR AND ONE COMPANY IN THE FINANCE SECTOR. IT ALSO SELECTED TWO COMPANIES IN THE DOCUMENT SECURITY AND ACCESS CONTROL FIELD AND COMPLETED THE SECURITY SERVICE DEVELOPMENT.



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Expansion into the cloud security certification service software (SaaS)

SaaS is service type software. It is a cloud service by which a user employs software as much as needed through the Internet and pays the fee rather than installing software in user's personal computer previously. It has an advantage that can expand security certification targets more than the previous infrastructure as a service (IaaS).

The Korea Internet & Security Agency hosted a briefing session to present SaaS security certification evaluation criteria and method, and SaaS target cloud security certification system's simulation evaluation was conducted to improve or complement the companies regarding the vulnerability and lacks. The expansion measure of the security certification system is as follows: Basically, SaaS developed in the certified service type

infrastructure (IaaS) is certified but services that lack the certification criteria such as data storage at overseas or vulnerability check is impossible are excluded. If SaaS is developed in the IaaS that is not certified, two areas should be certified and evaluated at once.

The SaaS certification takes three months approximately and its validity last three years. Certificate Companies that acquire the certification can participate in procurement of public market. Through this, security certification targets are expanded and the foundation of safe private cloud use by public sectors was supplied.

Cloud computing along with AI, big data, and IoT is spotlighted as the core basis technology to ensure national competitiveness in the Fourth Industrial Revolution. Cloud computing is an area whose application is expected to expand and advance to various industries such as not only ICT industry but also





finance, medical, and education sectors in the future according to recent cloud-related regulation improvements.

Systematic security diagnosis and consulting execution

The Korea Internet & Security Agency induced excellent cloud related companies to participate in the cloud computing support project. It conducted advertisement through email, distribution of press release, and hosted a briefing session to local cloud and fin tech companies, and then introduced how to apply the optimized security component technology by company to company for selected companies and performed security diagnosis and consulting. For example, customized medical information (hospital administration, treatment, EMR etc.) SaaS service was completed for the integrated medical information service, and vulnerability diagnosis was conducted for the developed cloud system and corrective actions were conducted. It also opened a discussion meeting after middle and final evaluations by external experts to assess the completion level of the project progress objectively. It provides a

cloud system completed perfectly through the above systematic consulting.

SME cloud foundation supplied through the K-ICT cloud computing promotion plan

The Korea Internet & Security Agency could take the security demonstration and security service development support through the K-ICT cloud computing promotion plan. Through this, it could contribute to the promotion of specialized cloud information protection companies and conduct the security certification operation successfully. It actually produced four companies of certification acquired business thereby providing the safe private cloud use foundation for public agencies. The cloud reliability could be secured, which was the goal of the Korea Internet & Security Agency, through the K-ICT project, and user protection could be achieved. It also strengthened the coping system against cloud infringement accidents, and expected to achieve the security support for SME cloud service providers.



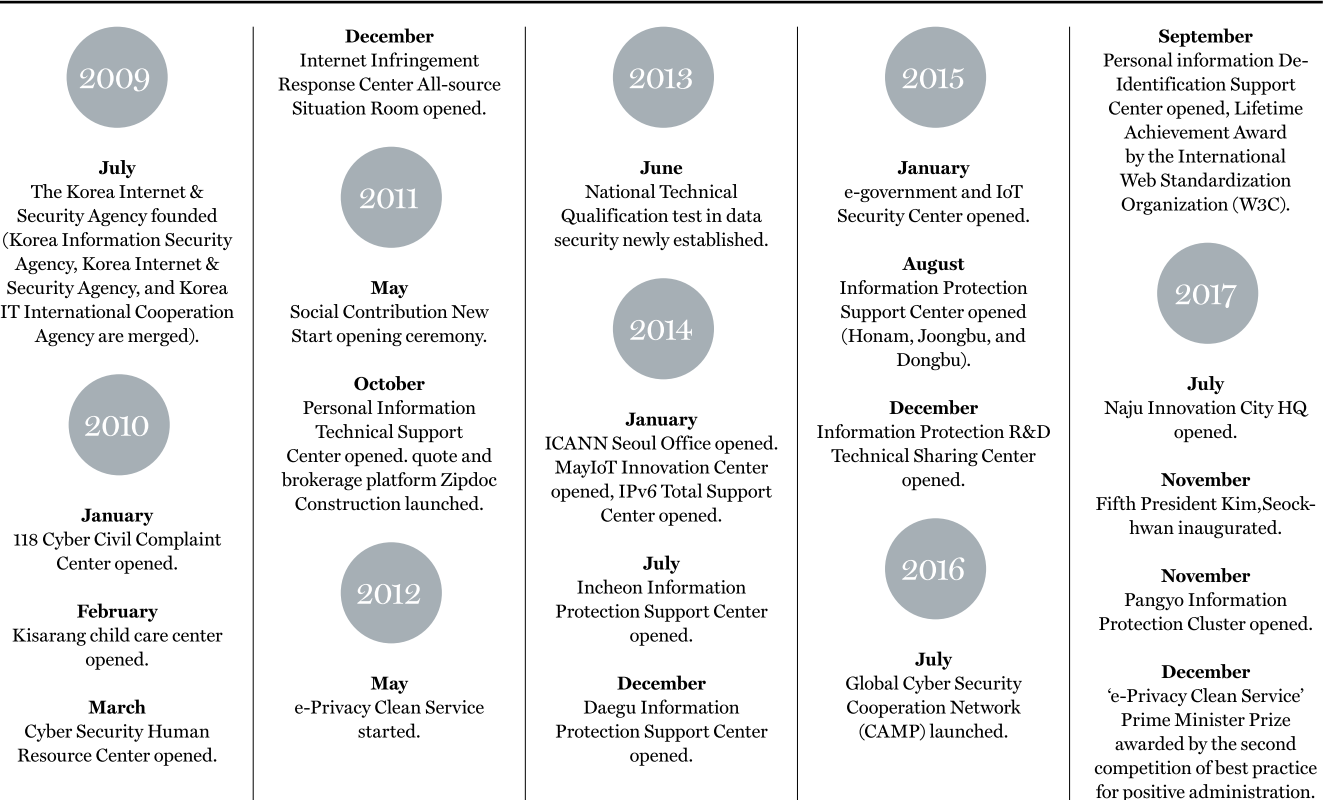
Success Point

The success point was the research of the improvement method by various circumstances and revision of the guideline through the discussion meeting customized to the need of the providers. Originally, the aim was to operate the cloud security certification system and create the cloud use environment, but the certification blind spots (applications) were found when infrastructure-centered security certification system was run. To solve this problem, improvement issues about the security certification system were derived through discussion meeting and briefing session as well as the SaaS security certification system was conducted, and certification guidelines were revised simultaneously. In addition, cloud security application cases in the medical and financial sectors were excavated, but few cases of attempts to other areas than medical and financial sectors were also found, which was a problem. To overcome this, project execution method and procedures were improved through the satisfaction survey targeting the support providers.

Organization Introduction

The Korea Internet & Security Agency is committed to strengthening the industry competitiveness of Internet and information protection via the intelligent fusion security technology development and use expansion as the leading agency of the Fourth Industrial Revolution, and achieve its role and responsibility to make a coping system of information protection at the world's best level for the national and citizen's safety in the cyber space. It also aims to ensure the global competitiveness of the Internet industry and information protection based on ICT fusion, construct the virtuous cycle of industry ecosystem of information protection, expand the base and competence of the local information protection Internet industry, and create the safe and convenient Internet use environment.

TIMELINE



ORGANIZATION OVERVIEW

PRESIDENT KIM, SEOK-HWAN TYPE OF BUSINESS PUBLIC AGENCY ESTABLISHMENT JULY 2009
WEBSITE www.kisa.or.kr/eng/main.jsp

RADIO COMMUNICATION



Organization

Supply of unlicensed (new) industrial spectrum and creation of utilization infrastructure _ **Korea Radio Promotion Association**

Quality assessment of communication services _ **National Information Society Agency**

Company

Support of radio joint engineering lab operation for SMEs _ **Chang Eui Tech Co., Ltd.**

Creation of radio industry SME growth infrastructure _ **Hanatech System Co., Ltd.**

DATA SECURITY

SMART DEVICE

The demand of radio utilization in industrial and daily living areas is discovered



Korea Radio Promotion Association

Broadcasting and Communications Development Fund

- Support organization : Korea Radio Promotion Association
- Project : Supply of unlicensed (new) industrial spectrum and creation of utilization infrastructure

Key Achievements

- Discovery of a number of radio utilization demands in industry and daily living areas.
- Supply of legislative improvement measure of four cases including performance upgrade of autonomous driving cars.
- Achievement of two policy reflections in addition to NB-IoT.

THE KOREA RADIO PROMOTION ASSOCIATION DISCOVERED A NUMBER OF RADIO UTILIZATION DEMANDS IN INDUSTRY AND LIVING AREAS THROUGH THE SUPPLY PROJECT OF UNLICENSED - NEW INDUSTRIAL SPECTRUM AND CREATION OF UTILIZATION INFRASTRUCTURE THEREBY PROVIDING A LEGISLATIVE IMPROVEMENT MEASURE OF FOUR CASES INCLUDING PERFORMANCE UPGRADE OF AUTONOMOUS DRIVING CARS AND ACHIEVING TWO POLICY REFLECTIONS IN ADDITION TO NB-IoT.



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Support of new industrial and daily living frequency spectrum-oriented policy proposal

The Korea Radio Promotion Association operated the online installed demand reception window (www.spectrum.or.kr) through the supply project of unlicensed - new industrial spectrum and creation of utilization infrastructure thereby supplying new spectrum for spectrum users such as industrial bodies, schools, research institutions, and government agencies, and discovering technical standard establishment and revision demands. It also supported policy proposals for government regarding companies once the spectrum supply validity was established after analyzing the trend of technical and standardization, product development progress, market status and prospects, overseas cases, and socioeconomic ripple effects. The validity of the spectrum supply is proven through the

knowhow and technical skills of the Korea Radio Promotion Association and opinions from dozens of radio and policy experts.

Policy proposal for improvements in citizens welfare

The rapid expansion of broadband and hyper-connected wireless network is expected in the Fourth Industrial Revolution era, which will increase the demand of frequency spectrum, which is a scarce and limited resource, explosively. To cope with this, the Radio Broadcast Technical Division in the Korea Radio Promotion Association is committed to the supply of industrial and daily living spectrum and improvements of regulations to enhance citizen's welfare as much as possible through the government grant for ICT.





In particular, it provided a revision measure of wireless device services for the transportation vulnerable such as bus ride guide system for the blind typically in 2017. The bus ride guide system for the blind works as follows: when the blind arrives at the bus stop and sends the signal to the nearest bust using the smartphone app, the bus driver stops the bus at the guide block for the blind and rides the blind. The bus driver can help the blind ride after prior preparation since the driver can see the blind ride information in advance.

One of the significant achievements was the technical regulation relaxation and providing an expansion measure of the use to promote the vehicle collision prevention radar in self-driving car sensors. The cognition area is one of the important fields in the self-driving car. The precise self-location cognition, objects recognition on the road, and distance measurement between objects are life-critical functions in the self-driving car

which is driven by software rather than by humans. Here, what makes this information precisely identified is the role of sensors. The technical development in the sensors that are responsible for the safety of self-driving cars has been steadily conducted and advanced daily. Thus, the regulation relaxation and innovation are becoming mandatory.

This time, the regulation relaxation is characterized by the improvement of larger area sensing more clearly by self-driving cars. Existing technical standards focused on front detection using a single antenna by the vehicle collision prevention radar. However, they were needed to be revised as the technology was advanced to enlarge the detection range using multiple antennas. A new legislative system was also provided to raise the spectrum use efficiency and autonomy by having a system arrangement measure about the radio use for IoT services that required reliability.

“The most priority matter in the spectrum supply validity is to meet the 2020 Supply Plan of New Industrial and Daily Living Spectrum announced in the Ministry of Science, ICT and Future Planning in the face of the Fourth Industrial Revolution era,”



Success Point

The spectrum resource is limited. Among them, the radio spectrum use demand is concentrated in some specific bands. Thus, the analysis on the interference impact and harmonization of the interest are the most important process in the project. The Korea Radio Promotion Association has also made efforts to make the persons concerned to understand other standpoints and search for the resolution measure continuously. It can overcome the difficulties through proactive cooperation of related organizations and strong initiative to drive the policies of the government.

Organization Introduction

The Korea Radio Promotion Association is a special corporation established in accordance with Article 66-2 in the “Radio Waves Act.” It creates a development basis for radio promotion by fostering the efficient use of radio resources and strengthening inter-cooperation and ties among radio-related companies, and by facilitating the sound development of radio use technology through internationalization of radio broadcast industry and standardization of radio use technology. It has also striven for the contribution to the creation of new industries and improvements of citizens’ convenience.

TIMELINE

<div>1990</div> <div>October</div> <div>Korea Radio Industry Promotion Association Corp. founded.</div>	<div>1992</div> <div>August</div> <div>Korea Radio Promotion Association Special Corp. founded.</div> <div>1997</div> <div>July</div> <div>Affiliated Type Registration Test Laboratory (Testing and Certification Laboratory) opened.</div>	<div>2004</div> <div>February</div> <div>Affiliated EMC Technical Support Center opened.</div> <div>2010</div> <div>January</div> <div>Affiliated Advanced Training Institute of Communications opened.</div>	<div>2011</div> <div>January</div> <div>Affiliated EMC Technical Support Center is expanded and revised to the Electromagnetic Wave Technology Institute.</div>	<div>2013</div> <div>November</div> <div>Affiliated RF Engineering Lab. opened.</div>
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ORGANIZATION OVERVIEW

PRESIDENT HA, HYUN-HWOI TYPE OF BUSINESS PUBLIC AGENCY ESTABLISHMENT OCTOBER 1990
WEBSITE www.rapa.or.kr/design/contents10.asp?code=1010&lang=eng&left=1&mncode=18

Providing high-quality communication services for all citizens



National Information Society Agency

Broadcasting and Communications Development Fund

- Support organization : National Information Society Agency
- Project : Quality assessment of communication services

Key Achievements

- Quality improvements of communication services in marginalized regions such as rural and fishing villages and islands.
- Users can measure communication service quality by themselves using wireless Internet speed measurement app.
- Development of optimum quality assessment with low budget.

THE NATIONAL INFORMATION SOCIETY AGENCY (NIA) SUPPORTED OBJECTIVE ASSESSMENT OF COMMUNICATION SERVICE QUALITY BY USERS THROUGH THE QUALITY ASSESSMENT SUPPORT PROJECT OF COMMUNICATION SERVICES. BY DOING THIS, IT EVALUATED WHETHER INFORMATION IS PROVIDED REASONABLY TO USERS AND ENCOURAGED INVESTMENTS BY COMMUNICATION PROVIDERS TO COMPETE ONE ANOTHER AND IMPROVE THE QUALITY. THE NIA IS COMMITTED TO PROVIDING FAIR COMMUNICATION SERVICES FOR ALL CITIZENS ANYWHERE AROUND THE NATION.



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Director

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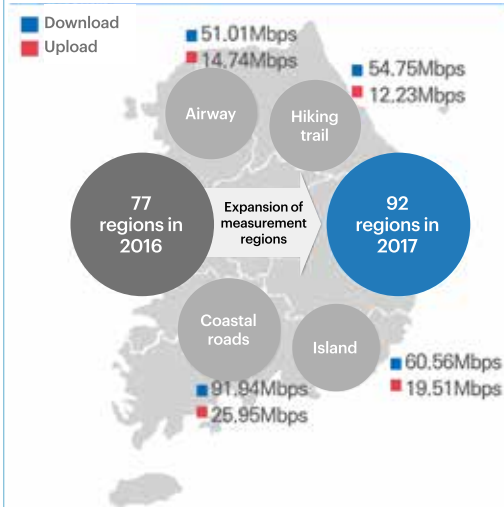
Increase in user benefits through quality assessment of communication services

The NIA is conducting quality assessment for all citizens to have the same and fair communication services. The communication service quality assessment has been performed annually in accordance with Article 56 of the “Telecommunications Business Act.” The subscribers can choose their preferred communication providers after checking the communication service quality results, and communication providers compete with one another to catch up the best quality of other providers, which improves communication services. There are some remote regions where high quality communication services are not enjoyed except for metropolitan or urban areas.

The NIA encourages communication providers to supply high quality services for those isolated regions through the



Expansion of quality assessment of communication services in vulnerable regions.



Results of quality assessment of communication services in 2017



communication quality assessment. It has improved the communication service quality without any significant difference between urban and marginalized regions such as rural and fishing villages and islands, as well as small and medium sized cities.

User-centered quality assessment of communication services

In 2017, quality assessment by users was added to the measurement items in contrast with those in 2016. The voluntary assessments are conducted by the NIA and providers, but the real quality of communication services is felt by actual users. Annually, 600,000 measurements of data were sent from the wireless Internet speed measurement app, which was distributed by the NIA, and these data were processed statistically by region and handset type thereby measuring the actual communication service quality felt by the users.

The communication qualities felt by users who had different service use conditions could be measured using big data owned by the NIA. That is, optimal quality assessment could be possible with low budget.

Contribution to improvements of quality of life for all citizens

The NIA is striving to improve the quality of life for citizens through the government support projects such as the government grant for ICT. In particular, the Technical Support Division establishes informatization plans and supports consulting, and performs public and private smart work promotion, cloud adoption in public sectors and support of promotion of the cloud use, proliferation and expansion of standardized framework as well as assistance of future ICT infrastructure advancement and creation of big data use promotion basis.

“We are proud of this valuable government support project because it provides high-quality communication services for citizens and helps replacement of old devices and installation of new communication networks thereby incurring indirect economic promotion such as sales increase and job creation by partner companies,”



Success Point

The NIA has accumulated network-related knowhow through network communication services since the Internet was first introduced in Korea. It has achieved communication quality assessment successfully through the understanding and knowhow about the technical skills delivered from senior to junior staff. The NIA is doing all the best to achieve public goods for citizens through standardization of communication quality measurement methods and quality assessment.

Organization Introduction

The NIA has played a role as a base camp of national informatization for the last 30 years, and now striving for leading the nation to the intelligent informatization in the face of intelligent information society in the coming Fourth Industrial Revolution. It is now planning various projects: assistance of professional skills to execute the national informatization plan, ICT-based national future strategies, support of big data utilization and expansion, ICT fusion facilitation as well as network upgrade and social integration policy support to resolve the information difference gap.



TIMELINE

<div>1987</div> <div>January</div> <div>National Computerization Agency (NCA) founded.</div>	<div>2003</div> <div>January</div> <div>Korea Agency for Digital Opportunity and Promotion (KADO) founded.</div>	<div>2006</div> <div>October</div> <div>NCA renamed to (former) National Information Society Agency.</div>	<div>2009</div> <div>May</div> <div>Merged with National Information Society Agency and together launched as National Information Society Agency.</div>	<div>2015</div> <div>July</div> <div>Moved to Daegu/Jeju office buildings.</div>
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ORGANIZATION OVERVIEW

PRESIDENT MOON, YONG-SIK TYPE OF BUSINESS PUBLIC AGENCY ESTABLISHMENT JANUARY 1987
WEBSITE eng.nia.or.kr/site/nia_eng/main.do

The value of life is preserved with smart healthcare products



Chang Eui Tech Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : Korea Radio Promotion Association
- Project : Support of radio joint engineering lab operation for SMEs

Key Achievements

- Electronic thermometer 'Nearbebe' registration completed in the Android and iOS platforms.
- Consulting of KIMES and GMES worth of \$1.8 million.
- Online communication sales business registered and products are selling in 11Street, Coupang, G Market, Auction, and Naver Store Farm as a partner.
- Detection system of sleeping posture using micro electro mechanical systems (MEMS) sensors' and other products are applied and registered for patent.

CHANG EUI TECH DEVELOPED A SECOND-GRADE ELECTRONIC THERMOMETER FOR INFANTS "NEARBEBE (NB-TM1)" AND MOBILE APP THROUGH THE SUPPORT PROJECT OF RADIO JOINT ENGINEERING LAB OPERATION FOR SMEs. IT HAS ACQUIRED THE MANUFACTURING QUALITY MANAGEMENT CERTIFICATION (KOREA GOOD MANUFACTURING PRACTICE (KGMP)) FOR MEDICAL DEVICES THROUGH THE GOVERNMENT GRANT FOR ICT, AND DOMESTIC PRODUCT APPROVAL FROM THE KOREAN FOOD AND DRUG ADMINISTRATION (KFDA). STARTING WITH THE MINISTERIAL PRIZE OF THE MINISTRY OF SCIENCE AND ICT, IT HAS EXPANDED THE BUSINESS SECTORS TO HOME HEALTHCARE TECHNICAL DEVELOPMENT, MANUFACTURING, AND SALES.



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The company has launched smart healthcare products for infants and parents

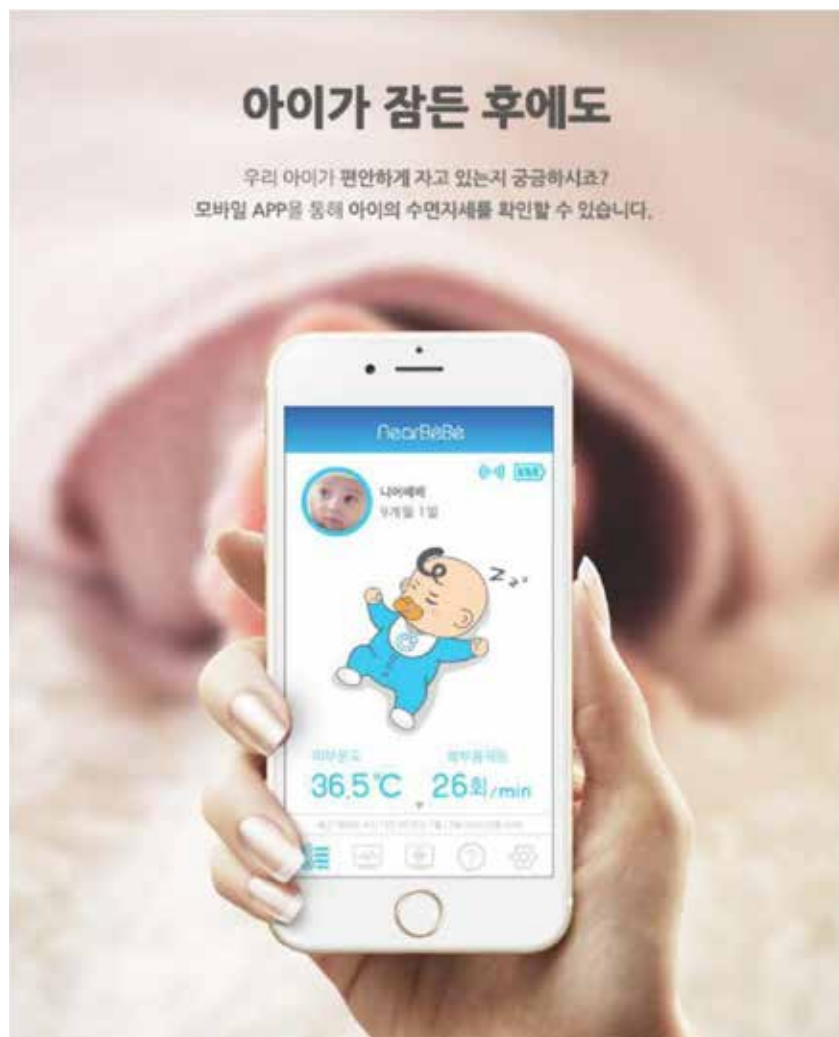
Those who raised children know there much care should be taken to infants. Parents are always fretting about the infants whether they are uncomfortable or sick. To lessen the parent worry and monitor the health status of infants on a regular basis, “Nearbebe” was manufactured from Chang Eui Tech. “Nearbebe” internalized the technical platform that fused direct medical information (body temperature, abdomen movements, and sleeping posture) and indirect environmental information (indoor temperature and humidity) to monitor the health status of infants by parents at all times.



Approach consumers with high quality and trust

The digital healthcare and IoT market has grown steadily as well as the medical device market for infants, which is essentially needed to raise infants, has increased although the average birth rate in Korea is declined. As a late comer in thermostats for infants, Chang Eui Tech challenged the local thermostat market, which is monopolized by several early comers, with high quality and trust.

Chang Eui Tech developed a digital healthcare platform based on programmable electronic medical system (PEMS) that can measure health status of infants constantly according to the global technical trend and operated its own data extraction and verification program for infants' health status using MEMS sensors, accumulating the trust from consumers with their high technical skills. Their products are of compliance with vigorous electronic medical device standards in relation to health, safety, and consumer protection such as IEC and ISO.



Success Point

Chang Eui Tech is a R&D and quality-oriented organization and more 90% of employees graduated from bachelor of engineering or higher degrees with the background of medical devices. The successful factors of Chang Eui Tech are ceaseless R&D and will to advancement. It was not easy to accomplish the wireless communication technique that can be applicable with low-power wireless communication specifications to monitor health status of infants and related environment information. However, the company was successful to produce a prototype through constant research and trend analysis and achieved commercialization.

Company Introduction

Chang Eui Tech is a specialized medical device company that developed “health status monitoring service platform for infants” in April 2016 with the quality goal of “less than 10% of quality defect rate”, and with the business motto “company that achieves precious life value”. Chang Eui Tech has expanded its business sectors in home healthcare technical development, manufacturing, and sales based on the wearable health status monitoring technique for infants on the basis of digital healthcare technology.



TIMELINE

<div>2016</div> <div>April Corporation established (Room No. 407-1 Medical Device Complex Center in Wonju Enterprise City).</div> <div>December “Grand Prize” awarded in 2016 Next-generation Medical Device Startup Competition.</div>	<div>2017</div> <div>January HQ moved (Room No. 715 Medical Device Complex Center in Wonju Enterprise City).</div> <div>March Exhibited in KIMES 2017 (\$1.5 million worth of consulting amount achieved).</div> <div>September Registered as Family Company in Yonsei University.</div> <div>September Exhibited in KIMES 2017 (\$1.5 million worth of consulting amount achieved).</div>	<div>October Grade 2 electronic thermostat NB-TM1 medical device acquired the manufacturing quality management certification KGMP.</div> <div>November 2017 “Ministerial Prize” awarded from the Ministry of Science and ICT.</div> <div>November Grade 2 electronic thermostat NB-TM1 acquired the domestic product approval from KFDA.</div> <div>December Selected as ‘Excellent Company in Gangwon’ in 2017 Gangwon Techno Park.</div>	<div>2018</div> <div>January Business sector expanded from service to manufacturing business.</div> <div>January Exhibited in Arab-Health 2018 (\$300,000 worth of consulting amount, \$100,000 worth of contract signed achieved).</div> <div>February Online marketing launched (11Street, Naver, Coupang, Auction, and G Market).</div>	<div>February KOITA Company-affiliated R&D Institute founded (No. 20181111022).</div> <div>March Venture company certified from Korea Technology Finance Corporation (No. 20180102141).</div> <div>March Exhibited in KIMES 2018 (\$300,000 worth of contract signed achieved).</div> <div>March NB-TM1 CE acquired (information communication device and peripherals).</div>
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COMPANY OVERVIEW

CEO CHUNG, TAE-HA TYPE OF BUSINESS MEDICAL DEVICE MANUFACTURING ESTABLISHMENT APRIL 18, 2016
WEBSITE www.nearbebe.com

Leading the traffic safety solution field solely with domestic technology

HANATECH SYSTEM

Hanatech System Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : Korea Radio Promotion Association
- Project : Creation of radio industry SME growth infrastructure

Key Achievements

- Selected as promising SME in Gyeonggi-do.
- Selected as Star Company in Gyeonggi-do by Gyeonggi Business & Science Accelerator.
- Selected as human resource development-centered SME by the mall & medium Business Corporation.
- Selected as strategic industry promotion company by the Gyeonggi Small and Medium Business Center.
- Six patent applications and 12 patent registrations achieved.
- Nine technical development achievements held including crossroad traffic volume detection system.

HANATECH SYSTEM Co., Ltd. DEVELOPED A WIRELESS GEOMAGNETIC VEHICLE DETECTION SYSTEM (VDS), WHICH IS SUPERIOR IN TRAFFIC INFORMATION COLLECTION EVEN IN EXTREME ROAD CONDITIONS AND RELATIVELY INEXPENSIVE IN MAINTENANCE COST. EXISTING LOOP-TYPE VDSs WERE RELATIVELY SUPERIOR IN DETECTION RATE COMPARED TO OTHER DETECTORS. HOWEVER, THEY HAD DRAWBACKS OF HIGH MAINTENANCE COST OR PERFORMANCE DEGRADATION DEPENDING ON ROAD CONDITIONS. HANATECH SYSTEM WAS SUCCESSFUL IN COMMERCIALIZATION OF GEOMAGNETIC VDS AFTER OVERCOMING THE DRAWBACKS.



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ITS market growing steadily worldwide

The intelligent transport system (ITS) combines technologies of electronics, information, communication, and control with traffic systems. Its aim is to establish a rapid, safe, and comfortable next-generation transport system. With the changes in social awareness about ITS services and technical developments, the traffic safety and environmental protection, parking management, self-driving (automatic driving), and vehicle telematics have also increased proportionally. The global ITS market has grown by 9.3% annually from 2011 to 2015. The current global ITS market has been led by the USA, Europe, and Japan, but their market shares are declining gradually. The market size of the transport system in Korea is estimated to \$400 million currently, and it is still growing. The market size in Korea is growing faster than other major overseas countries.



Better than overseas products with local technical competitiveness

The geomagnetic VDS developed by Hanatech System was set more suitably to the Korean traffic circumstances than that of geomagnetic sensor modules imported from overseas, and the development and supply were handled by the local company, which can be much more inexpensive than products imported from overseas. Existing loop-type VDS had a drawback to cut the road during installation and repair whereas the geomagnetic VDS employed a wireless communication mode, which was convenient to construct only a range where the geomagnetic sensors could be installed. Since it can also be installed in narrow roads or roads where video type VDS cannot be entered, its demand from the market is increasing.

Excellence in optimum performance considering various extreme road conditions

A geomagnetic sensor detects a change in earth's magnetic field by vehicles, metal materials, or magnets rather than detecting signals generated from energy sources such as sound, vibration, or light. Thus, it is free from the environmental interference such as climate change, vibration, obstacles, and difference between day and night. Up until now, a geomagnetic sensor had a difficult in technical development due to surrounding unspecific noise and weak signals of the earth's magnetic field. Hanatech System, however, secured a technique to extract feature signals of detection object by separating earth's magnetic field signals and noise thereby completing the technical development. Moreover, excellent collection performance even in subway areas, which have been known to be vulnerable, has been proven.



Success Point

Hanatech System is investing in human resources generously. Above all, the most differentiated organization culture is to balance work and training. Currently, Hanatech System employs staff increasingly by 23% annually and it has an agreement of work-training in parallel with the Human Resources Development Service of Korea to employ graduates from high school as full time regular staff and assist new employees to attend classes in universities.

Company Introduction

Hanatech System is a specialized company in transport safety solution with long experience and technical skills in intelligent transport system and parking control system. Its market share in VDS has been No. 1 in Korea with the global IP strategy and constant investment in R&D. In recent years, the company secured the local source technology about geomagnetic sensors and successful in commercialization of geomagnetic VDS and parking place sensor. Their products have been applied to Seoul City followed by local governments around the nation and the Korea Expressway Corporation increasingly to lead the market.



TIMELINE

<div>2008</div> <div>June Hanatech System Co., Ltd. In Anyang Gyeonggi-do founded (individual business).</div> <div>2010</div> <div>January Hanatech System Co., Ltd. Changed to corporation (Capital invested \$0.13 million).</div> <div>January Kim,Seung-il CEO inaugurated.</div> <div>November Venture company certified (Nov. 2011 to present).</div>	<div>2011</div> <div>February HQ moved (SK GwangmyeongTechnopark located in Gwangmyeong-si in Gyeonggi-do).</div> <div>February Hanatech System Factory registered (Enterprise Economy Division in Gwangmyeong-si Gyeonggi-do).</div> <div>February Company annex research institute established (Korea Industrial Technology Association).</div> <div>February Software business registered (Korea Software Industry Association).</div>	<div>2012</div> <div>April Business sector added (information and communication works business, information and communication related product manufacturing and sales, development and research outsourcing, etc.).</div> <div>April Registration of information and communication works business (Korea Information and Communication Contractors Association).</div> <div>June Business sector added (software development, consulting and supply, video processing equipment manufacturing, sales, and installation etc.).</div>	<div>2013</div> <div>July Kim,Seung-il reappointed as CEO.</div> <div>2014</div> <div>April Registered as SME (Small business approved by the Small and Medium Business Administration).</div> <div>2016</div> <div>January Capital increased (\$0.18 million added).</div>	<div>March Kim,Seung-il reappointed as CEO.</div> <div>June Business sector added (lighting equipment manufacturing, wholesale of lighting and steel, and trading).</div> <div>2017</div> <div>January Business sector added (video information display device manufacturing).</div> <div>August Business sector added (Parking control device manufacturing).</div>
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COMPANY OVERVIEW

CEO KIM, SEUNG-IL TYPE OF BUSINESS COMMUNICATION DEVICE MANUFACTURING ESTABLISHMENT JANUARY 06, 2010
WEBSITE www.hanatek.co.kr

DIGITAL CONTENTS
SMART HEALTHCARE
IoT
BIG DATA
CLOUD
SMART DEVICE
DATA SECURITY
RADIO COMMUNICATION

Job creation outstanding cases

3

CHAPTER

Organization

SW Human Resource Training _ **Institute for Information and Communications Technology Promotion**
Specialized Human Resource Training in Information Security _ **Korea Internet & Security Agency**

Company

Promotion of the Computer Graphics Industry _ **WYSIWYG Studios Co., Ltd.**
Expansion of SW Human Resource Training Basis _ **Daedeok Software Meister High School**
Smart Content Convergent Human Resource Training _ **Maromav**

Fostering ICT and software talented workers with hands-on skills



Institute for Information and Communications Technology Promotion

Fund for Promotion of Information and Communications

- Support organization : Institute for Information and Communications Technology Promotion
- Project : SW Human resource training

Key Achievements

- Operation of training program to promote talented workers in ICT and software with hand-on skills.
- Intensive training, follow-up management, and constant monitoring with mentors.
- Follow-up management of performance and yearly tracking investigation executed to identify the needs of beneficiaries.
- Constant formation of network between participated project staff through 'Hanium'.

THE SOFTWARE TALENTED WORKER PROMOTION PROJECT IS A HUMAN RESOURCE PROMOTION PROJECT THAT REFLECTS VARIOUS FIELD DEMANDS IN THE INDUSTRIES FOR SYSTEMATIC FACILITATION OF SPECIALIZED HUMAN RESOURCES IN ICT FIELDS. ACCORDING TO THE SUPPORT METHOD AND RANGE, THE PROJECT IS DIVIDED INTO SIX SUB-COURSES: ICT MENTORING OPERATION, SOFTWARE MAESTRO COURSE, SOFTWARE CIRCLE DONATION CHALLENGE, IT COMPETENCE INDEX, UNIVERSITY ICT NEW MODEL EXPANSION AND OPEN-TYPE ICT FUSION COURSE, AND DESIGNATION SUPPORT OF SPECIALIZED SOFTWARE HUMAN RESOURCE PROMOTION ORGANIZATIONS. THROUGH THE PROJECT, THE INSTITUTE FOR INFORMATION AND COMMUNICATIONS TECHNOLOGY PROMOTION (IITP) DISCOVERS AND PROMOTES HAND-ON WORKERS THAT CAN WORK STRAIGHTAWAY TO THE FIELD.



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Development of human resource through hand-on project training in Fourth Industry

The ICT mentoring operation, which is one of the sub-projects in the software human resource promotion project, aims to resolve the qualitative and quantitative mismatch between ICT human resources and companies by promoting ICT and software workers equipped with hand-on skills through practical projects performed with university students (mentees) and enterprise experts (mentors) by fostering ICT and software talented workers with hand-on skills. A number of deliverables

achieved through the project have been awarded in contests, and the IITP supports startup if some of the deliverables are commercialized.

Rather than supporting for some years simply, yearly tracking investigation (satisfaction of beneficiaries, project result utilization, successful employment, etc.) is conducted for follow-up management of deliverables and identification of the need of the beneficiaries to manage the project on a regular basis, and a constant network is formed between participated project workers through the “Hanium” site, which is a web site for ICT mentoring.

“The IITP pioneers the global market and promote creative talented workers who can lead software technology innovation. The IITP is producing hand-on workers who meet the standards of various technical fields through qualitative advancement to ICT majored subjects”.



Specialized technical education through creative challenge curriculum

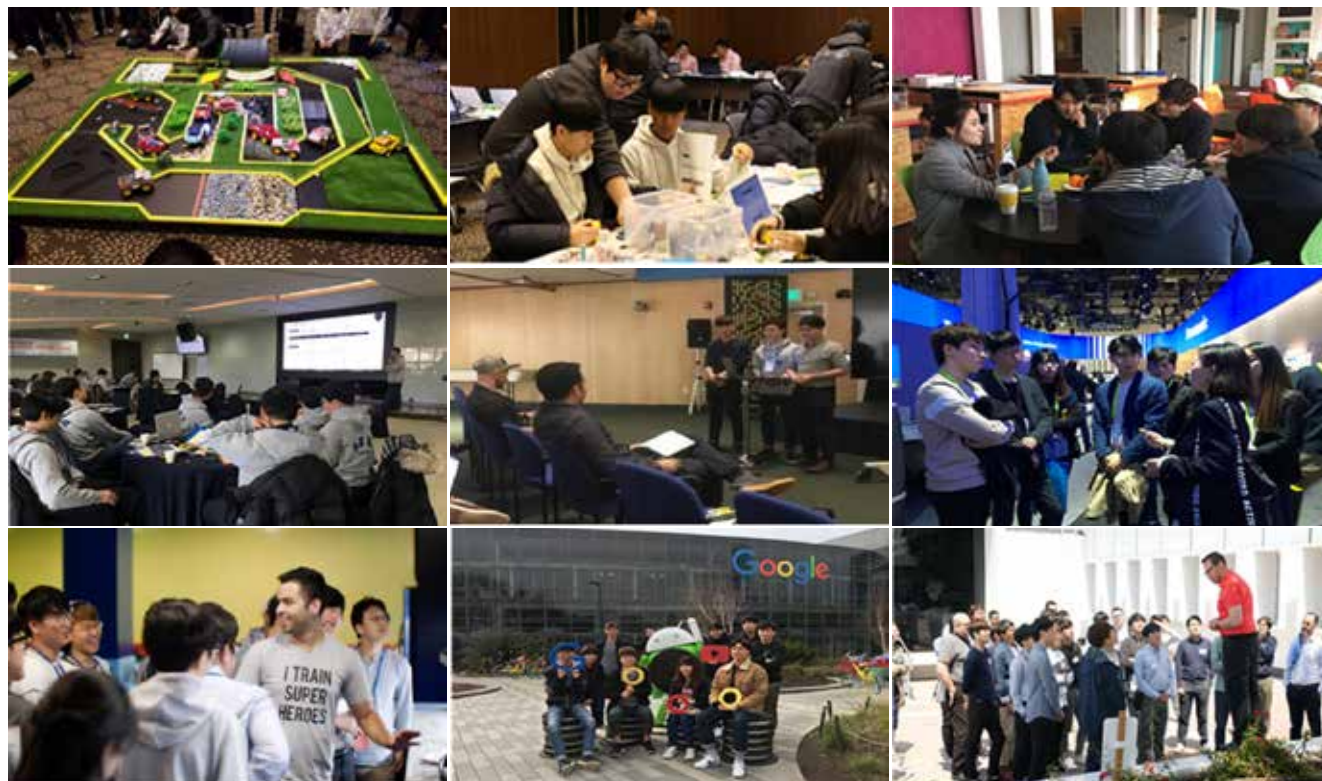
The software maestro course aims to select talented trainees in software and foster the best-class software engineer through the project-based mentoring with software experts. To do this, hackathon is conducted for writing of final project plan, and specialized skills are trained through project execution. In addition, global software competence is raised, and various types of mentoring educations are conducted through overseas training for entrepreneurship education. The course is characterized by the life cycle management on overall

promotion project such as assessment in every step, project deliverables disclosure, and follow-up tracking of trainees.

In addition, project execution competence is raised through the customized software development for small company and small business, and hand-on workers who can be applied straightaway in the field are cultivated, as well as the software circle donation challenge project is actively supported to increase the project competitiveness.

The examination results of practical competence ability of university students are constantly reflected in the education field through the regular tests of TOPCIT, which tests the IT competence index.

“IITP leads the ICT in the global market as a dedicated world's best organization of ICT R&D. It advances the future technology. It stays a step ahead of the competition with innovation. It challenges the world market ceaselessly. IITP is the future of ICT in Korea”.





Success Point

In contrast with existing short-term cramming education style of human resource promotion projects, IITP has planned a systematic and specialized human resource promotion program by applying constant monitoring through hand-on education through projects, intensive education such as hackathon and workshop, follow-up management, and network formation with mentors. Moreover, IITP has expanded achievement value through public relation strengthening and achievement sharing such as external and internal press release for highly qualified workers in software, excellent case discovery, 100+ conference, and social contribution.

Organization Introduction

The IITP supports the ICT strategy establishment overall on behalf of the Ministry of Science and ICT, and performs tasks to construct policy infrastructure such as policy making and monitoring of progress status. To do this, it performs major government projects that support the ICT R&D life cycle from related policy, planning, and evaluation to achievement expansion, and provides statistical analysis and information services that integrate policies and industrial technologies.

TIMELINE

2014

June
Institute for Information and
Communications Technology
Promotion opened.

2015

March
Human resource promotion,
basis creation, and
standardization function
transferred.

ORGANIZATION OVERVIEW

PRESIDENT SEOK, JAE-BUM **TYPE OF BUSINESS** PUBLIC AGENCY **ESTABLISHMENT** JUNE 2014
WEBSITE www.iitp.kr/en/main.it

Promoting professional human resources with information protection capability



Korea Internet & Security Agency

Fund for Promotion of Information and Communications

- Support organization : Korea Internet & Security Agency
- Project : Specialized human resource training in information security

Key Achievements

- Promotion of professional human resources in life cycle information protection is conducted.
- More than 70% of trainees completed their training in Korea University, Ajou University, Seoul Women's University, and Chungbuk National University were successful to get professional jobs.
- Supply of excellent professional workers in information protection to the industry through job fairs.

THE KOREA INTERNET & SECURITY AGENCY (KISA) TRAINED 826 PROFESSIONAL WORKERS IN PUBLIC AND PRIVATE CYBER SECURITY AND NEW INDUSTRY FUSION SECURITY TO COPE WITH NATIONAL CYBER THREATS AND STRENGTHEN THE COMPETITIVENESS OF THE INFORMATION PROTECTION INDUSTRY THROUGH THE SUPPORT PROJECT OF PROMOTION OF PROFESSIONAL HUMAN RESOURCES IN INFORMATION PROTECTION IN THE GOVERNMENT GRANT FOR ICT. IT ALSO PROVIDED A PROMOTION BASIS FOR HUMAN RESOURCES IN INFORMATION PROTECTION REQUIRED IN THE INDUSTRY SUCH AS INFORMATION PROTECTION FIELD QUALIFICATION, HACKING CONTEST, AND JOB FAIRS.



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A society where the importance of information protection is prioritized

As our society enters the knowledge and information society, activities in cyberspace have expanded more and more. Many events, tasks, and services occurred in the offline world previously are now provided online as well, which has become the smart era. Many functions in companies are now performed using the Internet, and services of national agencies are also provided through the Internet or smartphones. Many public services such as banking, stock, transport, and newspaper are also accessed through the Internet and smartphones.

As the knowledge informatization society advances, the importance of information protection is highlighted. As people are more dependent on information systems, if information systems fail suddenly and produce errors, critical circumstances

may occur that business tasks are paralyzed, and even lives of people are threatened.

In particular, companies or nations with a high level of informatization should give more emphasis on information protection. Although raising competitiveness by increasing a level of informatization is important to step ahead in the global competition era, a high level of information protection capability cannot be overlooked as well.

Promotion of human resources in national information protection

The information protection, which has been required mandatorily in the Fourth Industrial Revolution, must be supported to maintain national competitiveness. However, the





supply of human resources in information protection is insufficient every year in Korea. According to Director Cho, Sung-woo in Cyber Security Training and Certification Center in KISA, the recent survey results regarding information protection human resources showed that approximately 10,000 workers in information protection would be needed more by 2020. To cope with this, the KISA is committed to promoting professional human resources in information protection using training programs for elementary, middle, high school students as well as university undergraduate and graduate students to strengthen the competitiveness of national information protection industry.

“The KISA is providing a professional life-cycle training program in information protection, starting with the early professional promotion training in information protection for elementary, middle, and high school students, specialized curriculum and industry-academia linked program for university undergraduate and graduate students, and training program for incumbent workers to learn more advanced information protection skills.

Job creation by promoting professional workers in information protection

The support project of promotion of professional human resources in information protection raises the level of workers, which is elementary and lacks expertise in existing university curriculum, to the degree that matches the requirements from the industry. It helped supporting new subject providing with regular curriculum and creating industry-academia linked programs such as industrial mentoring or lecturing. More than 70% of trainees completed their course in Korea University, Ajou University, Seoul Women's University, and Chungbuk National University were employed as information protection professional.

In addition to the curriculum support in universities, the KISA also supports the supply of qualified human resources to the industry by hosting job fairs for students to become experts in the information protection field through education. The ultimate goal is to make universities to advance the information protection field continuously beyond opening a curriculum through the government support project simply.

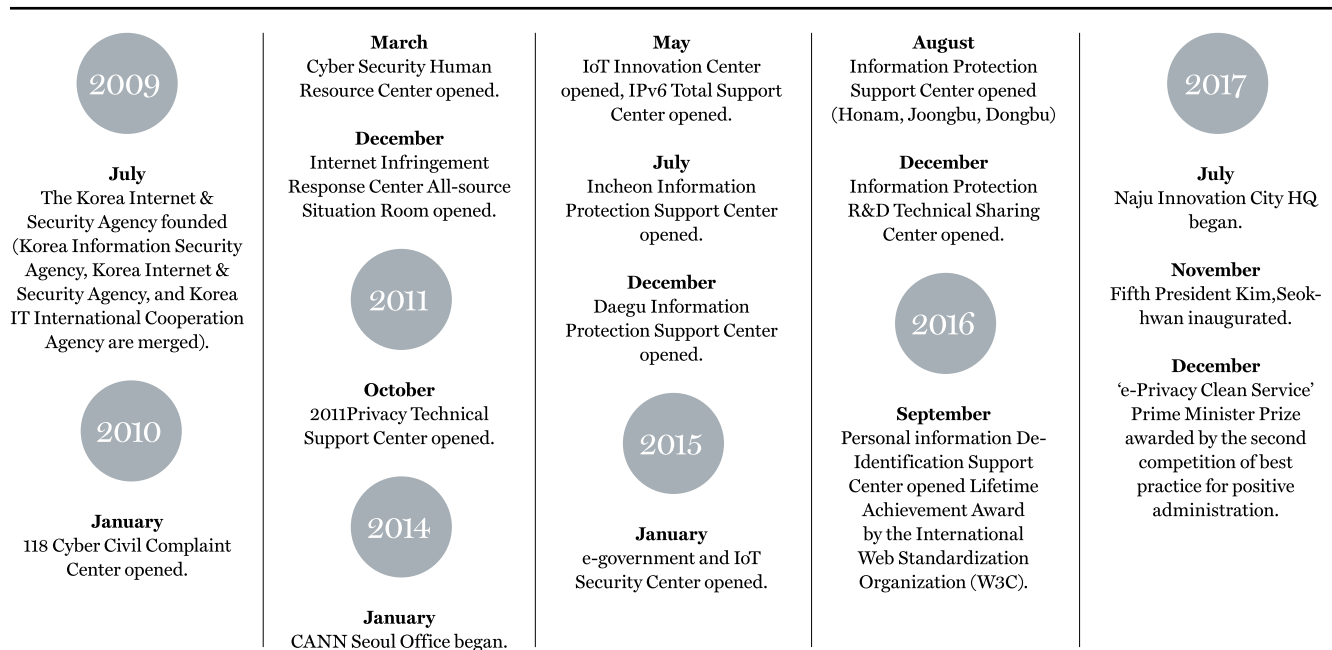
Success Point

The support project of promotion of human resources in information protection could be successful through the efforts to promote professionals in information protection field in a long-term basis and produce talented workers required in the industry without limiting to provide only short-term training courses. The KISA that systematizes certificates and National Competency Standards (NCS) could give pieces on training so that job hunters could help the industry practically as it listened to the voice of the industry and the ministries.

Organization Introduction

As a leading agency in the Fourth Industrial Revolution, the KISA has strengthened the industrial competitiveness in Internet and information protection with the development of intelligent fusion security technology and expansion of the use. It aims to fulfill the roles and responsibilities of making the world's best measure for information protection for the safety of nation and citizens in the cyberspace and makes all efforts to ensure global competitiveness in information protection and Internet industry based on ICT fusion. It constructs a virtuous cycle ecosystem of information protection industry, expands the basis and competence of the information protection and Internet industry in Korea, and creates a safe and convenient use environment on the Internet.

TIMELINE



ORGANIZATION OVERVIEW

PRESIDENT KIM, SEOK-HWAN TYPE OF BUSINESS PUBLIC AGENCY ESTABLISHMENT JULY 2009
WEBSITE www.kisa.or.kr/eng/main.jsp

Raising the company growth by new recruitment



WYSIWYG Studios Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : National IT Industry Promotion Agency
- Project : Promotion of the computer graphics industry

Key Achievements

- Improvement of sales record through a diversity of content production.
- Signed contracts with CKF Pictures and Phillips export movies and videos.
- Attracted investment from four venture capital companies (Premier Partners, Intervest, Korea Investment Partners, and SBI Investment).
- International conference event and exhibition, overseas fairs hosted and participated including Hong Kong Film Mart in February 2018.
- VR video introduced to Lotte World "Robot Taekwon V" attraction, "Useokheon Dinosaur Natural History Museum", and "Ulsan Petroglyph Museum".

WYSIWYG STUDIOS BOLDLY ATTEMPTED "FREE VISUAL REAL-TIME SYSTEM", AND "DIGITAL HUMAN SPECIALIZED TECHNOLOGY" EVEN LARGE VISUAL EFFECTS (VFX) COMPANIES WERE RELUCTANT AND DEVELOPED A CG TECHNIQUE THAT COULD RENDER LIVE 3D VIDEOS INSTANTANEOUSLY. IT COULD PROGRESS THE PROTOCOL OF FREE VISUAL REAL-TIME SYSTEM UP TO THE COMMERCIALIZATION PHASE THROUGH THE "COMPUTER GRAPHIC INDUSTRY PROMOTION" PROJECT IN THE NATIONAL IT INDUSTRY PROMOTION AGENCY WHEN THE VR MARKET WAS NOT MATURED DUE TO POOR CIRCUMSTANCES IN KOREA. THE TECHNICAL SKILLS OF WYSIWYG STUDIOS WERE RECOGNIZED EVEN IN HOLLYWOOD IN THE USA, SO THE COMPANY SIGNED THE GLOBAL PARTNERSHIP MOU WITH "TAU FILM" FOUNDED BY JOHN HUGHES, THE LEGENDARY DIRECTOR IN VFX. THE COMPANY CONSTRUCTED A MUTUAL GROWTH WIN-WIN RELATIONSHIP WITH "TAU FILM", AND JOINT PRODUCTION OF GLOBAL PROJECT IS UNDERWAY IN CHINA.



Park, Gwan-woo
CEO

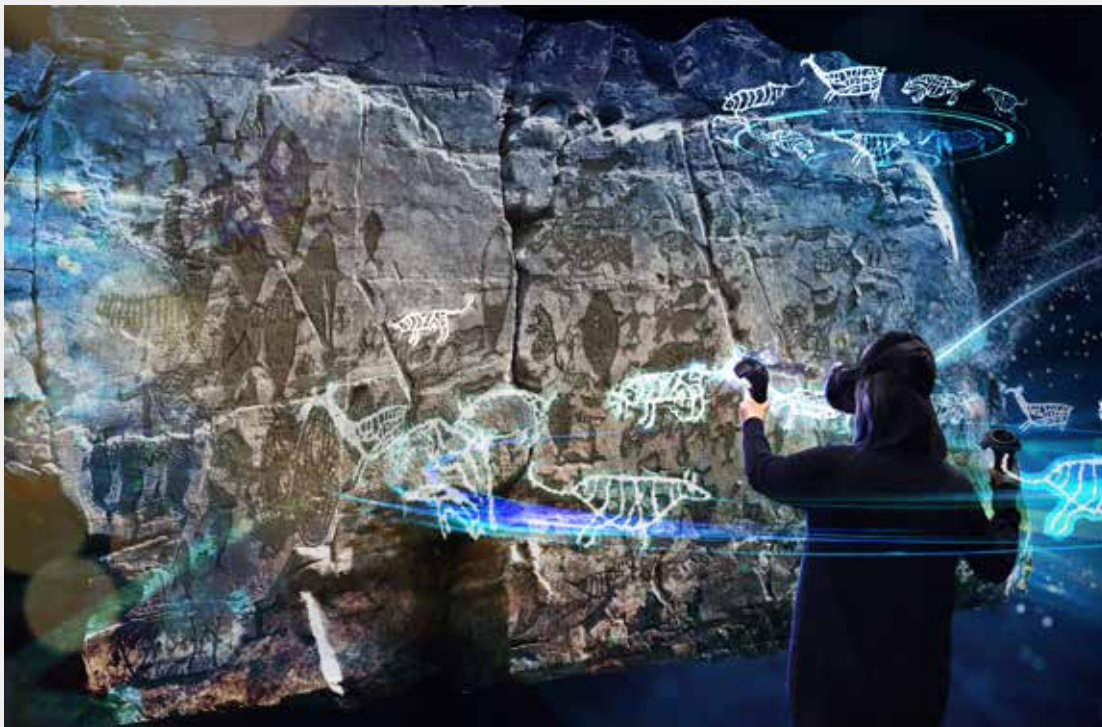
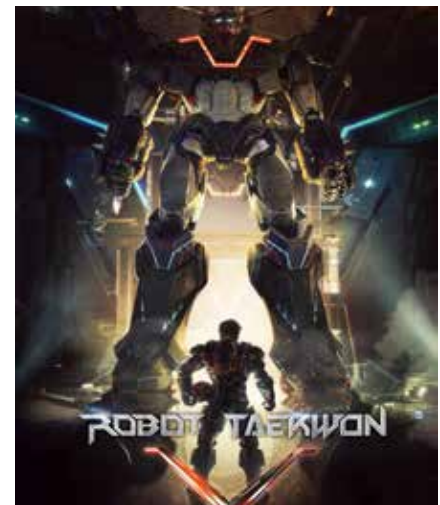
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Two goals: job creation and company growth achieved together

WYSIWYG Studios received the additional fund at the time when the cash flow needed the most and could utilize the fund at the right time and right place. Not only the company could progress the protocol of free visual real-time system up to the commercialization phase through the “computer graphic industry promotion” project in the National IT Industry Promotion Agency when the VR market was not matured due to unfortunate circumstances in Korea, but also it could employ new human resources using the fund, resulting in outstanding achievements. The company began human resource staffing from 2017, and all 160 employees were permanent workers, which contributed to job creation as well as driving the company growth at the same time.

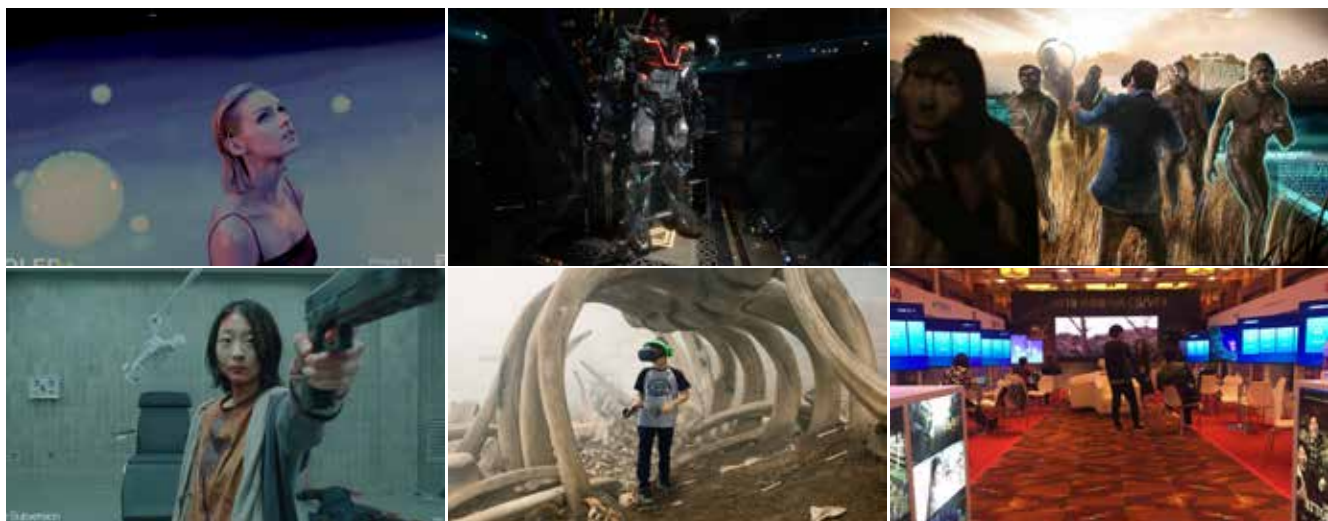


First generation founders of VFX and export-oriented company with 10 to 15 years of experience in VFX

WYSIWYG Studios was founded by the first generation producers who opened the new field of unique digital VFX in Korean movies such as “Gumiho (1994)” and “Gingko Bed (1996)”. Since the founders of the first generation CG producers experienced many trial and error and success stories, they had the strength to perform great investment attraction from companies such as investor relations (IR) in the industrial field. Although WYSIWYG Studios was founded in just three years ago, their core staff with more than ten years of expertise and know-how will exhibit another synergy effect based on their competencies obtained in the movie and new media sectors.

Entry to the global market through content diversification

The 3D business in Korea went through a period of transition in just six years ago, and employment was minimal. Although the business circumstance is better off now than before, the Korean movie market is still limited whereas the Chinese market has a vast potential to grow. The project order unit price, which started from \$3.51 million to \$4.39 million before, has now exceeded ₩ 10 billion due to the entry to overseas market including China. The reason for the sales increase was the advantages that the company could utilize two to three areas in new media, VR, and VR experience contents together as the specialized field was segmented and the demand on local and foreign cinemas increased steadily due to the business circumstance. Accordingly, WYSIWYG Studios could extend the domestic and overseas market gradually as the company diversified the business sector according to the recent trend where fusion among the areas occurred. The local video contents are also expected to be exported further as the technology gap with Hollywood is significantly reduced.



Success Point

WYSIWYG Studios created the business circumstances to enter the global market and leap forward to one of the universal studios by maintaining the financial status stably through the expansion of profits. It also secured the production capability and sales power at the Hollywood level through the business contract with Tau Films in the USA based on the global human network, progressing the global marketing. Besides, it operated an online work management system and overcame the language barrier occurred during the project co-production process with foreign companies thereby increasing the business efficiency. WYSIWYG Studios could create positive achievements with the aid of the increase in company competitiveness due to new staffing via the government grant for ICT. The human resources equipped with competence were led to the successful project order, increasing the company sales and positive results.

Company Introduction

WYSIWYG Studios is a specialized CG video production that produces all types of contents that can be expressed by CG technology such as VFX, animation, interactive media, VR and AR, and new media. With the company motto, "what you see is what you get," the company attempts bold challenges. The goal of the company is to create a new paradigm of video contents by making intuitive and efficient production environment through a combination of traditional CG technique and real-time rendering technique.



TIMELINE

2016

April
Corporation founded.

June
Attracted Investment.

July
Park, Gwan-woo and
Park, In-gyu Co-CEO
inaugurated.

2017

April
Contract of global
partnership MOU signed
with 'Tau Film.'

October
Attracted Investment from
Premier Partners and
Intervest.

November

Attracted Investment from
Korea Investment Partners
and SBI Investment.

December

CEO In-Gyu Park received
ministerial commendation
from the Ministry of Science
and ICT (achievement of
industrial development by
next-generation fusion type
contents).

2018

April
CEO Gwan-Woo Park
received presidential praise
(achievement of industrial
development of digital
contents).

COMPANY OVERVIEW

CEO PARK, GWAN-WOO/PARK, IN-GYU TYPE OF BUSINESS VIDEO PRODUCTION, VISUAL DESIGN
ESTABLISHMENT MAY 7, 2016 WEBSITE www.wswgstudios.com/?lang=en

Promotion of software talented students with the innovative curriculum



Daedeok Software Meister High School

Fund for Promotion of Information and Communications

- Support organization : Institute for Information and Communications Technology Promotion
- Project : Expansion of SW human resource training basis

Key Achievements

- Maintaining high entrance competition rate and raising the entrance score of newly enrolled students steadily since the opening of the school.
- Awarded from many competitions of public agencies and companies nationwide.
- Effect of hands-on project type software education such as qualification certificate acquisition was proven.

A TOTAL OF 48 MEISTER HIGH SCHOOLS WERE DESIGNATED FROM 2010 BY THE MINISTRY OF EDUCATION AS A SCHOOL OF CUSTOMIZED CURRICULUM DIRECTLY RELATED TO INDUSTRIAL DEMANDS FOR THE DEVELOPMENT OF VOCATIONAL EDUCATION BY THE SUBPARAGRAPH 10 OF PARAGRAPH 1 IN ARTICLE 90 OF ENFORCEMENT DECREE OF “ELEMENTARY AND SECONDARY EDUCATION ACT.” THE CURRICULUM OF DAEDEOK SOFTWARE MEISTER HIGH SCHOOL IS COMPOSED OF FIRST-YEAR MEISTER ORDINARY COURSE, SOFTWARE DEVELOPMENT CLASS, EMBEDDED SOFTWARE CLASS, AND DATA SECURITY CLASS. DAEDEOK SOFTWARE MEISTER HIGH SCHOOL IS A SOFTWARE MEISTER HIGH SCHOOL DESIGNATED BY THE MINISTRY OF EDUCATION AND THE PROJECT STARTED TO DRIVE TALENTED SOFTWARE STUDENTS IN EARNEST AFTER THE OPENING OF THE SCHOOL. THUS, THE SCHOOL SUPPORTS CUSTOMIZED CURRICULUM DIRECTLY LINKED TO THE SOFTWARE INDUSTRY DEMAND TO PROMOTE CREATIVE SOFTWARE TALENTED STUDENTS EARLY. ITS MAIN PROJECT DETAILS ARE THE ENROLLMENT OF NEW STUDENTS IN SOFTWARE MEISTER HIGH SCHOOL, DEVELOPMENT OF TEXTBOOKS AND CURRICULUM, CURRICULUM OPERATION, TEACHER TRAINING, AND CONSTRUCTION OF THE SOFTWARE DEVELOPMENT ENVIRONMENT. IT ALSO SUPPORTS A BUDGET TO CREATE A CUSTOMIZED FOUNDATION FOR GRADUATE EMPLOYMENT.



Choi, Boo-young
Principal

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Operation of curriculum that reflects changes in demand from the industry and technical trend

With the goal of software talented student cultivation combined with hardware, software, and service fusion ability through the increase in software competitiveness, the school revised the school system to complete the advanced course after selecting the majored class from second year considering the student aptitude, preference, and industrial demand following the common basic curriculum operation for all first-year students. In the common course for first-year students, JAVA three-point paper in the embedded software class and data security class was changed to C++ three-point paper reflecting C++ programmed the high demand of C++ and most programs developed by the MOU companies. In the curriculum for third-year students, data structure and algorithm papers were



changed from four-point to six-point papers in response to the demand from third-year students who were in the middle of field hand-on course to strengthen the needed subject. In the software development class, JAVA class of second-year students was changed from six-point to 12-point to add the curriculum of JAVA education and Spring framework. In the data security class, security paper was attached to four-point database paper and six-point security programming paper for second-year students, and system and network operation paper was strengthened from eight-point to 18-point for third-year students, emphasizing the education of security control.

Creative and innovative curriculum operation

The industry-academia joint teacher system was introduced to strengthen the training of professional skills used in software industries now, in which industry-academia joint experts who worked in the industry or run the hands-on equipment competently were invited to provide co-teaching with academic teachers. Besides, it hosts a software camp to provide information exchange expansion with other students in other software Meister high schools, job experience, and employment opportunity and drives various activities for the promotion of software talented students through overseas training of students and faculty members. The creative and innovative curriculum has been proven effective with the statistics. As of February 2018, 65 out of 75 graduates in 2017 were employed (86.7%), and out of 65 employed graduates, 62 were permanent, proving that many graduates with software talent entered the society.



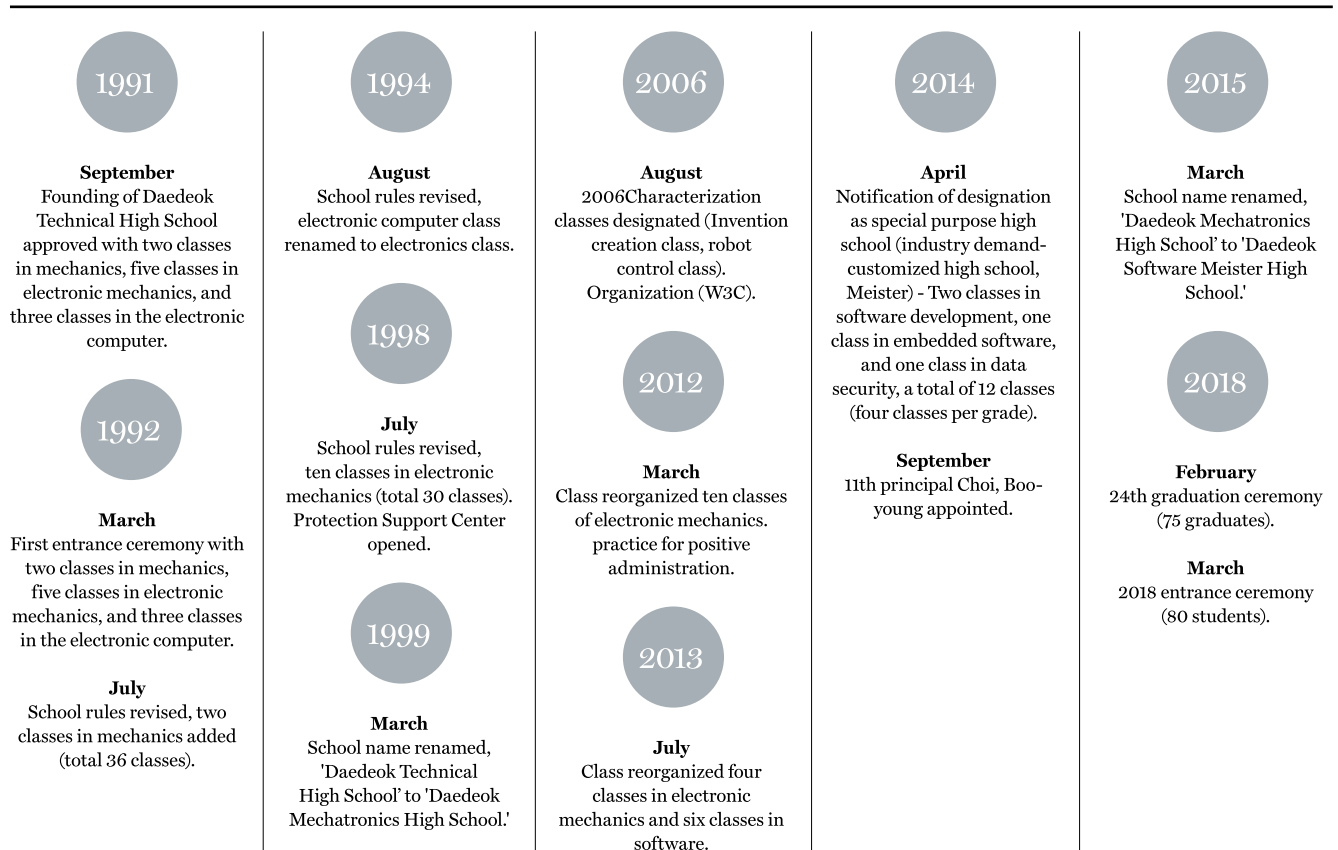
Success Point

The comprehensive support for education processes such as first new student enrollment, industry-customized curriculum development and operation, strengthening teacher's competence, construction of software development environment, and graduate employment-customized basis creation has become the success factor.

Company Introduction

Daedeok Software Meister High School was selected as a participated "software Meister High School" by the government agency (Ministry of Science and ICT) on April 3, 2014, for the first time in Korea with the aim to promote human resources which lead the software industry development. The school is growing as the leading model of vocational education in high school by raising young Meister in software development, embedded software, and data security, leading the Fourth Industrial Revolution with the education goal of software talented student promotion with creativity and humanity.

TIMELINE



COMPANY OVERVIEW

PRINCIPAL CHOI, BOO-YOUNG **TYPE OF BUSINESS** EDUCATION **ESTABLISHMENT** SEPTEMBER 14, 1991
WEBSITE dsmhs.djsch.kr



Presenting the answer of coding education with education software app development

Maromav

Broadcasting and Communications Development Fund

- Support organization : Korea Radio Promotion Association
- Project : Smart content convergent human resource training

Key Achievements

- Development of educational software app launched with educational help via the non-R&D project.
- Google Hackfair and Busan G-Star participated.

MAROMAV DEVELOPS AND DISTRIBUTES EDUCATIONAL APPS WITH THE AID OF THE GOVERNMENT GRANT FOR ICT. AFTER MENTORS WERE DESIGNATED FROM THE KOREA RADIO PROMOTION ASSOCIATION, THE COMPANY TOOK DEVELOPMENT TRAINING AND COULD DEVELOP AN APP. THE EDUCATION APP OF MAROMAV IS VERY INEXPENSIVE DUE TO THE SOFTWARE-BASED DEVELOPMENT RATHER THAN HARDWARE. AS A RESULT, IT CAN BE SUPPLIED TO MARGINAL CLASSES, AND TEACHERS GET ACCESS TO THE APP QUICKLY. IT IS ALSO VERY CONVENIENT TO USE SINCE IT CAN BE RUN WITHOUT PRACTICE ROOMS SUCH AS COMPUTER LABS AND EDUCATION CAN BE PROVIDED THROUGH SMARTPHONES. THAT IS, NOT ONLY STUDENTS BUT ALSO TEACHERS CAN LEARN THE APP VERY QUICKLY.



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Education helper for teachers

Computer coding education is required in current education institutions, but most teachers did not significant in the computer, so they faced difficulties in coding class. The company develops and distributes educational software that any teachers can access and learn easily who did not major in computer and “coding” education and had to run a new class due to the exam-free semester. Teachers are usually busy on student guide and administration work, so selecting subjects and making the curriculum for the exam-free semester are daunting tasks for teachers. Maromav aims to provide the solution to create a curriculum for a semester for teachers.



Equal education opportunity for everyone

The app was developed to achieve equal educational opportunity for everyone. For experiential education, once teachers demonstrate the method, students watched and memorized the demonstration and then students run the class by themselves by the group. It shows “how to make a complete version with which processes” sequentially by using figures thereby running the precise and fast class progress.

Focusing on what is needed rather than what is wanted

Maromav was initially focused on “what is wanted to make” before the company was successful. However, it felt that focusing on “what was needed” by customers was much more helpful to the company and customers, and this was the reason for the great success of the business now with that direction. Initially, the company was difficult to find consumers only with Mindmap to search for the market. Maromav realized that the most important thing was to make an app that was needed by customers rather than by the customer after thinking about how to find the market or customers with the lack of understanding on customers. Thus, Maromav had real customers (teachers) to participate in the project and overcame the difficulty by realizing what was needed and getting some help for decision making.





Success Point

The success factors of this project were first, Maromav had teachers to participate in the project. As a result, the company could realize what teachers needed as real customers, and get some help in the decision making during the development process thereby overcoming the difficulties. Second, developers in Maromav graduated from teacher's colleges so that they could collect education-related information easily. Since a network with teachers was formed well, arrangement and advertisement to teachers could be done smoothly. Third, the price was not so high as the company was focused on software-based development rather than hardware-based development. Fourth, the company progressed VR-related research without ceasing. The final development goal was to make software that conducted education with VR. The current education software is distributed as an app, but the scope will be expanded to use VR in the future.

Company Introduction

Maromav develops and distributes educational apps for public education institutions. The education software developed by Maromav is an app type, which does not need additional hardware and can be installed in a mobile phone, which is different from products of other companies. The software is programmed to match the education curriculum, and the final development goal of Maromav is to make software that conducts teaching with VR. The current education software is distributed as an app, but the scope will be expanded to use VR in the future.

TIMELINE

2017

September
Maromav founded.

COMPANY OVERVIEW

CEO CHOI, MOON-JO **TYPE OF BUSINESS** SOFTWARE DEVELOPMENT **ESTABLISHMENT** SEPTEMBER 01, 2017
WEBSITE blog.naver.com/cereal-lab

DIGITAL CONTENTS
SMART HEALTHCARE
IoT
BIG DATA
CLOUD
SMART DEVICE
DATA SECURITY
RADIO COMMUNICATION

Global outstanding cases

4

CHAPTER

Organization

Installation and Operation of the K-Lab _ **National IT Industry Promotion Agency**
Construction of Broadcasting Equipment Industry Infrastructure _ **Korea Electronics Association**

Company

Support of Entry to Smart Content Overseas Market _ **Balance Hero Co., Ltd.**
Support for the Overseas Expansion of Information and Communication Broadcasting System _ **JC 1 Co., Ltd.**
Operation of Overseas IT Support Center _ **CyberLogitec Co., Ltd.**
New Market Development Support of Smart Contents _ **Fix Games Co., Ltd.**

Resolution of global information gap through K-Lab and creation of the basis for overseas entry



National IT Industry Promotion Agency

Broadcasting and Communications Development Fund

- Support organization : National IT Industry Promotion Agency
- Project : Installation and operation of the K-Lab

Key Achievements

- 1,567 UIT students of Myanmar, participated in K-Lab education program.
- 38.7% of prototype production ratio by trainees achieved.
- First runner-up awarded by trainee graduate in IoT ASEAN Maker-thon competition.
- Providing opportunities for overseas entry and startup company for the youth in Korea through education and global internship.

THE NATIONAL IT INDUSTRY PROMOTION AGENCY CONTRIBUTED TO THE CONSTRUCTION OF RELATED TECHNICAL INFRASTRUCTURE FOR DEVELOPING COUNTRIES WHOSE MANUFACTURING BASIS WAS VULNERABLE BY PROMOTING YOUNG MAKERS IN DEVELOPING COUNTRIES AND CREATING A NEW MANUFACTURING STARTUP BASIS THROUGH THE K-LAB INSTALLATION AND OPERATION. IT PROVIDED AN EXCELLENT OPPORTUNITY TO ENTER OVERSEAS FOR KOREAN YOUTHS AND ASSISTED THEM TO SETTLE DOWN AND STARTUP COMPANIES IN ABROAD. IT HAD THE LOCAL TRAINEE GRADUATES TO PARTICIPATE IN LOCAL TECHNICAL CONTESTS AND PROVED THE EFFECTIVENESS OF THE PROJECT.



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Introduction of the project-style hand-on training system that reflects the up-to-date technical trend

For the settlement of K-Lab, programs that suited the local circumstances were most needed. The National IT Industry Promotion Agency provided training of how to utilize equipment and related software required for digital production to UIT students in Myanmar thereby strengthening the manufacturing capabilities and fostering the project using the equipment and software to be conducted locally.

The training was divided by equipment (3D printer, laser cutter, vinyl cutter, CNC router, and Arduino), level (beginner, intermediate, and advanced) reflecting the current technical trend, and 95.9% of very high training completion rate was achieved. The number of participants to K-Lab facility use and

training program was 1,567 trainees, and a prototype production ratio by the trainees reached 38.7%. In particular, one of the K-Lab trainees participated in 2017 IoT ASEAN Maker-thon held in Malaysia and won the 1st runner-up, advertising the project in the local regions distinctively.

Providing the stepping stone to the opportunity of the overseas startup company for Korean youths

The National IT Industry Promotion Agency offers an opportunity for Korean children to settle down and startup companies locally by helping them to understand the site of developing countries (Official Development Assistance (ODA)) through training and global internship. In 2017, it dispatched



three personnel who were interested in startup and maker culture for K-Lab operation in Myanmar. This personnel was composed of youths who completed the training that helped to understand on local sites with the excellent grade. They shared the ICT development experience and knowledge in Korea to contribute to the resolution of global information gap and created a basis for Korean companies to enter the overseas by developing a network and Korea-friendly policy environment in Myanmar.

Expansion of startup culture and discovery of preliminary entrepreneurs in Myanmar

The National IT Industry Promotion Agency has attempted various methods to settle down the project which was provided for K-Lab installation and training program operation and support of the discovered idea's commercialization. First of all, it invited successful startup entrepreneurs and shared the startup experience and know-how through the entrepreneurship education thereby expanding the startup culture and discovering preliminary entrepreneurs in Myanmar. It also raised the ability to run K-Lab independently by professors in UIT by fostering and strengthening the digital manufacturing education competence.

"The hyper-connected and intelligent-based fourth industrial revolution have changed our lives significantly including economy, society, and culture. The National IT Industry Promotion Agency will do the best to achieve innovative startup companies and new industry creation, and economic growth is followed by job creation".



Success Point

Above all, the essential success point was to induce an interest from the trainees through project-style hand-on training rather than simple cramming education. It made a variety of training programs that could influence challenge spirit of participants and draw practical training effects by collecting ideas of local students through prior contests and supporting the applicable ideas to become real prototypes through "maker mentoring", and "maker hackathon" in which participants made their teams and created concepts and prototypes for a determined time for two days without sleep. Besides, prior PR activities of the K-Lab project facilitated the participation of many students through the Open Campus as school event of UIT. In particular, one of the trainee graduates in last year was awarded the 1st runner-up in the IoT ASEAN Maker-thon competition, which gave significant coverage in the local press. This will improve the awareness of the project in the local regions in the future. Furthermore, the users of K-Lab were extended from UIT students to all youths in Myanmar from 2018, which will facilitate Myanmar's technical growth by promoting technical human resources with competence that requires in the local industries in pace with the fast growing industrial economy in Myanmar.

Organization Introduction

The National IT Industry Promotion Agency supports information and communication industries and strengthens the competitiveness of the information and communication industry by creating the promotion foundation. It also strives for contribution to the national economy advancement. With the mission of re-creation of the dynamic national economy through ICT, its goal is to position as the central ICT agency that leads the future with imagination and challenge.



TIMELINE

2009

August
NIPA founded.

November
Affiliated Software Engineering Center.

2014

March
Affiliated Software Policy Research Center opened.

June
Affiliated Information and Communication Technology Promotion Center opened.

2015

June
Moved to Chungbuk Innovation City (Jincheon).

2016

November
Affiliated Software Engineering Center merged with NIPA and closed. young appointed.

ORGANIZATION OVERVIEW

PRESIDENT KIM, CHANG-YEONG **TYPE OF BUSINESS** PUBLIC AGENCY **ESTABLISHMENT** AUGUST 24, 2009
WEBSITE www.nipa.kr/eng/main.it

Providing a constant growth basis of Korean broadcasting equipment industry



Korea Electronics Association

Fund for Promotion of Information and Communications

- Support organization : Korea Electronics Association
- Project : Construction of broadcasting equipment industry infrastructure

Key Achievements

- Securing local UHD broadcasting equipment production technology and the effect of replacing foreign-made broadcasting equipment.
- Cooperation developed with world's leading broadcasting standards and technical organizations.
- Raising international status by securing the membership of certified testing laboratory of broadcasting equipment test certification.
- Providing technological development basis and supporting local broadcasting equipment sales routes due to the hosting of Pyeong Chang Olympic Winter Games.

THE KOREA ELECTRONICS ASSOCIATION (KEA) PROVIDED A GROWTH BASIS OF LOCAL AND OVERSEAS BROADCASTING EQUIPMENT-RELATED PROJECTS THROUGH EXPORT PACKAGE MODEL DEVELOPMENT, ADVANCEMENT SUPPORT, AND THE OPERATION OF TECHNICAL ADVISORY FOR MARKET ENTRY TO RESPOND TO THE DEMAND OF UHD IN KOREA AND OVERSEAS. IT SECURED THE RELIABILITY OF NEW EQUIPMENT INCLUDING UHD BY THE STEREOSCOPIC TEST CERTIFICATION SYSTEM TO STRENGTHEN THE CREDIBILITY OF BROADCASTING EQUIPMENT AND CONTRIBUTED TO THE EXPANSION OF LOCAL AND OVERSEAS MARKET ENTRY BY EXPANDING TEST CERTIFICATION SERVICES UP TO 97 CASES, WHICH INCREASED BY 11.5% COMPARED TO THAT OF LAST YEAR.



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Support of Korean-type broadcasting equipment package commercialization

Global enterprises have monopolized the Korean broadcasting equipment market for a long time. As a result, a significant difference in preference between local and foreign-made equipment has been widened. Besides, training of broadcasting techniques have been concentrated on foreign-made equipment for decades, the utilization rate of local equipment has been poor further.

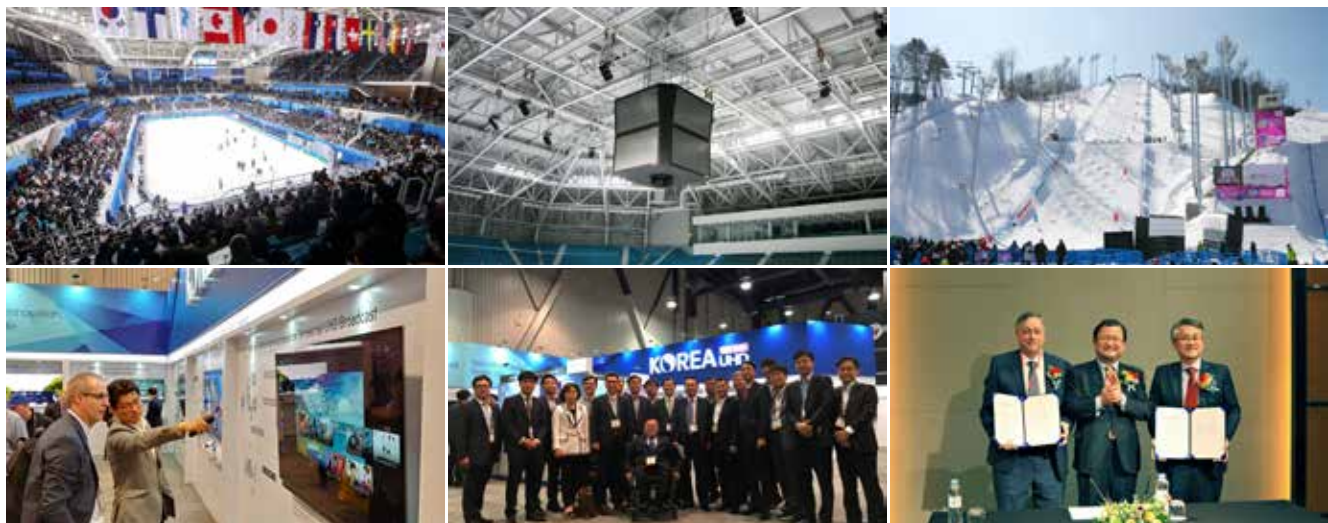
Accordingly, the KEA provided a basis to enter the high value-added package market through the interlink between companies and products through the Korean-type broadcasting equipment package project.

As the demand on broadcasting-related auxiliary products such

as UHD-related transmission facilities and relay stations in regional stations increased just in time of terrestrial UHD broadcasting, it achieved that foreign-made combiners were replaced with locally made products.

“It encouraged a circumstance that locally made broadcasting equipment grew in the domestic market through the guidance of broadcasting equipment development project in public markets, advertising road shows, and activities to adopt local equipment in Pyeong Chang Olympic Winter Games, and achieved the best-ever local equipment adoption rate (29.1%) in the international event for the first time. Moreover, it provided a constant growth basis of local broadcasting equipment as it generated \$4.13 million sales of export through the Korean Booth operation in overseas specialized broadcasting equipment exhibition.





Development of test certification-related global cooperation system

The preemptive certification system of ATSC3.0, which is the next-generation broadcasting standard, is urgently needed to have local broadcasting equipment recognized in the broadcasting equipment-related industries and enter the global market in the future. Thus, the cooperation with internationally recognized global broadcasting standard organizations such as UHD Alliance, Advanced Television Systems Committee (ATSC), and Fraunhofer (the largest applied science research center in Europe) is mandatory.

By expanding and designating the Telecommunications Technology Association (TTA) as an internationally authorized test center (ATC) to perform test certification of battery-operated (BO) devices through the renewal of the UHD Alliance - TTA ATC agreement, the TTA could provide certification services of not only existing UHD devices (UHD monitors and TVs) but also BO devices (smartphones and tablets etc.) through continuous cooperation activities with global broadcasting standard organizations. It also joined the international broadcasting standard certification group by cooperating the development of the STSC 3.0 standard conformity assessment program and inter-sharing the development information through the ATSC-TTA MOU, and the TTA was designated as an authorized test station for test certification of MPEG-H TV audio systems through the

MPEG-H TV audio system ATC designation thereby providing certification services to UHD TV, set-top box, and sound bars. As a result, local broadcasting equipment development companies could get a basis to secure the competitiveness of broadcasting equipment through the TTA certification.

Adoption of local broadcasting equipment to Pyeong Chang Olympic Winter Games

Although “the Instruction of Development and Operation of Broadcasting Equipment in Public Institutions” was made to create a fair competition environment and asked to follow the instruction to public institutions, the utilization of local equipment was very low as the Instruction was ignored due to the foreign-made equipment-oriented designs. However, the KEA drove the local equipment adoption activity through the close and continuous cooperative relationship with Olympic Organizing Committee for the Pyeong Chang Olympic Winter Games in 2018 and achieved unprecedented accomplishment in history that an adoption ratio of local broadcasting audio equipment reached 29.1% in the sports facilities in Pyeong Chang Olympic Winter Games. The adoption of local equipment recognized the technical quality of local broadcasting equipment in the international event, and this will be an accelerator for local equipment to enter the global market.

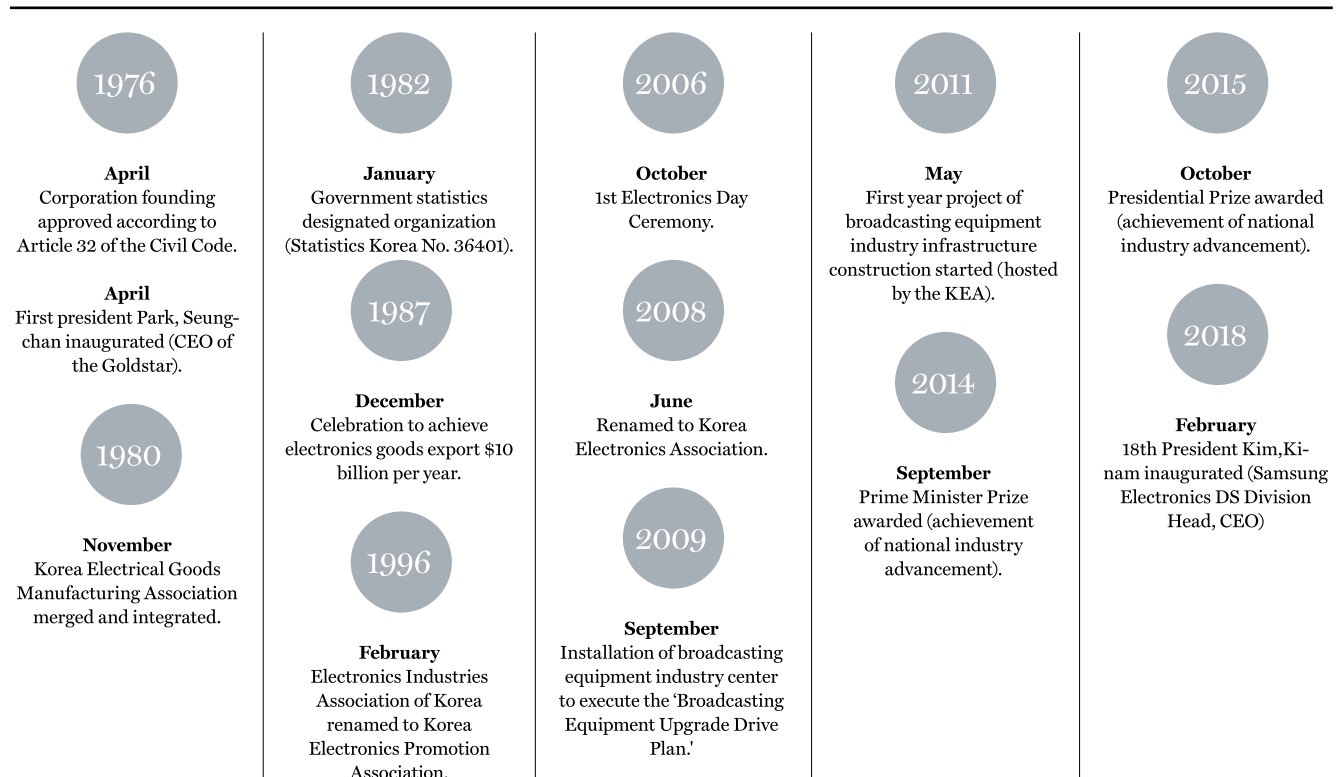
Success Point

The success factors of this project are as follows: First, it utilized the strengths of three organizations proactively for the customized support for companies that used the testing services of broadcasting equipment and drove the upgrade of the test environment, advertisement expansion, and regular dedicated personnel arrangement to develop the effective support system. Second, the market environment analysis and prior investigations were conducted through sufficient consultation with participated companies for the entry to overseas markets of local broadcasting equipment-related companies, and it raised the achievements by securing and matching high-quality buyers with comprehensive support of marketing activities for the expansion of the entry to overseas markets such as operation of Prolight+Sound Korean Booth in Germany and operation of NAB 2017-related 'KOREA UHD on Air' theme booth. Besides, it drove the strengthening market competitiveness of products through performance enhancement and design upgrade of products as it conducted the "package commercialization support" separately.

Organization Introduction

The KEA is a party that represents electronics and IT companies in Korea. It was founded in 1976 to support member companies and create an environment for the development of electronics and IT industries. It operates a comprehensive policy support system for the broadcasting equipment industry and performs activities such as the construction of foundation to foster broadcasting equipment industry, support of entry to local and overseas markets, and policy research and proposal. Its main business sectors are: First sectors are improvements of business infrastructures of electronic and IT companies such as response to various regulations including patent disputes, environmental regulations, and trading regulations, and system improvements, and support of international competitiveness. Second sectors are the promotion of new growth drive engine industries in the future and foundation development and speaking for the interest of electronic and IT industries. Third sectors are study and analysis on pending issues in the industry, and support of the resolution of difficulties.

TIMELINE



ORGANIZATION OVERVIEW

PRESIDENT KIM, KI-NAM **TYPE OF BUSINESS PUBLIC AGENCY ESTABLISHMENT** APRIL 20, 1976
WEBSITE www.gokea.org/eng

Penetrating the mobile market in India with the local optimization strategy

true balance

Balance Hero Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : National IT Industry Promotion Agency
- Project : Support of entry to the smart content overseas market

Key Achievements

- Business license from India government acquired for the first time in Korea.
- Mobile wallet data service implemented in cooperation with local India bank.
- Development of application optimized to the low-spec terminal and network environment in India.

WITH THE VISION THAT “FINANCIAL SERVICE THROUGH MOBILE TECHNOLOGY AND RETAIL INNOVATION TO EVERYONE”, BALANCE HERO PROVIDES A MOBILE FINANCIAL SERVICE FOR TENS OF MILLIONS OF INDIAN USERS. IT LAUNCHED A MOBILE WALLET SERVICE IN 2017 FOLLOWED BY A SMALL INSTALLMENT LOAN SERVICE CALLED EASY PAYMENT PLAN (EPP) IN JANUARY 2018. BALANCE HERO COULD START THE SERVICE RELIABLY AFTER TAKING THE NECESSARY GRANT THROUGH THE GOVERNMENT GRANT FOR ICT DURING THE SOLID SECURITY INFRASTRUCTURE DEVELOPMENT PROCESS TO SECURE WALLET SERVICE USERS AND MOBILE ADVERTISING CONTENT PLATFORM IN 2017. IT WILL EXTEND THE SMALL PAYMENT TARGETS INCLUDING SATELLITE BROADCASTING LICENSE FEE, ELECTRICITY, GAS, AND TELEPHONE CHARGE OF INDIAN USERS, AND ENLARGE THE BUSINESS SECTOR UP TO THE CONTENT CONSUMPTION.



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Marketing to the bottom 80% of Indian users who had no credit transaction

India has one billion mobile users as of 2017. Out of them, 300 million users employ smartphones, and 95.6% of them are prepaid users. India was the third most downloading country in the world from Google Play, and the third largest smartphone market in the world as well.

In India, 80% of the low-income users, which were the primary target of the project, were smartphone users, and smartphone users increased every year explosively. Thus, the prospect of the Indian market is promising.

India was not the target from the beginning. The CEO Cheol-Won Lee had run the business for ten years in India when he founded the company, which was why he targeted the Indian market. Currently, India is at the early stage of mobile use.



PayTM, now, the top company in India targets top 20% users based on credit transaction whereas Balance Hero targets bottom 80% users who had no credit transaction. The company provided a payment system that could satisfy users whose Engel's coefficient was high through the True Balance app so that those who had no credit card could pay the bill. The pre-occupancy of smartphone users by Balance Hero plays a role as a factor of constant business growth in India, which is now at the early mobile use stage as the company focused on securing corporate users rather than concentrating on raising a sale from the initial business. The target of the industry will be expanded to a variety of levels of smartphone users.

Promotional strategy that optimizes in the field

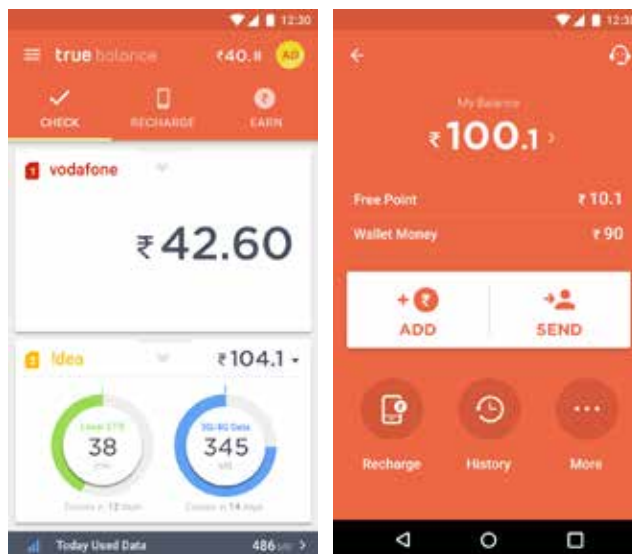
India has a strong social and cultural climate that emphasizes personal relationships such as family, friends, friends, and neighbors. This unique promotional strategy for local Indian culture was to create user-based networks that could expand

app-use to nearby people. Through the 'member gets member strategy', we acquired an agent to encourage the app-use, and to encourage smartphone education pay \$ 0.14 worth data per person. In this process, True Balance was able to create a virtuous cycle structure that does not stop at checking the balance but continues to consume and pay contents.

Establishment of mobile financial services in India with poor network conditions

India is on the early phase of mobile use with poor network conditions that aren't available to pay on rainy days.

In addition, as most smartphone users had a lower-end smartphone, it was necessary to make the application be installed more easily and quickly. Since Balance Hero secured both network technology and supporting technology for various Android smartphone environments, it shows the remarkable speed that is much faster than the speed that the top local company provides.



Success Point

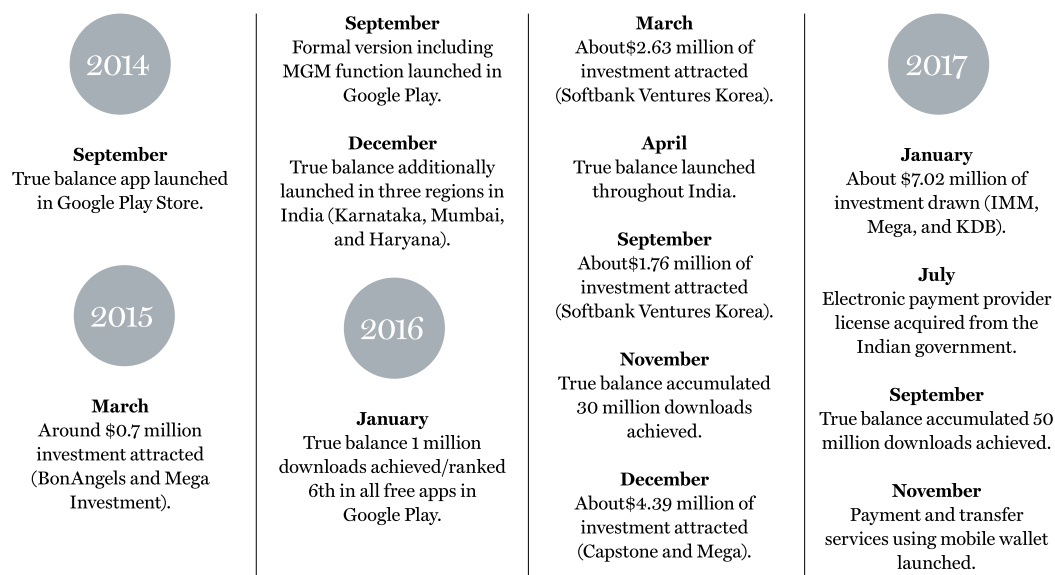
The success factors of this project were: First, 80% of smartphone users in India had no credit transactions, and they were targeted as primary customers. The plan then analyzed their consumption behaviors to set up the service strategy. Second, the advertising strategy optimized to the local economy, social structure, language, illiteracy rate, cultural characteristics, and user environments in India was very effective to penetrate the local market. Third, it had a strategic partnership with renowned companies such as Google, Facebook, and Mobvista that dominated the Southeast and Southwest Asian mobile advertising market and the local technical test and inter-support direction was established strategically, which worked great. Fourth, Korean corporation and Indian corporation of Balance Hero developed a rapid collaboration system thereby increasing the user satisfaction in India from the early business by responding to the local demand quickly.

Company Introduction

It launched the True Balance Android app, which checked the balance by one-touch for Indian smartphone users, and acquired a mobile wallet license published by the Indian government for the first time as a Korean company. It attracted investment worth of \$13.17 million from Korea and overseas, and achieved 50 million downloads in 2017.



TIMELINE



COMPANY OVERVIEW

CEO LEE, CHEOL-WON TYPE OF BUSINESS SOFTWARE DEVELOPMENT AND SUPPLY, EXPORT AND IMPORT ESTABLISHMENT JULY 17, 2014 WEBSITE truebalance.io

Efficient electronic document solution go around the world



JC 1 Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : National IT Industry Promotion Agency
- Project : Support for the overseas expansion of Information and Communication Broadcasting System

Key Achievements

- Sole distributor contract signed with SDM in Malaysia in 2017 (reseller contract with two companies in Thailand and product training is complete).
- Partnership signed with four Southeast Asia nations including Thailand, Malaysia, Indonesia (expected to exceed sales of \$100,000 annually).
- Awarded WIS 2018 Innovation Prize.

THE PREVIOUS MAIN PRODUCTS OF JC 1 WERE THE PAPERLESS SOLUTION “SMART©FORM” AND “SMART ARCHIVER”. SMART©FORM IS AN ELECTRONIC CONTRACT SOLUTION THAT CAN CREATE A DOCUMENT IN A MOBILE DEVICE INCLUDING A TABLET PC. SMART ARCHIVER CAN INTEGRATE AND MANAGE ALL CONTENTS. IT IS SUITABLE FOR STAFF MANAGEMENT SYSTEMS IN PUBLIC INSTITUTIONS BECAUSE IT SUPPORTS NOT ONLY DOCUMENT FOLDER, STATISTICS AND USER MANAGEMENT BUT ALSO SYSTEM MAINTENANCE FEATURE. JC 1 THAT DEVELOPED THE PRODUCT TO SELL IN OVERSEAS IN MIND COULD MAKE A CONNECTION WITH OVERSEAS COMPANIES THROUGH THE PROJECT “SUPPORT OF ENTRY TO INFORMATION AND COMMUNICATION BROADCASTING OVERSEAS MARKET” IN THE GOVERNMENT GRANT FOR ICT. CURRENTLY, WHETHER THE PRODUCT IS APPLIED TO PUBLIC AGENCIES IN INDONESIA IS UNDER REVIEW. IN RECENT YEARS, JC 1 LAUNCHED eSIGNON, BY WHICH CONTRACT CAN BE SIGNED WITH ELECTRONIC DOCUMENTS RATHER THAN PAPER REPORTS. IT IS AN APP THAT CAN CREATE A CONTRACT DOCUMENT WITH B2B BY MERELY UPGRADING THE ELECTRONIC SIGNATURE USING A TABLET PREVIOUSLY. THE PLAN IS TO REFLECT THE LOCAL REQUIREMENTS TO THE SOLUTION TO EXPAND THE OVERSEAS MARKET AS WELL AS TO STRENGTHEN GLOBAL COMPETITIVENESS BY IMPROVING THE PERFORMANCE CONSIDERABLY.



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JC1 keeps going without satisfaction with the status quo

JC1 has collected a large amount of data as it continued the business for an extended period. However, it has experienced many difficulties to analyze the accumulated data due to the technical limitation. In this regard, JC1 has concentrated on developing a technique that could analyze the collected data efficiently. eSignon is the product developed and launched in this process. When electronic documents using this solution are distributed, the blockchain technology can be applied to eSignon. Thus, it is possible to see who has viewed the document in real time. JC1 is striving to improve the reliability of electronic documents by having a separate division that reviews the blockchain technology inside the company without satisfaction with the status quo.

To be the world's No. 1 beyond Korea

JC1 has attempted the entry to overseas markets from two years ago. From the experiences of JC1, a series of contract processes take more than one year from making the customer recognizing the need of the product adoption to the product test and delivery. The endless challenge and firm goal setting without change are the underlying attitudes that must have to be successful in oversea market entry since the profit is finally generated only the contract is signed, and the product is delivered without any issue.

The CEO of JC1, Shin, John-h has a single wish that he would like to see the widespread use of his electronic document solution around the world. Mr. Shin said that “only the English version solution can be sold in many countless nations and stressed that the key to success is to reflect unique characteristics of each





nation to the product rather than simple translation in order for electronic document solution companies to enter the overseas markets independently since the document format is different from nation to nation”.

Development of electronic documents suitable to the smart and untact era

By eSignon, users can sign a contract without limitation of application processor programs. When the application is executed, and the desired control is inserted to where the signature is needed, it is changed to a tool that users can sign. The program can be run in mobile devices and computers, and contracts that require signatures can be edited and transferred through emails. Those who receive the contracts can sign the contract only after identity authentication. Thus, signed dates

by whom with which authentication method used can be viewed by eSignon, which is the most significant advantage of using eSignon.

The best secretary of document management eSignon launched

JC1 utilizes eSignon in link with their company groupware for various approval forms such as salary agreement, reimbursement resolution, and preliminary plan, etc. By linking eSignon with the company groupware, employees can check documents conveniently from the outside of the company. The expenditure details in the reimbursement resolution can be explained by real-time chatting function to speed-up the work progress. eSignon is run on Android, iOS, and Windows environments, and can be downloaded from the favorite app store.



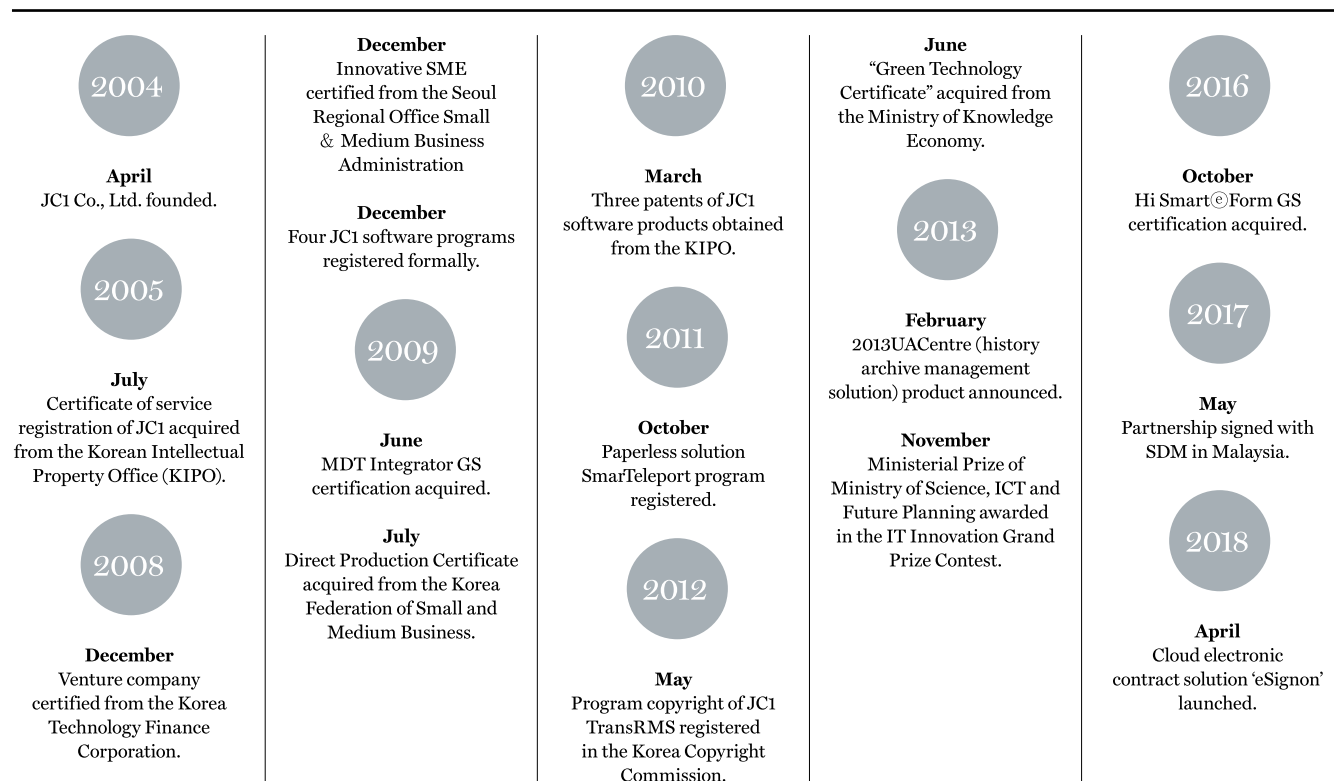
Success Point

JC1 has sought after related information to participate in various road shows and exhibitions held in overseas with the global market entry in mind always. JC1 could have an opportunity to meet large companies that otherwise may not have been possible through the participation in company support projects driven by the government including the National IT Industry Promotion Agency. These government support projects and activities were of great help to JC1 and contributed to the successful growth of the company considerably.

Company Introduction

JC1 is a specialized solution company that improves business operation and services by developing digital transformation and content management software. The company started knocking the door to the overseas market with the local electronic document solution from two years ago, and signed a sole distributor contract in 2017 with SDM, the specialized IT company in Malaysia that entered the markets of 10 Asian nations, thereby laying the foundation for overseas market entry. JC1 has now more than ten countries to exchange MOUs including China, Japan, Singapore, and Indonesia. The goal of JC1 is to provide service-type software and make the electronic document solution to be used anywhere in the world.

TIMELINE



COMPANY OVERVIEW

CEO SHIN, JOHN-H **TYPE OF BUSINESS** COMPUTER AND PERIPHERALS, SOFTWARE DEVELOPMENT **ESTABLISHMENT** APRIL 26, 2004
WEBSITE eng.jc1.co.kr

Successful in initiating the global business expansion through a local network

CyberLogitec

CyberLogitec Co., Ltd.

Fund for Promotion of Information and Communications

- Support organization : National IT Industry Promotion Agency
- Project : Operation of overseas IT support center

Key Achievements

- Signed contracts major global shipping companies for shipping port solution and container license.
- Expansion of continuous development potential in overseas markets through performance creation in Singapore.
- Securing advantageous competitiveness for the entry to ASEAN nations.

CYBERLOGITEC IS A COMPANY THAT OWNS THE INDUSTRIAL BUSINESS KNOWHOW TO MONITOR ALL LOGISTICS AND TRANSPORTATION PROCESSES SINCE IT HAS DEVELOPED THE PRODUCT PORTFOLIO THAT COVERS ALL VALUE CHAINS OF LOGISTICS. IT ACHIEVED CONTRACTS SIGNED WITH SHIPPING COMPANIES IN SINGAPORE AS THE COMPANY OPENED A LOCAL BRANCH IN IT SUPPORT CENTER IN SINGAPORE (KICC SINGAPORE) THROUGH THE “OVERSEAS IT SUPPORT CENTER OPERATION” IN THE GOVERNMENT GRANT FOR ICT AND DEVELOPED A HUMAN NETWORK WITH LOCAL IT EXPERTS AND SUBJECT MATTER EXPERTS IN SHIPPING PORTS IN HQ.



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Identification of approach method to the local IT market through experts

CyberLogitec has attempted the entry to the global markets in many ways based on the level of company awareness in Korea. Existing sales methods employed targeting well-known local shipping companies and terminal customers and dispatching the HQ sales personnel through a business trip. However, despite these efforts, no significant achievements were made through various proposals and many overseas business trips since the company had no experiences in how to approach the IT market characteristics which were different from nation to nation. Then, the company captured an opportunity of replacement of container operation solution from shipping companies in Singapore, and local site-oriented sales and proposal methods were used to enter the market. The company

also achieved additional accomplishments of operation contracts signed by changing the location of main Customer Sales & Support Center to Singapore through the new partnership and placing the customer IDC center in Singapore after consulting with the IT support center (KICC Singapore).

Learning from the failure experiences through the introduction of a mentor company and IT trend in surrounding nations

CyberLogitec developed its solution for the global market entry. Based on the resolution, CyberLogitec was able to supply the answer to one of the third largest shipping companies in Japan. At this time, CyberLogitec had a new opportunity about the replacement of container operation solution from shipping



companies in Singapore. However, the same approach used in Japan could not be used for Singapore because the two countries had different cultures, resulting in a high failure rate. CyberLogitec that had just started the overseas entry at that time decided to adopt a local-oriented sales and the proposed method for the success of the entry to Singapore, which was different from the previous way.

CyberLogitec had long experience beforehand as they were introduced to a mentor company that had attempted entry to Singapore but failed before. The company re-structured the overall strategies comprehensively from business start to follow-up management including the solution installation method and operation method after installation through the accumulated experiences. By doing this, the company has reduced the possible failure of new market entry dramatically.

Overcome the entry barrier through the local collaboration network

Most logistics system companies are closed because their own IT systems ran them. As a result, the shipping market could not catch up the ICT advancement. CyberLogitec owns the industrial business know-how that can monitor all logistic transportation processes as it is built with the product portfolio that can cover all value chains in logistics. However, the technical entry barrier was very high for a single company like

CyberLogitec so that the company had difficulties to enter the market at the early stage.

CyberLogitec decided branch placement in Singapore through the participation in the "Software Export Marketing Support" project in the National IT Industry Promotion Agency and moved to the IT support center (KICC Singapore), which was utilized as the local basis. With the aid of the National IT Industry Promotion Agency, the company could get the support of corporation founding, legal and financial advice, and marketing in Singapore so that timely response could be achieved. Besides, it secured a candidate group of various partners by utilizing the local network held by the National IT Industry Promotion Agency and introduced to customers such as the Singapore Shipping Association (SSA) and PSA Singapore.

CyberLogitec could sign a license contract with container shippers established in Singapore by collaboration with three container shippers in Japan as it could secure trust from local customers through the move to the IT support center, and the annual sales are increasing steadily with the direct and indirect supports such as shortening contract period in the contract process. Above all, the solidification of local marketing cooperation channels by targeting Singapore as well as ASEAN nations through the participation in ASEAN K-Solution Fair supported by the KICC has been the driving force of the sales increase and continuous sales activities CyberLogitec is doing proactive actions for business expansion in Korea as well as overseas through the government grant for ICT.



Success Point

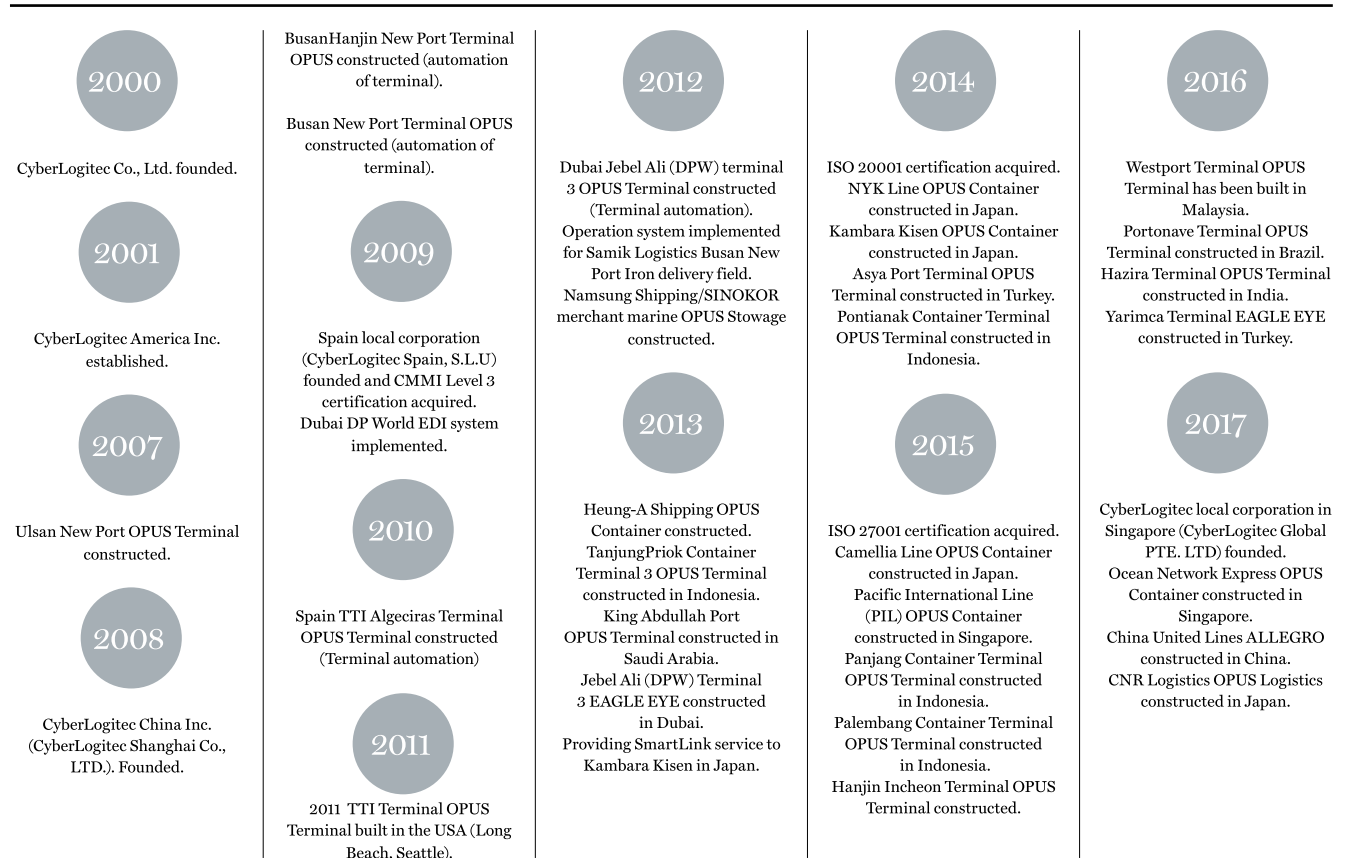
CyberLogitec analyzed the characteristics of the local IT market in Singapore through the local network held by the National IT Industry Promotion Agency and approached step-by-step, which was different from the existing sales approach. By developing a new partnership with a candidate group of IT partners secured locally, and learning the failure experiences through benchmarking of mentor company who had similar failure experience before, the strategy that minimized the possible failure in the overseas market entry was successful. Besides, CyberLogitec secured a wide range of compatibility through the system standardization operated by various nations. Existing markets were dominated by systems implemented by system integration or in-house manner, and each country runs its system without uniformity with many local competitors. CyberLogitec improved this limitation so that the solution can be utilized in many nations, which has become the strength of the solution. In particular, CyberLogitec could overcome

the entry barrier to the industry which was difficult to be entered with the single company ability by developing a human network with IT experts in the industry and subject matter experts in logistic systems in the shipping and port field.

Company Introduction

CyberLogitec is a specialized enterprise business solution company that provides various solutions to global shipping companies and terminals through the state-of-the-art IT solutions in shipping, ports, and logistics. The number of employees is approximately 400 workers, and about 85% of the employees are professional technical human resources. Its principal business sectors are the development and sales of shipping and port logistics business solutions. It has its proprietary shipping and port logistics solutions. It operates affiliated branches in the USA, China, Singapore, and Spain to develop an organic system for global market entry.

TIMELINE



COMPANY OVERVIEW

CEO CHOI, JANG-RIM TYPE OF BUSINESS SOFTWARE DEVELOPMENT ESTABLISHMENT MARCH 29, 2000
WEBSITE www.cyberlogitec.com

Enlarge the base of VR content market



Fix Games Co., Ltd.

Broadcasting and Communications Development Fund

- Support organization : Korea Mobile Internet Business Association
- Project : New market development support of smart contents

Key Achievements

- “AR contents supply system and method using markers” patent acquired by the KIPO.
- Invitation from the e-Sport industry technology fund founding in Sanmenxia Henan in China and contract of joint venture intent signed.
- The collaboration of development of environment protection (ECO) AR contents with Asian Start Jackie Chan in 2017.
- VR racing game ‘RaceRoom’ ranked top in market creation content in 2017 by the NIPA.
- MOU signed with SYSKODE, UAE Dubai and Bahrain companies in the Middle East.
- MOU of education and R&D business joint venture intention including game/AR/VR/eSports signed with Heritage Glory Group.
- 2017 Taiwan IDEAS Show@APEC Innovation, IR Pitching Competition Judge's Grand Prize & Best Marketing Prize awarded.

FIX GAMES APPLIED FOR DEVELOPMENT AND OPERATION PLAN DRAFT OF VR THEME PARK IN APEC 2017 IDEA SHOW HELD IN TAIWAN IN JULY 2017 THROUGH THE "NEW MARKET DEVELOPMENT SUPPORT OF SMART CONTENTS" PROJECT OF THE GOVERNMENT GRANT FOR ICT, AND WON THE ‘GRAND PRIZE’ AND ‘BEST EXPERIENCE MARKETING AWARD.’ IT IS STRIVING TO BECOME THE GLOBAL NO. 1 VR PLATFORM COMPANY FROM VR CONTENT DEVELOPMENT TO INTERIOR, CONSTRUCTION, AND OPERATION.



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Endless passion and interest in VR

Fix Korea (now Fix Games) was founded by experts of graphic designers and software engineers in 1999. The CEO of Fix Games worked as Quicktime video engineer in Apple for four years from 1996. Since then, he has dreamed about the VR market. At that time, four to five cameras were needed to participate in VR game industries, and there was a technical limitation due to poor computer performance. However, the CEO of Fix Games kept the passion and will that one day he will develop VR contents if an opportunity comes and technology is advanced further.

In the early days, the company headed into decline due to contract issues and operation problems. Since then, the company participated in some significant projects such as the Angry Birds Experience Exhibition and 'Charactorium' in



Everland, but the company's financial circumstance was not improved. Fix Games then tried everything to stabilize the company through various projects. To overcome the financial difficulties, Fix Games got into the outsourcing game development for other companies and took the government support projects. With a variety of efforts, the company reached out of financial difficulties. However, the company did not lose the passion and interest in VR game contents while doing all sorts of projects for profit making.

Then, Fix Games focused on VR game contents to be prepared for the company growth by making seven contents including car racing, canoe, and shooting games. While doing content making, the company presented VR E-sports theme park plan draft in the "2017 IDEA Show" hosted by the APEC through the government support and won the Grand Prize and Marketing Prize. Since the award-winning, buyers from Southeast Asian nations, the Great China Region, and the Middle East were flocked to the company to sign contracts and have a meeting. Currently, the company is doing a content publishing business in three nations in Southeast Asia and three countries in the Great China Region.

New possibility found in VR technology

VR is not limited in the VR technology, but it has a lot of potentials through contents. In this regard, Fix Games is discovering various killer contents that can be related to daily living. More recently, the company is trying multiple attempts to make an interactive healthcare content for exercise rather than simple VR games.

The newly developed material is a game program using a rowing controller while bending to the oars. It is a functional game for rowing fitness while boat racing. The company is preparing a promotion project in link with the healthcare field.



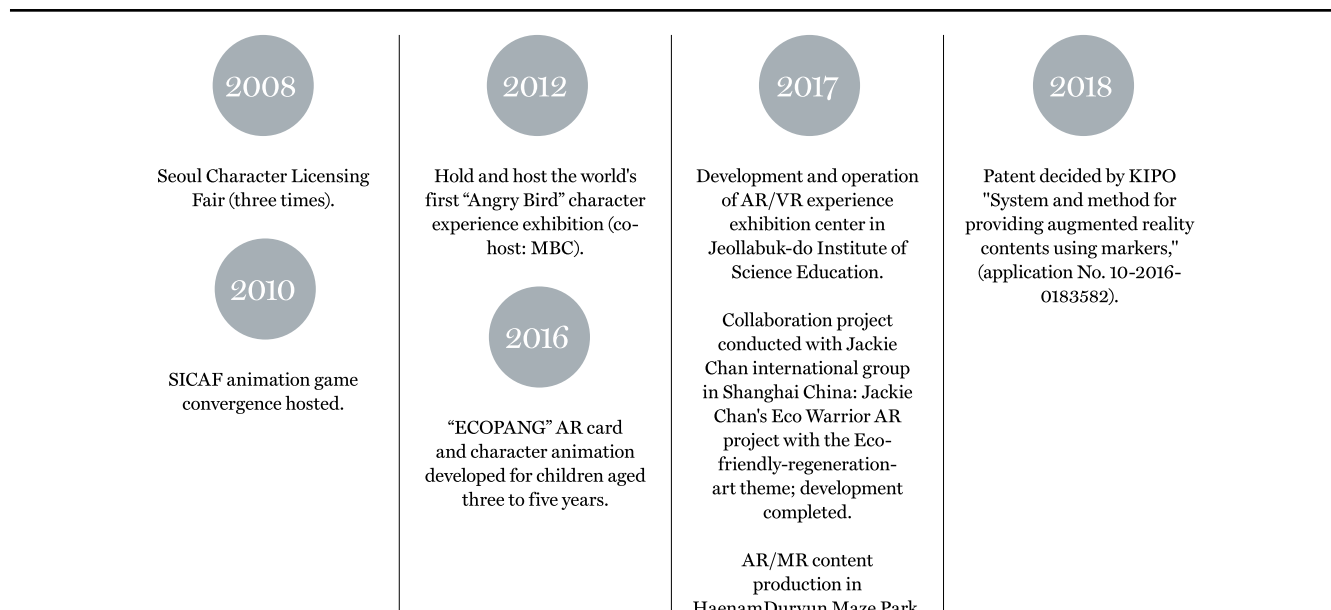
Success Point

Fix Games has focused on communication capability above all. The company had a chance to meet many buyers for a short period of time and had to judge quickly whether the buyer was beneficial with synergy effects and only focused on profitable buyers thereby utilizing the time without waste. It also drew the best communication effect by employing and maintaining staff with excellent communication skills. The company found that hiring interpreters temporarily without knowing the subject matter did not deliver the real intention of the company or understand what buyers truly wanted. The prior preparation for exhibitions was hugely helpful as the time to arrange the intentions of the two parties was not enough. The language competence of the company staff who had experiences in related business for a long time has become a great help for the successful global business.

Company Introduction

Fix Games is a mid-standing developer that drives online, mobile game development and online & offline experience booth event, and VR-AR-based business based on more than ten years of experiences and efforts. Fix Games are committed to providing new joy through new technologies such as VR, AR, and MR, and fusion contents of the game, theme parks, education, and human care without stopping challenge to a new platform. As contained in the company name "For Information eXpansion & Forthcoming International eXpert" (FIX), Fix Games is contributing to "information expansion" while pursuing the "forthcoming international expert." The goal of Fix Games is to become the global No. 1 VR platform company from XR contents (VR, AR, and MR) development to construction and operation of experience exhibition space. The primary business sectors are game, AR, VR, and MR content development and publishing, experience booth and theme park business, global XR center education and training, and R&D.

TIMELINE



COMPANY OVERVIEW

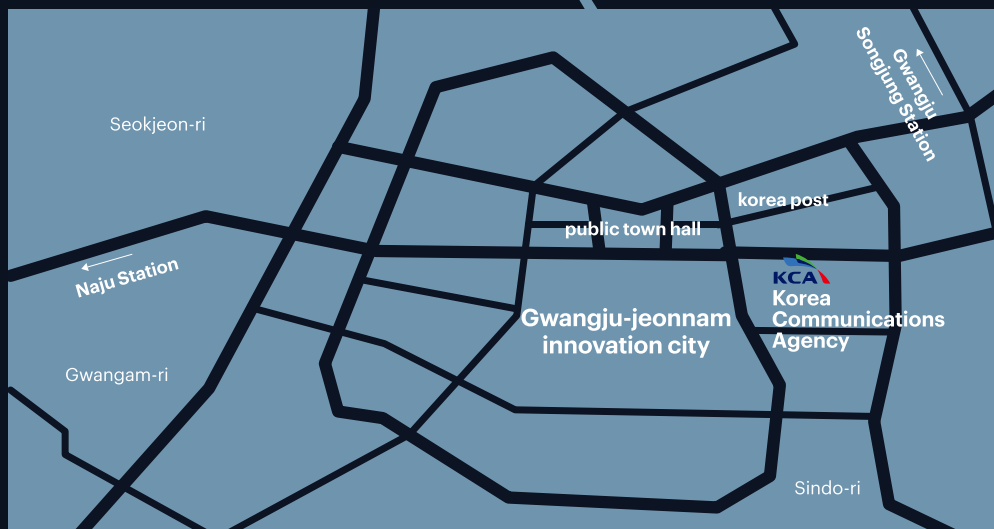
CEO LEE, CHEOL-WON **TYPE OF BUSINESS** GAME PROGRAM PRODUCTION AND SALES/TRADING/E-COMMERCE/ EDUCATION MATERIAL PRODUCTION AND TRAINING/GAME/VR/AR/THEME PARK SOLUTION **ESTABLISHMENT** JULY 17, 2014 **WEBSITE** www.fixgames.co.kr/home

KOREA COMMUNICATIONS AGENCY





Location



Outstanding Cases Achieved Through Government Grant for ICT

Published by

Korea Communications Agency
(58217) 760, Bitgaram-ro, Naju-si, Jeonnam, Korea

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Website www.kca.kr/open_content/en/index.jsp

Content prepared by

Korea Productivity Center 82-2-724-1114

Design/Printing

Myung Jin C&P 82-2-2164-3000

OUTSTANDING CASES ACHIEVED THROUGH GOVERNMENT GRANT FOR ICT

DIGITAL CONTENTS
SMART HEALTHCARE

IoT
BIG DATA

CLOUD

SMART DEVICE

DATA SECURITY

RADIO COMMUNICATION



Ministry of Science and ICT



KCA Korea Communications Agency

