Evolution and Expansion of RegTech
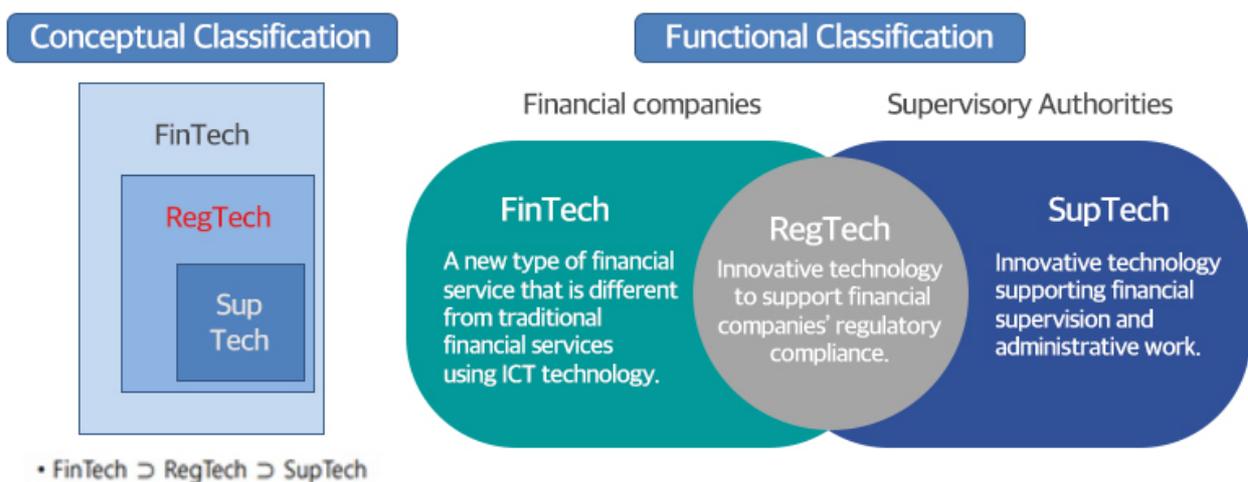
Written by | Yoo In-hyang, CEO, Live Application

Definition and Background of RegTech

RegTech is a compound word formed from "regulation" and "technology," or as in the dictionary, "complying with finance-related laws and regulations through big data, artificial intelligence (AI), and blockchain analysis." This refers to "a technological approach to responding to and reporting on regulations in real time" (IT Wiki). This dictionary meaning can be somewhat narrowly interpreted, and interpretation of the meaning and scope of the technology can be "broadly defined, including technology or software that addresses regulatory issues and helps companies/agencies understand and comply with regulatory requirements" (CB Insights).

In most business areas, the complex and diverse regulations that companies and institutions must comply with can place a considerable burden on business managers and risk managers. In a situation where regulatory information may have changed in visibility, readability, vulnerability, volume, volatility, and crossborder status, human ability alone is not enough for compliance, which is a regulatory response task. The complexity of regulations and the resulting burden of compliance costs can act as obstacles to corporate management, leading to a decline in corporate competitiveness and deterioration in profitability. RegTech is a regulatory management technology that can solve these risks and burdens, and help with new business entry.

Utilization of RegTech Technology

The starting point for RegTech technology is the financial market, and it is being utilized specifically for the financial market. Because of this background, it is also classified as a technical sub-field of FinTech (financial + technology). Regarding utilization, FinTech companies create new financial services centered on ICT technology and use RegTech technology to respond to financial regulations when entering business, and the supervisory body that manages and supervises financial institutions uses RegTech for the purpose of financial supervision. The technology for financial companies to respond to regulatory supervision by supervisory agencies is sometimes called CompTech (compliance + technology), and the technology area used by supervisory agencies for financial supervision is sometimes called SupTech (supervision + technology). All of them can be said to be technical areas belonging to RegTech. Specific examples of technology use are as follows.

Source: Korea Capital Market Institute.

- AML (Anti-money laundering): Designed to respond to the Anti-Money Laundering Act, a system that monitors transactional information and detects and blocks money laundering transactions by combining big data and AI technologies.

- FDS (Fraud detection system): A system that detects and blocks signs of abnormal transactions by analyzing financial transaction logs such as internet banking.

- DLP (Data loss prevention): A security system that generally means prevention of internal information leakage. Traditionally, it has been a technology to monitor and prevent leakage of internal information to the outside through computer terminals or network control, but recently it has evolved into a RegTech concept system that monitors and blocks internal control violations or customer information leakage by analyzing data transmitted and received through various channels, including web mail and text messaging.

- Others: In addition, customer identification, financial product verification, incomplete sales detection, internal control, and embezzlement prevention are evolving and developing by integrating advanced ICT technologies such as AI, machine learning, and RPA (robotic process automation).
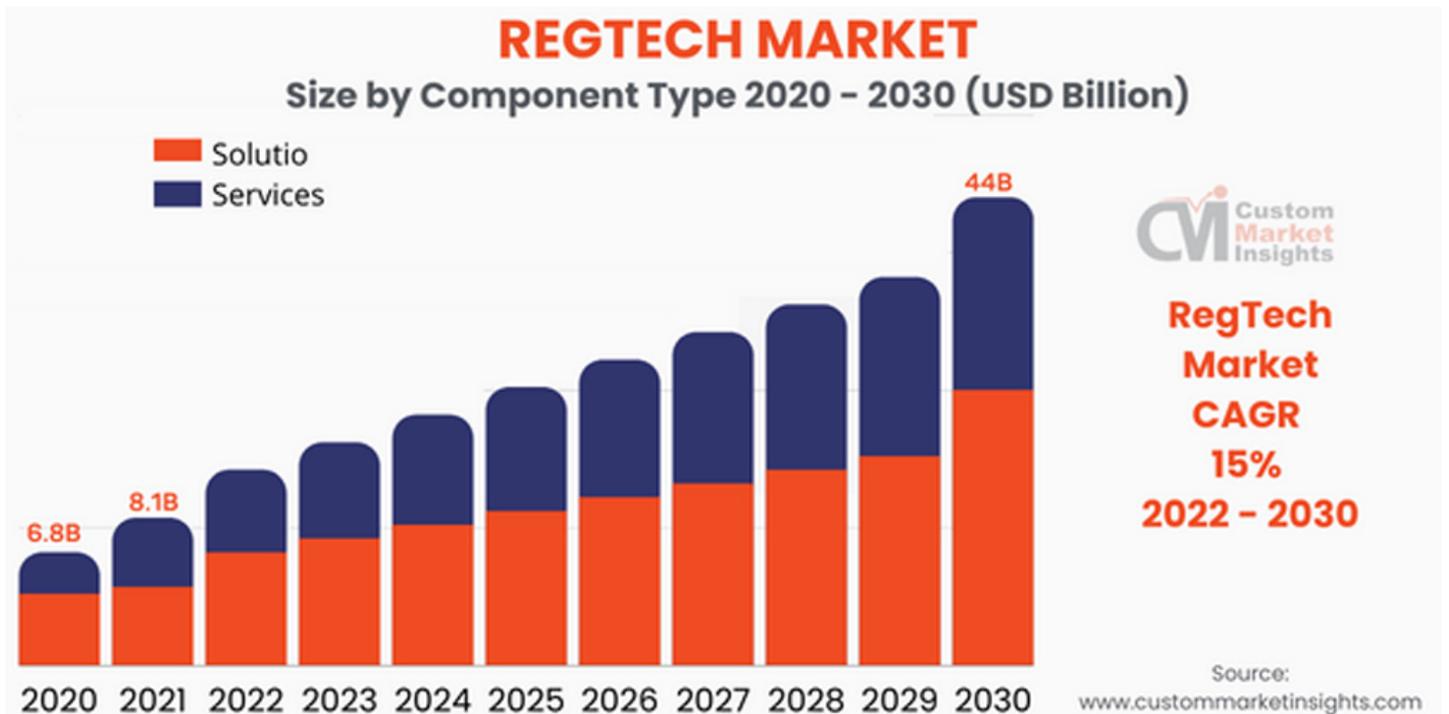
Global RegTech Major Applications

Application	Value
Customer verification procedure (Know your customer [KYC] verification)	52
Anti-money laundering, etc.	51
Fraud	29
Governance, responsibilities, and conflicts of interest	26
Personal information	24
Market surveillance (inside trading, market manipulation)	22
Product governance and quality	22
Tax compliance	20
Corporate financial reporting and transparency	19
Cybersecurity	17

Source: CCAF, 2019. The Global RegTech Industry Benchmark Report. Korea Capital Market Institute.

RegTech Market Status

The RegTech market is growing rapidly along with the FinTech market, and according to Custom Market Insights, a US marketing research company, a market of about 10 trillion won was formed in 2021. It is growing every year and is expected to expand to hundreds of trillions of won in 2030, with a predicted average annual growth rate of 15%. After the global financial crisis of 2008, as major countries judged excessive regulation as the main cause of the financial crisis and strengthened financial regulation, RegTech technology appeared and developed little by little to create the current huge market. Major companies include FundApps (UK), Trulioo (Canada), and Silverfinch (Ireland). As the market size increases, new startups continue to emerge and grow. In Korea, there are companies such as OCTASolution and Nick Company that stand out in terms of anti-money laundering laws and financial corporate governance.

<source: Custom Market Insights>

RegTech Evolution and Market Expansion

The RegTech market is primarily recognized as a derivative field of FinTech technology according to its core definition. However, considering the integrated technology and application areas, it is unlikely that it will be used only in financial FinTech. Its area can be continuously expanded, and the technology is also developing and is expected to evolve more precisely in the future. As the market size grows, more companies are entering the market, and technology is also developing. In the short term, it is increasing the speed and accuracy of monitoring various types of regulatory compliance and is detecting fraud based on big data, AI, robotics technologies, machine learning, and machine re-regulation technologies. In the long term, it could evolve into a more advanced system and service, such as incomplete-transaction/incomplete-product verification and automation of various regulatory reports, centered on AI and robotics technology. The point to pay attention to here is "Will the RegTech system and service created through these ICT core technologies be used only in the FinTech area?" Regulations do not exist only in finance but in any industrial area. Personal information protection laws and regulations are inevitable for almost all companies and institutions, and are related to safety and health. RegTech technology is not only used and developed in the financial market but widely used to more effectively respond to regulations in various fields and manage compliance tasks, which matches its meaning and is the way to further expand the market.

Closing Remarks

ESG (environmental, social, and governance) evaluation, which has recently become a hot topic in business and society, may be another non-regulatory regulation that causes "convenience and difficulty" for companies. Supply chain companies must respond to requests for evaluation reports based on the criteria presented by global companies, large corporations, and financial institutions, which can be referred to as "Party A," and respond appropriately. It is not yet compulsory, but everyone thinks that the weight will change at some point. ESG is likely to become a compliance that affects all companies in the future. RegTech technology can be widely used in more areas depending on how it is used, and if it is applied to the ESG area as an example, it can create great synergy and become more common. This is only one example of RegTech market expansion. As always, technology develops and evolves when it is used a lot. The evolution of RegTech can be further accelerated by the expansion of the market.

RegTech Technology for the Application of Rapidly Changing Regulations

RegTech is a compound word derived from "regulation" and "technology," and generally refers to technology to respond to financial regulations. As financial regulations to avoid risk have been strengthened since the Lehman Shock in 2008, the scope of regulations is expanding and becoming more complex, and to cope with this situation RegTech is attracting attention as a means to reduce costs and effectively respond to regulations.

RegTech Background

RegTech is a technology to quickly and accurately apply changes to applicable regulations and the compliance processes needed to manage and navigate the complex regulatory environment. By leveraging information and communications technologies (ICT) – such as information technology (IT) and big data analytics, artificial intelligence (AI), and biometric authentication – to strengthen regulatory and compliance processes through RegTech, RegTech shows how to reduce regulatory-related risks, costs, complexity, and compliance time.

At the business level, RegTech can help address regulatory requirements and automate them to make operations easier, more efficient, and more profitable, while at the government level, it helps reduce compliance costs, increase the efficiency of regulatory processes, and improve the regulatory environment.

Although RegTech can be used in other industries, such as healthcare, AI, and big data, it is commonly used by financial companies for regulatory compliance, transaction monitoring, reporting, case management, and compliance.

RegTech Classification

Categorization	Organization	Purpose
CompTech	Financial institutions	Compliance, regulatory compliance
SupTech	Financial supervisory authority	Supervision, regulatory supervision

RegTech is classified into CompTech, a regulatory response system, and SupTech, a financial supervisory work system, depending on what it is applied to, but RegTech is also sometimes considered to be limited to CompTech.

In this article, we looked at the regulatory compliance and risk management aspects of RegTech, focusing on CompTech.

Regulatory Compliance Aspects

Regulatory compliance and change management: The biggest challenge for regulated industries is the compliance burden. Financial institutions must keep up to date with the applicable regulations for their area. Companies not only have to comply with the management regulations of various agencies and respond to frequent changes in regulations, but also have to comply with the reaction time to change operations. However, this complex process creates compliance costs, revenue loss, and the risk of fines. Compliance management is the process of identifying and addressing regulations, standards, and requirements to comply with these rules.

Regulatory reporting and case management: Reporting and case management to comply with regulations is also one of the key tasks of financial institutions. According to Kroll's research, in 2020, 33% of U.S. banks spent more than 5% of their annual budget on compliance. Improving data quality with RegTech's case management can reduce overall operating costs, and more information than ever before can be displayed in a variety of formats, allowing users to be defined and presented in a variety of formats according to the format requested.

Sharing regulatory information: It is also a domain of RegTech to share changed regulatory information with stakeholders in the related area. It stores regulatory information and creates a central repository accessible to all users so that it can be shared among stakeholders involved in the area.

Risk Management Aspect

Currently, the most common example of RegTech is the electronic customer verification (eKYC) process, in which banks digitally verify the identity of people who open new accounts. With the conversion of eKYC incorporating RegTech technology, the time and manpower required for manual procedures have been drastically reduced.

Identification and management: Digital identity verification with rules-based RegTech can reduce identity theft by comparing in real time an ID image to a verified government-issued document such as a passport or driver's license. In addition, KYC (know your customer) rules can be applied to the data set, including name, address, date of birth, and other relevant personal information, to verify that the person in the ID is actually doing the transaction.

Transaction monitoring: Transaction monitoring is the process of tracking the movement of transactions and the use of funds, which can help identify money laundering, detect tax evasion, and prevent other illicit activities. In addition, network analysis can be used to look at the relationship between traders in a transaction, monitor the risk of abnormal trading in real time, and respond immediately.

Risk analysis and management: Scenarios can be analyzed based on past activity, behavior, and warning signs to predict events, including fraud. Additionally, for specific high-threat cases, the same level of vigilance can be continuously enforced without additional resources or manual case management.

Anti-money laundering (AML) compliance and detection: AML regulations require financial institutions to log any suspicious activity and have their internal compliance expert system investigate potential money laundering. Anti-money laundering is an area that requires thorough management, as simply failing to report suspicious transactions or failing to conduct a thorough investigation of the circumstances can constitute a violation and result in fines.

In addition, it can be used in various fields such as consumer protection and cryptocurrency regulation.

RegTech is an area with high difficulty in starting a service, such as understanding various legal systems and regulations, as well as negotiating with regulatory authorities. It is said that global companies are systematically responding to regulations and negotiating with the government through personnel with the title of "chief compliance officer (CCO)." RegTech is expected to not only respond to current regulations with technology but also grow into an infrastructure service suitable for the complexity of regulations due to changes in the industrial structure of digitalization from a mid- to long-term perspective.

Reference

- Top Cases of Using RegTech in the Financial Sector 🔍
- Prospects for Domestic Use of RegTech, a Technology Related to Regulation 🔍
- RegTech, a New Paradigm for Financial Regulation 🔍
- Cases of Use, Challenges, and Future of RegTech 🔍
- Why Do We Need RegTech? 🔍

I will become a rising star in information security marketing.

Interview | Lee Ju-hyun, Manager, Live Application

RegTech is a technology that quickly handles complex financial regulations. It is a technology that is difficult for non-experts to understand exactly by just listening. In particular, terms and technologies used in the information and communications industry are more unfamiliar to the general public.

So, how does the marketing team in the relevant industry work?
Let's listen to the story of Lee Ju-hyun from the Live Application Marketing Team.

Q

Hello, please introduce yourself briefly to our readers.

Hello, my name is Lee Ju-hyun from the Live Application Marketing Team.

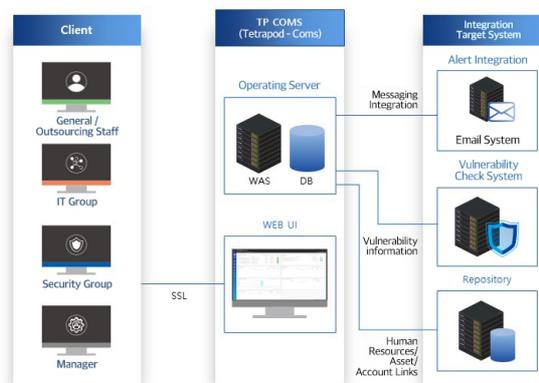**Q**

What does Live Application do?

We are an IT company that directly develops solutions for the information security field.
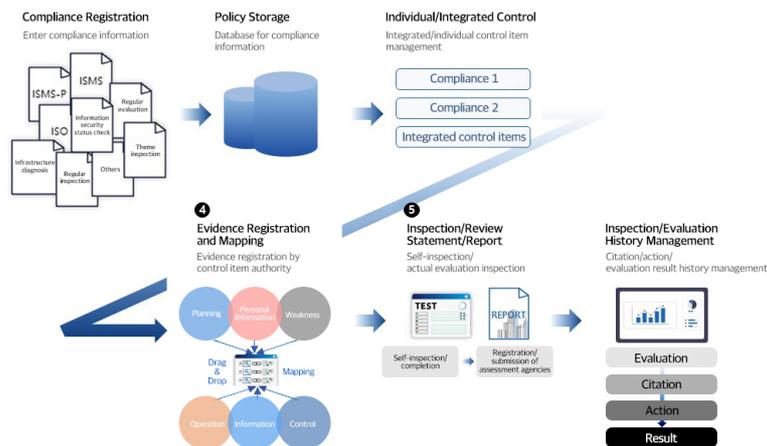
Q

What is Live Application's main service and how it is being used?

The technology underlying our flagship product is RegTech. It is a technology that automates complex financial regulatory compliance with information technology and enables systematic management of security levels. Among our services, Tetrapod Coms is a system designed to easily manage compliance to be observed by each institution. RegTech technology is helping all security sites by allowing Tetrapod Coms to be applied not only to finance but also to public and corporate regulations.

Live App Tetrapod Coms Diagram

Live App Tetrapod Coms' Compliance Management Among Other Key Features

Q

Is there a reason why you chose to work at Live Application?

I was fascinated by the fact that I would be pioneering the path for compliance technology. Also, I think it was very heartwarming to think that I would be paying attention to what other people do in other fields and create ways to relieve their inconveniences.

Q

Please tell us your most memorable episode while working at Live Application.

Since I did not major in this field and my company specializes in B2B, there was a lot of confusion at first, and it was difficult to specify the marketing target. To solve this problem, I decided to run a company blog, but I had never learned social media marketing professionally, and it was a bit overwhelming to prepare information about unfamiliar information technology. Then, at the end of last year, I heard that a virtual asset platform company had received an inbound inquiry through a blog that I operated. While this most memorable experience was somewhat strange, I felt very happy with the experience.

Q

What kind of employee are you?

I feel like an outspoken employee. This is because I have to think of things that the company hasn't tried and propose them for action.

Q

Have you always been interested in information security?

No, because I didn't major in it and had no contact with the field of information security. I came to know about this field by accident, and I am satisfied that I have learned a new world that I never knew before. It is also one of the hottest topics recently, so I have no regrets about my choice.

Q

What kind of qualities and competencies does someone need to work in the information security field?

For people who are trained in a completely different field like me, those who did not originally major in this field, you will need to be curious about new things and try to know things that are not related to you. I think the attitude of always asking and understanding your fellow developers and engineers is a tip I would like to give to non-experts who want to work in this field.

Q

How do you feel while working for the company?

I have felt that relationships with colleagues are really important in my work life and that there are many ways forward, not one.

Q

What are your future goals?

My goal is to increase what I know how to do through my skill set and create a personal brand by taking advantage of my special strengths. If I want to create and build a good work experience to upgrade myself, I think both the company and the individual can get good results.

Q

Any message for our ICT Industry Hot Clips readers?

I was able to gain new marketing experience by working for Live Application, and I am happy to be able to promote our company to the outside world through ICT Industry Hot Clips. Live Application thinks about upgrading the technical skills of their personnel actually working with technology rather than just for the development of the industry. I would like everyone to know that Live Application is preparing technology needed for companies and their personnel who work with technology more than just technology for consumers who purchase and use it.

Excellency and Success Story - Information Protection Automobile cyber-security solution, Launching its business in global markets

FESCARO Director Ku seong seo

FESCARO

FESCARO.
☑ General Status

- **Implementing Agency**

  Korea Internet & Security Agency
- **Business Details**

  IShaping the global ICT innovation cluster

☑ Company Status

- **CEO**

  Hong Seok-min
- **Business Type**

  Automobile Security
- **Year of Establishment**

  2016. 07
- **Homepage**

  https://www.fescaro.com/kr/index.php

☑ Key Accomplishments

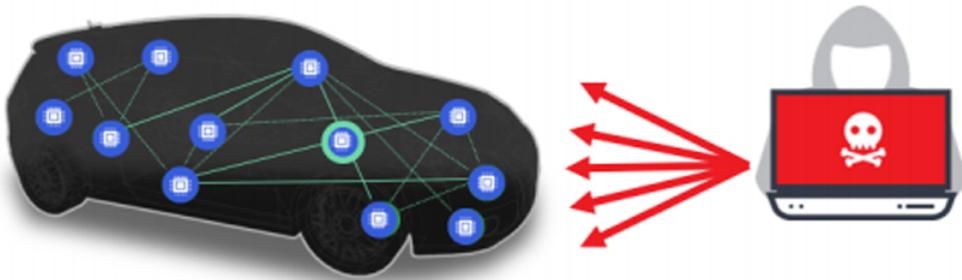Satisfied all requirements for cyber security of global automobile makers (OEM) and UN regulations.

Mass production of security solutions of allcontrollers of global automobile makers (OEM).

Fully compatible with 44 models from eight semiconductor manufacturers including Infineon and NXP.

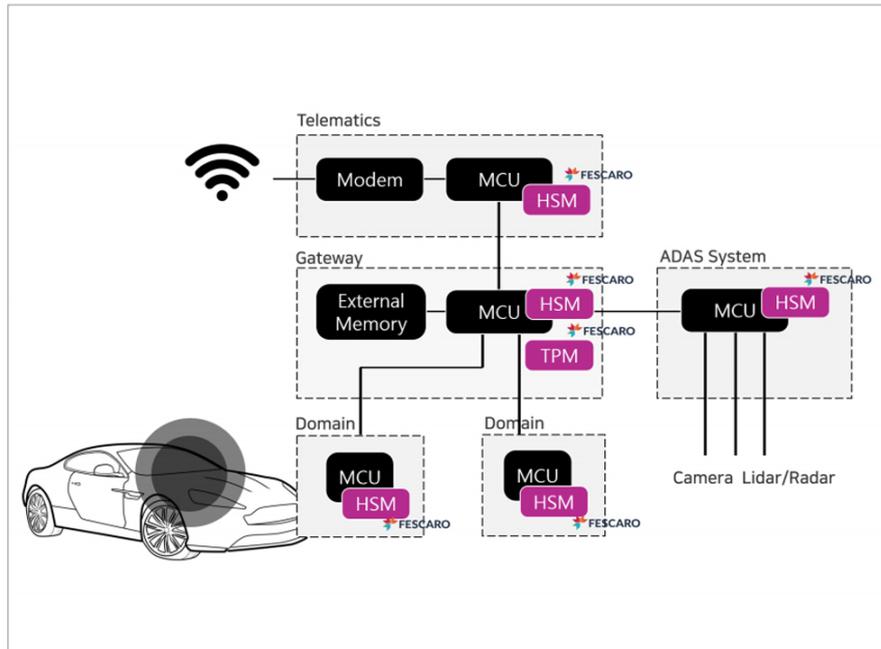# Real IT Security Expert Company Bearing Source Technologies

Focus on **E**mbedded **S**ecurity
in **CAR** Based on **O**ffensive security

자동차 제어기 개발자와 화이트해커 출신의 보안 연구원들로
구성된 글로벌 자동차 보안 전문기업

FESCARO is a leader in the field of automobile security systems. Since it was established in 2016, the company has supplied diverse security solutions for hybrid cars, electric cars, and hydrogen cars of the future, not to mention of conventional internal combustion engine vehicles.

It has been only few years since Koreans were interested in automobile security. The main reason is that automobile makers (OEM) and part makers (tiers) have been negligent in security technologies investments due to increase of costs in the courses of advancement of automobile-relevant technologies. However, IT contribution in automobile manufacture has steadily increased to gain bigger attention on security, and therefore the technologies of FESCARO attract interests in the markets.

FESCARO predicted feasibility of expert companies differentiated for automobile security and was established with top white hacker professionals. The company has succeeded in being recognized an expert by supplying security solutions optimized for automobile by securing source technologies of cyber-security of automobiles based on several R&D activities.

Success Feasible in the Demand Trend for Security Technologies

FESCARO launched FAST HSM (Hardware Security Module), controller protection solution of automobile, in the field of IVS (In-Vehicle System), to gain positive attention. FAST HSM is a solution optimal for real-time protection of personal information of users including automobile from unauthorized operation and hacker attacks. The solution can easily be applied only with software update, and is compatible with common automobile specifications. The solution uses encryption library compliant with international standards, providing excellent quality and fully satisfying security requirements of regulatory authorities and global automobile makers (OEM).
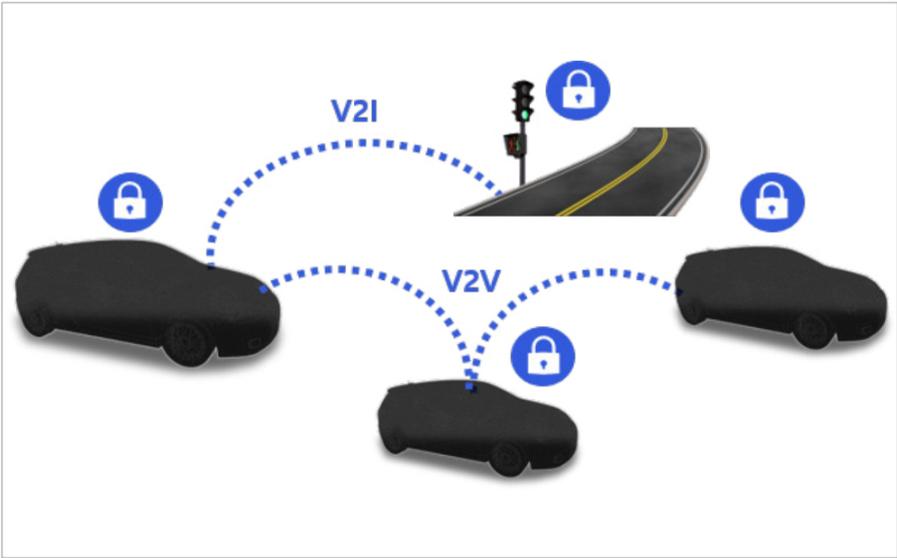
The greatest competitiveness of FESCARO is its full response to the requirements of automobile makers (OEM), and UNR155 and NNR156 that are regulations for cyber-security of UNECE WP.29. This stands for satisfaction of verification of strict quality standards of global automobile makers (OEM), and it is anticipated that the company will gain even morepositive reputation from consumers around the world based on automobile security solutions adapted with top strong in-vehicle security technologies.

Feasibility of success in global markets of FESCARO is also very high. In 2020, United Nations / Economic Commission for Europe (UNECE) adapted 'Draft of automobile cyber-security regulation,'and automobile makers (OEM) acquired approval of government authorities for automobile cyber-security management (UNR155/CSMS) and software update management (UNR156/SUMS).

New cars produced in June 2022 and thereafter should be certified before they're put on sale, and all cars produced and sold before the date should be approved by July 2024. Automobiles that failed in getting approval are not allowed to be sold, and will suffer from disadvantages such as penalty and recall.

It is predicted that new provisions for automobile security will be executed in countries in Europe, North America, Japan and Australia, and marketability of FESCARO in global markets will further be activated. It is also predicted that market size of electric cars will rapidly grow at an annual average of 22.6%, from an approximate USD 162.34 billion in 2019 to approximately USD 802.81 billion, and automobile security industry will achieve high growth rate accordingly.

Exploring Overseas Markets with Next-Generation Solutions

FAST V2X, a next-generation solution of FESCARO, is a network security solution operable outside automobiles. The real-time solution detects abnormal actions of V2X message to protect automobile, enabling a safe driving environment.

FESCARO was elected one of the joint research entities of 'Project of Safety / Infrastructure Research for Autonomous and Cooperative Driving on Urban Roads' hosted by Korea Transportation Safety Authority, and actively participates in the development of guidelines for tests and evaluation by building up V2X communication and safety evaluation system. In addition, the company has expert capabilities for algorithm of detecting abnormal behaviors of V2X terminal, and operates optimal conditions that are capable of accommodating technical verification and evaluation of its solutions in the future by building up V2X security assessment environments inside K-City in Hwaseong, Gyeonggi-do.

FESCARO, anticipating beneficial outputs in global markets in the future, boasts of strong capabilities in supplying various lineups (security solutions, security tests, and consulting) based on expert automobile security solutions. FESCARO, striving to operate in business in the dedicated field, has achieved outstanding business records from multiple areas such as automobile makers (OEM), part manufacturers (tiers), and government authorities with its know-how.

FESCARO plans to expand its businesses as a global company by opening branches in North America, Europe, and Asia, and establishing foundations of marketing and enhancing response capabilities.

TIME LINE

2016. 07.

Established FESCARO

2017. 08.

Succeeded in inviting investments (seed) from Spark Labs (KRW 45 million) and Sunbo Angel Partners (KRW 100 million)

2019. 08.

Succeeded in inviting investments from Hyundai Venture Investment Corp. (Pre-A, KRW one billion)

2019. 11.

Global certified in software quality of A-SPICE Automobile

2020. 06.

Global certified in quality of encryption library of NIST FIPS140-2 CAVP

2020. 07.

Certified in venture business

2021. 06.

Global certified in quality of encryption library of NIST FIPS140-2 CMVP

2021. 11.

Won grand prize in Security Startup IR Demoday 2021

Selected as a venture business of first penguin model by Korea Technology Credit Guarantee Fund

2022. 03.

Selected in the field of BIG 3 future cars by Small and Medium Business Administration

Preventing Disasters due to Rainfall through High-Resolution Observation of the Micro Electromagnetic wave rain gauge

JCOMS CO., LTD. CEO Choi jung ho

JCOMS

JCOMS CO., LTD.

☑ General Status

- **Implementing Agency**

  Korea Radio Promotion Association

- **Business Details**

  Electromagnetic-based new industry creation and SMBs fostering

☑ Company Status

- **CEO**

  Choi Jung-ho

- **Business Type**

  Manufacturing

- **Year of Establishment**

  2015. 04

☑ Key Accomplishments

Developed 24GHz and 17GHz high-resolution electromagnetic wave Rain Gauge (micro rain radar) for the first time ever in Korea.

Success in commercialization according to the state R&D project – Designated as a PPS excellent product (electromagnetic wave rain gauge).

Expansion of domestic and foreign markets through electromagnetic wave rain gauge manufacturing and flood prevention and warning service commercialization.

Electromagnetic Wave Rain Gauge Enhancing Rainfall's Spatial Distribution Measurement and Observation Accuracy

Damages of human life and property including the old and the infirm are rapidly increasing due to flooding and landslide in city centers, small and medium rivers, and valleys by local downpour. The ground rain gauge used for general rainfall observation is a cylindrical rain gauge with 20cm in diameter. The area represented by the ground rain gauge by the Thiessen method ranges from several square kilometers to dozens of square kilometers, and the measurement representation is lower than the spatial distribution. To overcome this, observation equipment development is necessary using electromagnetic waves to observe area rainfall in a wide area.

JCOMS Co., Ltd. developed a high-resolution electromagnetic wave rain gauge that can observe rainfall, snowfall, and wind field based on the network using electromagnetic waves for the first time in the world. Through state R&D of the Korea Environmental Industry & Technology Institute, JACOMS carried out 24GHz electromagnetic wave rain gauge and measurement system development between 2016 and 2020 and succeeded as an outstanding research project in August 2020.

The technology deals with a new-concept electromagnetic rainfall gauge to measure the spatial distribution of rainfall at low altitude around the ground, overcoming the limitations of existing ground rainfall gauges. Exact-area rainfall calculation enables improvement of flood forecast accuracy and damage reduction due to local downpour. The Ministry of Environment judged that the gauge can greatly contribute to disaster prevention due to rainfall—which is a social issue —and it plans to secure 28 electromagnetic waves rainfall gauges as part of the flood forecast system using AI by 2025.

Commercialization of Multifunctional Electromagnetic Wave Rain Gauge through the ICT Fund Project
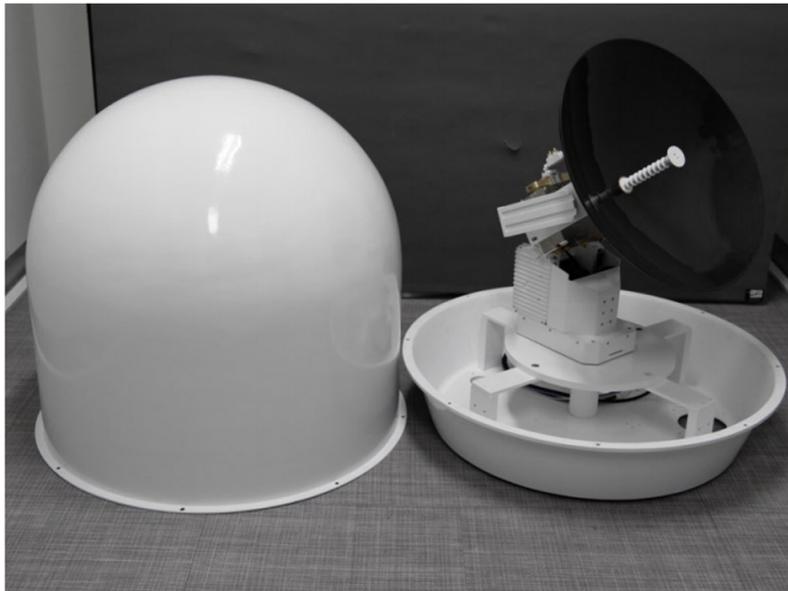

JACOMS is an environmental convergence system company established by those with extensive experience and diverse majors in terms of disaster response, such as weather, flood, and landslide. The company has developed various remote exploration equipment and has built an ICT-based integrated environmental convergence system. JACOMS participated in the ICT Fund project to expand business opportunities that can be encountered through the ICT convergence technology, while letting others know about the need for and excellence of electromagnetic wave rain gauge. The company developed 17GHz electromagnetic wave rain gauge and prototype and verified product commercialization.

The high-resolution 17GHz electromagnetic wave rain gauge system developed by JACOMS is a micro electromagnetic wave rain gauge system that can measure rainfall's spatial distribution for the first time in the world. The gauge system includes gauge operation and management and real-time 3D rain data manifestation software as well as antenna device, sending and receiving device, and signal processing device.

JACOMS developed a 17GHz-band micro dualpolarized antenna technology and a high-resolution electromagnetic wave rain gauge signal processing technology among the electromagnetic wave rain gauge technologies through the ICT Fund project. Following the project, JACOMS has achieved the following: one case of ICT convergence quality certification; one case of temperature, humidity, and waterproof-related environmental test report; one case of sending and receiving a device authorized test report; and one case of antenna device authorized test report. Such excellent result was based on the objective evaluation on ICT convergence technology, and clear verification was backed up with regard to the use of the electromagnetic wave gauge.

Through successful performance of business, the commercialization of the multifunctional, highefficiency electromagnetic wave rain gauge that can supplement and replace existing ground rain gauge became possible because the development of the world's first electromagnetic wave rain gauge technology that fused IT technology was completed. The electromagnetic wave rain gauge that can prevent disaster damage by measuring and monitoring downpour, heavy snow, and storm with high accuracy around the ground was commercialized for the first time in the world. Consequently, the remote exploration detection-based weather observation, prediction, and application technology can be localized to respond to various accidents and disasters due to climate change in the 21st century.
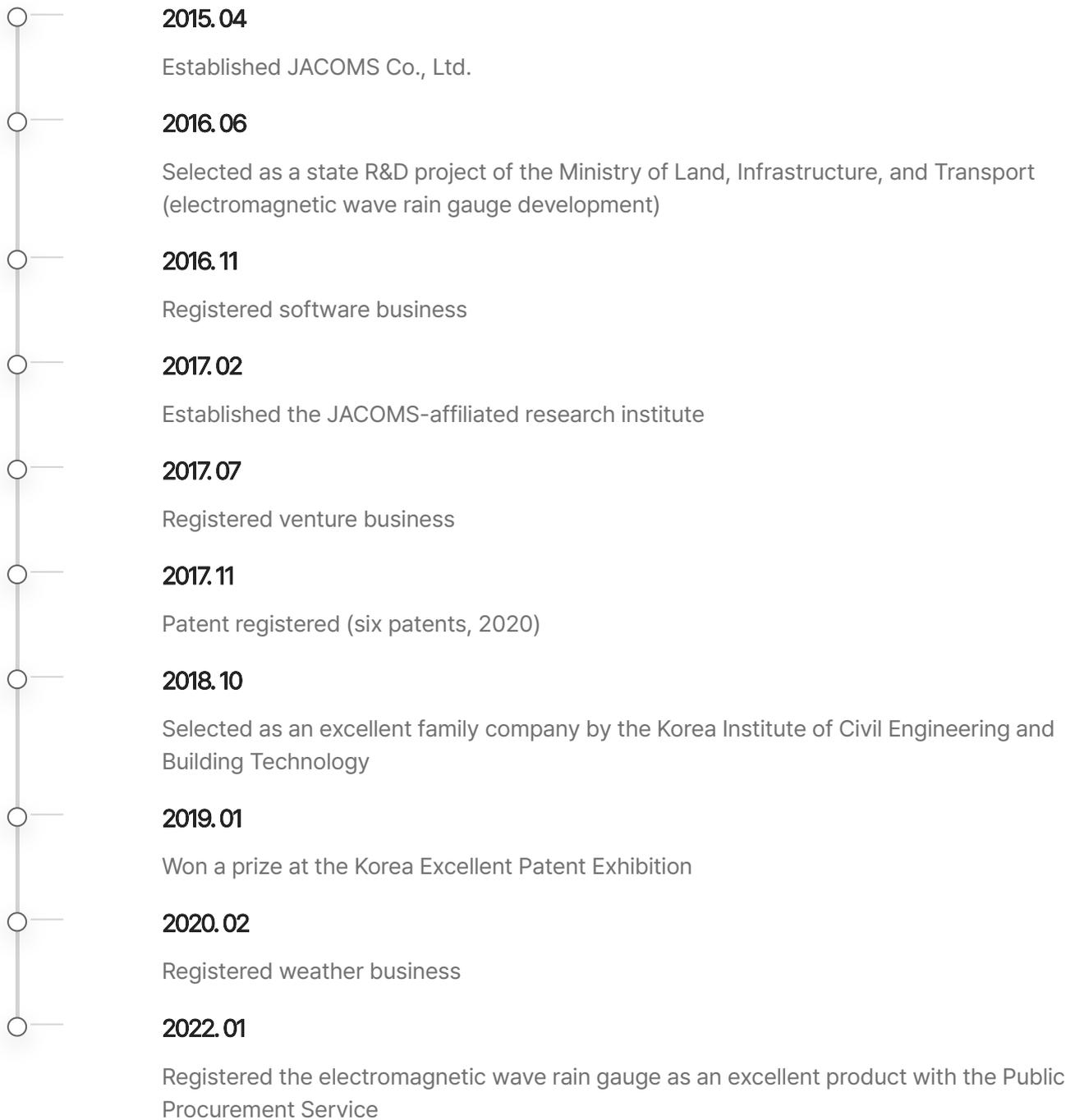
Enhancing Service Performance Through High Utilization of the Electromagnetic Wave Rain Gauge

JACOMS sees increasing demand in the private sector based on an increase in social interest in bad weather disasters as well as among government institutions, local governments, and institutions in charge of disaster prevention requiring high-resolution rainfall data information from advanced technological electromagnetic wave rain gauge through the ICT Fund project. The company is also seeking measures to enter the overseas markets since utilization is forecast to increase abroad including developing countries where large farming complexes and rainfall observation facilities are insufficient.

JACOMS plans to enhance service performance by applying high-resolution weather data quality control through machine learning-based radar weather data calculation on the basis of data obtained from a small electromagnetic wave rain gauge so far. JACOMS is scheduled to develop the next-generation PARR (phased array rain radar) for the first time in the world through the expansion of ICT convergence technology.

TIME LINE

2015. 04

Established JACOMS Co., Ltd.

2016. 06

Selected as a state R&D project of the Ministry of Land, Infrastructure, and Transport (electromagnetic wave rain gauge development)

2016. 11

Registered software business

2017. 02

Established the JACOMS-affiliated research institute

2017. 07

Registered venture business

2017. 11

Patent registered (six patents, 2020)

2018. 10

Selected as an excellent family company by the Korea Institute of Civil Engineering and Building Technology

2019. 01

Won a prize at the Korea Excellent Patent Exhibition

2020. 02

Registered weather business

2022. 01

Registered the electromagnetic wave rain gauge as an excellent product with the Public Procurement Service

Leading the Industrial Area with AI-based XR (eXtended Reality) Technology

AUGMENTED KNOWLEDGE CORP. CEO Cho geun sik

AUGMENTED KNOWLEDGE

AUGMENTED KNOWLEDGE CORP.

☑ General Status

- **Implementing Agency**

  National IT Industry Promotion Agency

- **Business Details**

  Invigoration of the digital content industrial ecosystem.

☑ Company Status

- **CEO**

  Cho geun sik

- **Business Type**

  Software development and supply

- **Year of Establishment**

  2016. 11

- **Homepage**

  https://www.augmentedk.com/kor/main/
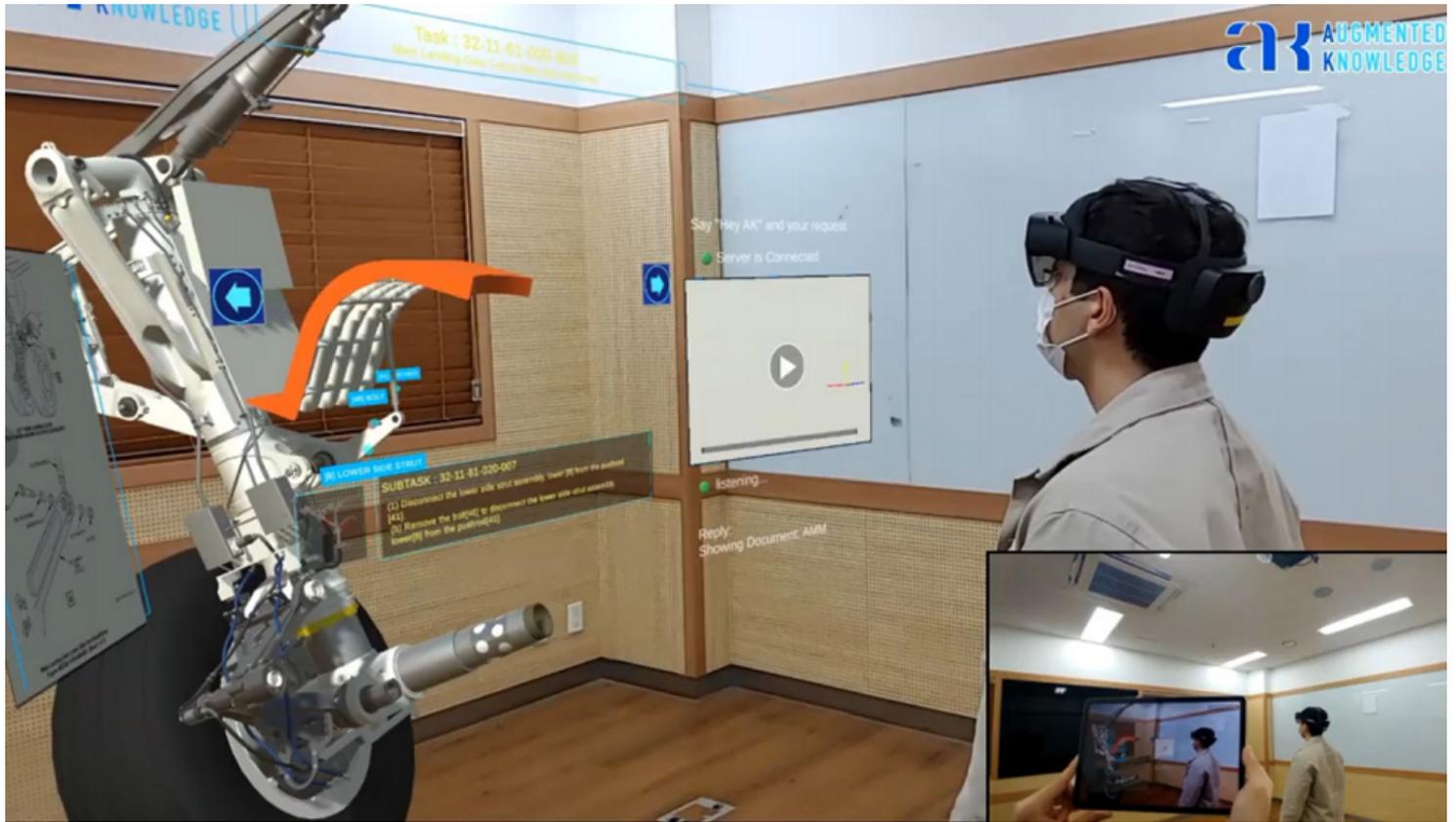
☑ Key Accomplishments

Developed new framework technology fused between technology information and XR content and new market pioneering.

Shifting paper manual to AI-based XR world – Industrial XR.

Secured XR contents for aircraft maintenance – Using XR for training and field maintenance.

Laid the foundation for XR technology application infrastructure in the aviation MRO training area with ICT regulatory sandbox demonstration exceptional business.

Development of Safe Manual Technology with AI

Augmented Knowledge Corp. is a lab startup established by a professor who gave AI lectures for over 30 years at Inha University. The professor and CEO carried out a preceding demonstration research using AR (augmented reality) and AI (artificial intelligence) technology in aviation maintenance sites along with the US USC and Korean Air supported by research funding from Airbus in 2008. The research confirmed the possibility of improving the maintenance time by 30% using AR and AI of Augmented Knowledge compared to the existing paper manual-based maintenance. Two papers were presented to the world's top-tier AAAI (Innovative Applications of Artificial Intelligence) of the US on the technology, and Augmented Knowledge was founded to register the key technology patents on the research outcome in the US, China, and Korea, and to commercialize the technology.

Aircraft maintenance is a very important process that can be connected to human life accidents, so aircraft or complex machine maintenance is strictly controlled to carry out work according to maintenance manuals. Nonetheless, 14% of aircraft accidents are caused by human factors, namely defective maintenance. Augmented Knowledge has developed a technology wherein AI understands manuals and automatically shows the manuals to workers at the worker's request, instead of paper or PDF-based complex documents. Augmented Knowledge possesses the full digital twin of B737 800 NG, an airplane made based on the technology. The company also has intellectual technology property rights related to aircraft main landing gear, engine, frequent maintenance, VR (virtual reality) and AR for training, MR (mixed reality) contents and application for PCs, Web service contents, SaaSbased service, and platform.

Technological Capabilities that Can Improve the Aviation MRO Industry and Training Competitiveness

The existing XR contents consist mainly of 3D animations. To use the XR technology in the industrial area, however, connection with technical documents (information) is necessary. Augmented Knowledge has a framework technology to fuse technology manuals and XR content. The company's technology information and XR convergence framework can offer cloud SaaS-based service, and managing the technology information from a server enables the independent management and renewal of information. This can support responding to the industrial area that needs to be renewed and managed steadily in terms of technology information. The framework can allocate work procedures by worker in the server and provide information and manual by work step in real time. Thus, users can easily access the XR content.

Augmented Knowledge has VR, AR, and MR contents for the aircraft main landing gears' frequent maintenance developed using its platform, and it is supporting the SaaS model service. Aircraft maintenance content is produced through consultation with and verification by aircraft maintenance field experts and training experts and is immersive content considering the field maintenance environment. This is the expected part, because the company can improve the aviation MRO industry and training competitiveness.

Development of Industrial Contents Combining XR and AI Technologies

Augmented Knowledge has secured a content product group that can be sold by developing and commercializing aircraft maintenance using the research results of the university lab. By reinforcing personnel for the AI and XR content convergence technology and content development, the team members increased from 6 before participating in the ICT Fund project to 10. Above all, checking the field need through exhibition participation PR and continuous performance of R&D for industrial XR contents and platform have become the foundation for competitiveness.

Augmented Knowledge's product developed through the ICT Fund project is XR content for the metaverse world wherein maintenance or training can be conducted through PC or by looking at smart glass in the VR and mixed real world by downloading complex and expensive machines such as aircraft. Based on its excellence and selection as the company to execute the project, Augmented Knowledge plans to grow into an industrial XR content development and metaverse platform company combining XR and AI technologies.

Hoping to Become a Global Leading Company in the AI industry Through Immersive XR Content

Augmented Knowledge wanted to contribute to domestic aircraft maintenance manpower fostering by practicing and training with XR content instead of high-priced aircraft, which was difficult to obtain for the aircraft MRO training institutions. The company plans to expand and apply the XR content to the aircraft MRO companies as well as aviation MRO training institutions. By applying to the overseas markets as well as the domestic market, Augmented Knowledge is expected to bring about innovation in the aviation MRO maintenance area.

Augmented Knowledge's AI and XR convergence framework can be applied to the general industrial area as well as aircraft maintenance area. The company has reference on the AR guide for ball bearing machine tool disassembly and assembly, the AR guide to respond to heavy equipment engine failure, and the MR guide for hydrogen equipment nitrogen and water pressure performance evaluation equipment. Augmented Knowledge plans to expand and apply the framework to the general industrial market. The company expects to grow into an industrial metaverse platform company for services such as new industries including electric vehicles, UAM, and drones and traditional home appliances. It hopes to make huge accomplishments, and it is determined to become a world-class industrial metaverse company in the XR and AI industries.

TIME LINE

2016. 11

Established Augmented Knowledge Corp. (spun-off AI Lab of Inha University)

2017. 05

Selected as a TIPS program, Attracted seed investment from SparkLabs

2018. 12

Developed an XR manual of ball bearing machine tool disassembly/assembly for N Company

2019. 11

Development of XR guide to respond to failure of heavy equipment engines for D Company

2020. 05

Selected for the Incheon VRAR Convergence Content Demonstration Project (Ministry of Science and ICT: MSIT)

2020. 11

Selected as a leading Incheon aviation company (Incheon Metropolitan city)

2021. 03

Certified as a venture company (No. 20210317010025)

2021. 06

Chosen as an ICT regulatory sandbox demonstration exceptional company by MSIT for two years

2021. 10

Won the MWU Korea 2021 Award

2021. 02

Received the Science and ICT Minister's Citation for digital content industry promotion

Leading 3D Survey Fields with Outstanding Communication Technology and Know-How

GEOSPATIAL INFORMATION TECHNOLOGY(GIT) Managing Director Koo dae seong

공간정보기술(주)

GEOSPATIAL INFORMATION TECHNOLOGY(GIT).

☑ General Status

- **Implementing Agency**

  National Information Society Agency

- **Business Details**

  Smart management of IoT·and AI-based facilities

☑ Company Status

- **CEO**

  Park Gyeong-yeol

- **Business Type**

  Software, Information, and Communication Work

- **Year of Establishment**

  1996. 05

- **Homepage**

  http://www.git.co.kr/

☑ Key Accomplishments
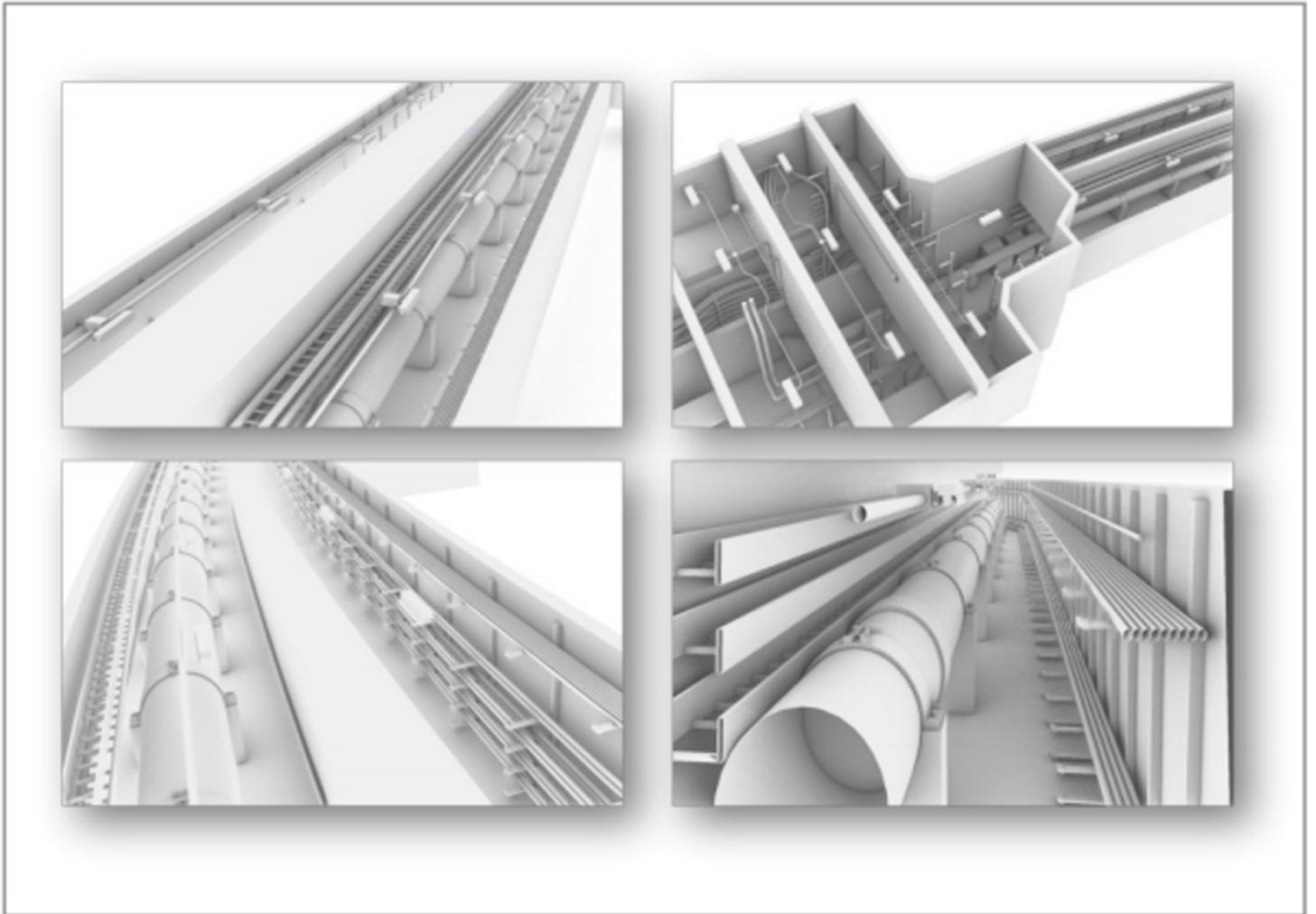
Development of spatial information edition solution with new technologies and patents inspected by Geospatial Information and Technology sole in Korea.

Development of image visibility meters certified of new traffic technology with stereo vision technologies first in the world.

Development of various solutions such as stereo drones for establishing Digital Twin.

Creating Synergy Effects from Excellent Human Resources and Advanced Facilities

Geospatial Information Technology is a leading company in the field of GIS developing diverse new technologies and patents. The company performs survey, produces numerical maps and orthophotos, and builds up database of 3D spatial information with its technological know-hows. In addition, the company operates geospatial information research team, an in-house research and technology organization to get certifications of two NET new technologies, and achieve development of GIS dedicated solutions certified of multiple GS certifications.

The company's capability of simultaneously performing GIS system development and DB buildup are the main contributing factors for establishing its outstanding position. The company operates multiple advanced systems, employing large number of solution development experts inDB buildup, and NET and GS certifications to design GIS data and operating systems under any work condition.
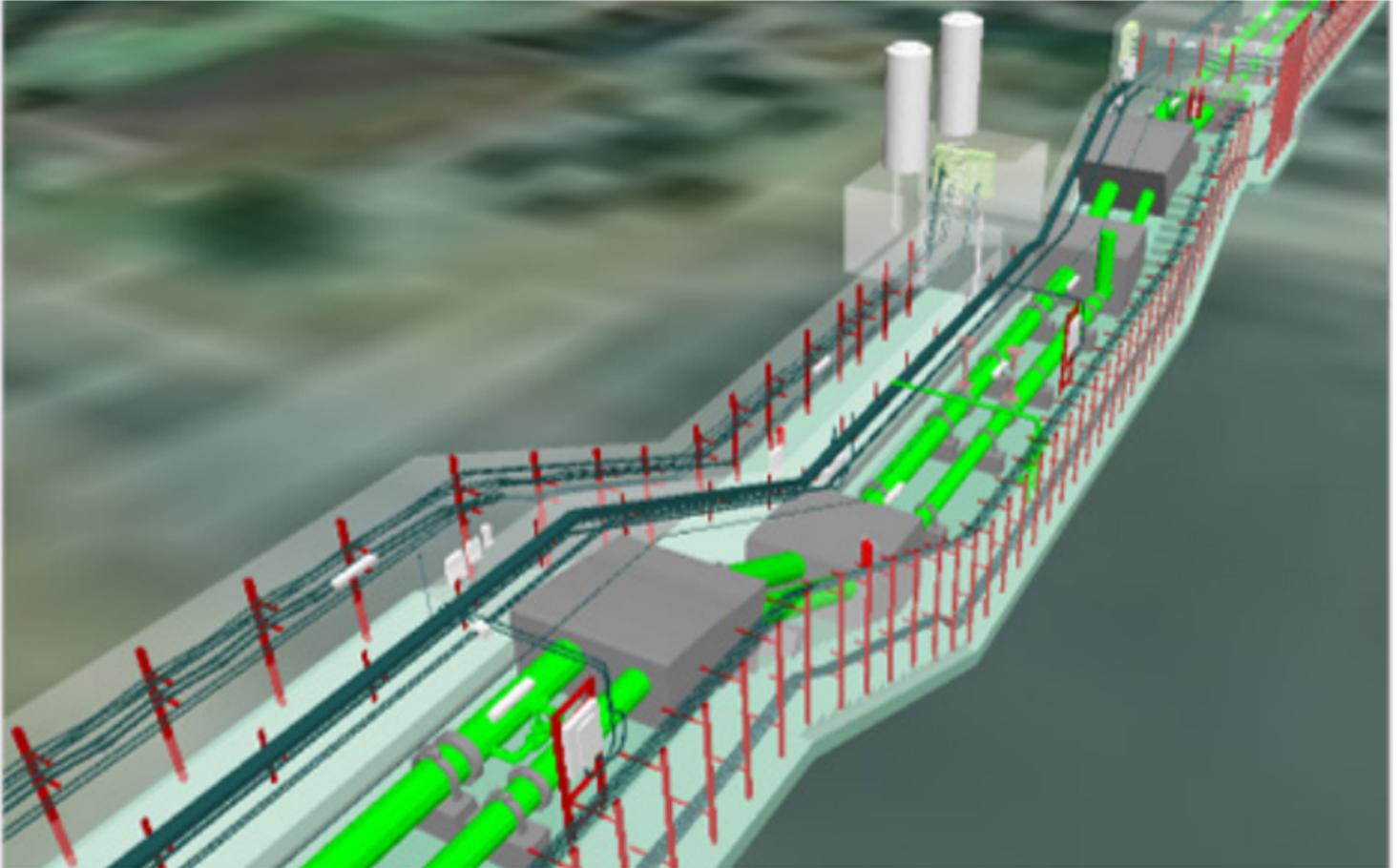
Participating in Underground Culvert Construction Project Thanks to ICT

Geospatial Information Technology acquired benefits from ICT funded projects when it participated in 'Project of ICT-based Public Service Promotion 2021' hosted by National Information Society Agency. The company was performing R&D activities for 3D-based research by purchasing advanced systems adequate for buildup of Digital Twin at that time. The company saw an opportunity toyield good output with its know-how, and decided to participate in 'Project of Establishment of Smart Management System for Underground Culvert in Haeundae-gu,' a project of ICT-based public service promotion.

The project objective is to create 'smart safety management system of underground culvert' appropriate for the smart city status by Haeundaegu in Busan,including buildup of 120 or more sensing platforms, data platforms, AI platforms,and integrated control platforms. Geospatial Information Technology made use of ground rider equipment to perform precise 3D scanning in the underground culvert to build up Digital Twin, and supplied perfect 3D maps for facilitating construction works.

Successive Buildup of 3D Data Under Unfriendly Conditions

Project 'Buildup of Smart Management System for Underground Culvert,' which demanded large-scale works, was hard to complete. In particular, it was very hard to acquire 3D data from narrow underground culvert at area of integrated control of a number of various sensors. This opportunity, however, provided the company with a number of achievements.

The company learned great volume of know-hows, since it was the company's first attempt to monitor data from virtual environments in real time by attaching various sensors on Digital Twin at actual sites. These situations were capable of removing a large number of risk factors caused by direct access of people to the underground culvert, allowing stable operation of the underground culvert when the control center predicts risks combined with AI.

Encouraging Other Companies to Participate in ICT Project

Geospatial Information Technology recorded great business achievements by participating in ICT funded projects. The company participated in the project as a member of a consortium, utilizing systems and people to improve work quality. The project was successfully created by positive collaboration with hosting authorities and operation institutes.

In addition, 3D data buildup technologies and solution development capabilities kept by individual member companies as their own research outputs were improved by detecting and resolving errors at actual sites. Geospatial Information Technology is confident that ICT-funded projects will be of great help for other companies as well. Learning and employing advanced technologies in diverse fields will resolve troubles faced by multiple business areas, and technologies of companies will be developed for enhancing competitiveness. We anticipate positive participation in ICT-funded projects that boost the confidence of companies.

TIME LINE

1996. 05

Established Geospatial Information Technology

2003. 12

Certified in GeoFM-Water GS

2005. 07

Certified in GeoFM-Road GS

2009. 02

Certified in GeoDT 3.0 GS

2016. 09

Elected technology innovation small business (Inno-Biz)

2017. 06

Certified grade 1 of GeoDT TFM (traffic safety facility management system) GS

2017. 07

Elected venture company by Korea Technology Finance Corp

2017. 08

Certified in grade 1 of GeoDT APM (aerial photo reading management system) GS

2017. 11

Launched twinEye series (Security, Fog, Drone)

2020. 05

'Image visibility meters for foggy road situation' with '3D visibility technology' certified in new traffic technology