

Changes in Digital Healthcare and Global Enterprise Trends

#Digital healthcare #Deep Learning #Digital Therapeutics #Medication Monitoring #Personalized health

1. Rapidly growing digital healthcare market



Digital healthcare is rapidly growing as a new growth engine through intelligent innovations based on ICT convergence such as AI. According to a report by Global Industry Analysts (GIA), the global digital healthcare market is expected to grow from \$152.5 billion in 2020 to \$508.8 billion in 2027 at a compound annual growth rate of 18.8%. Factors such as paradigm shifts in healthcare (shift to prevention-centric healthcare), technological advancements (convergence of new technologies such as artificial intelligence), increasing societal demands (aging population, rising incomes, etc.), and rapid growth of medical data are playing a crucial role in this growth (IDC, 2018).

2. A Paradigm Shift Driven by Digital Health

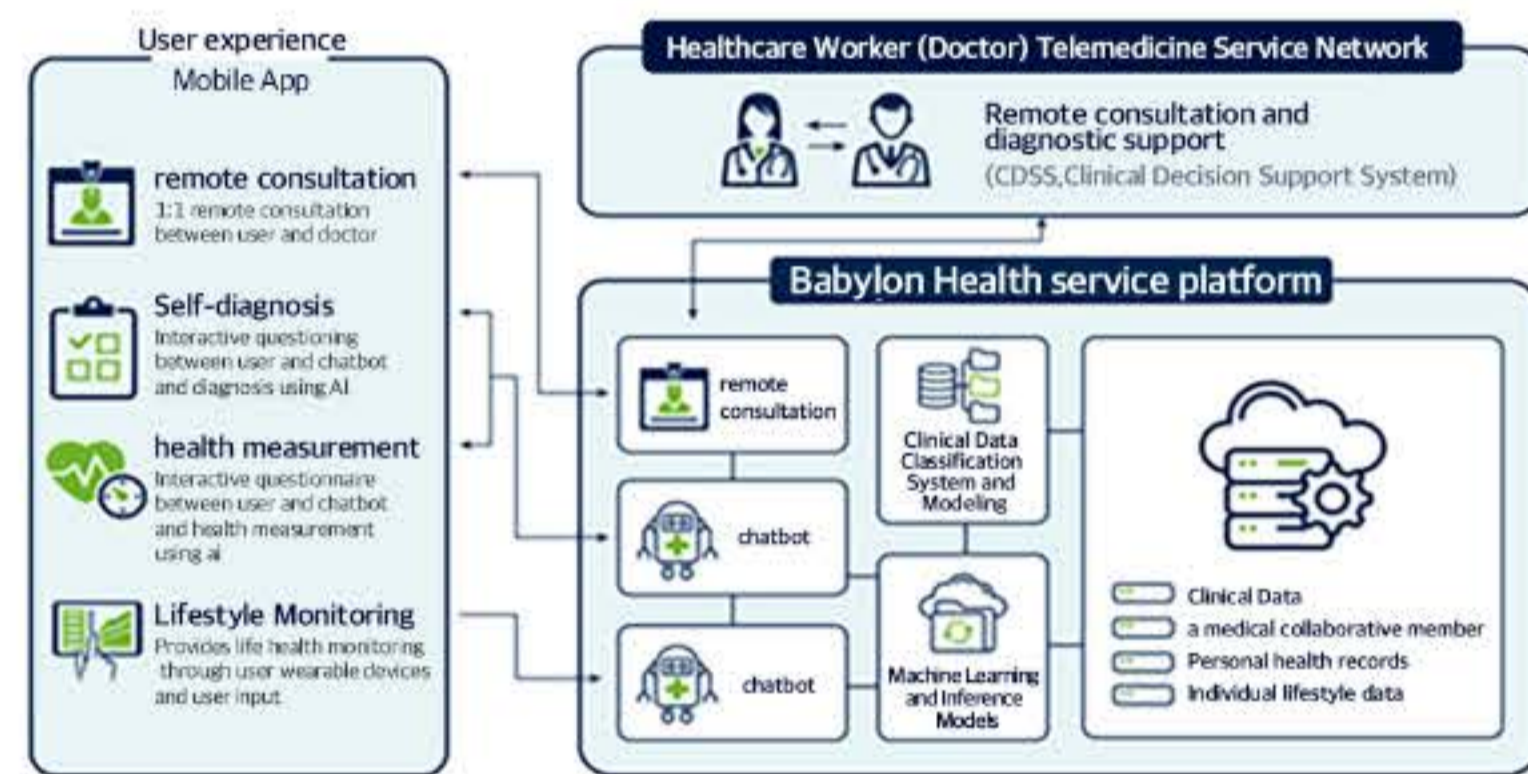
The development of digital health is changing many aspects of healthcare. First, it is expanding from patient-centric to consumer-centric health. It is expanding from medical services for patients to services for general consumers for health management (IDC, 2022).

For example, wearable devices can collect health data such as heart rate, blood pressure, and body temperature in real time while going about their daily lives, enabling health analysis and early identification of abnormalities. This triggers a shift from structured group care to personalized health, where patients interact with healthcare providers to provide customized services using personal health data.



3. Expanding digital health business from diagnostic support to prevention and treatment

As various digital healthcare products that combine AI, IoT, and big data are being introduced to the market, it is gradually changing into an environment where active disease prevention and management is possible. For example, Lunit, a Korean AI startup, provides services to assist in medical image analysis using deep learning technology. On the other hand, Teladoc, a U.S. telemedicine service company, merged with Livongo, a company known for remote management of chronic diseases such as diabetes and hypertension, in 2020, showing that the service model is evolving from one-time video medical treatment to continuous chronic disease management. Let's take a look at a few examples.



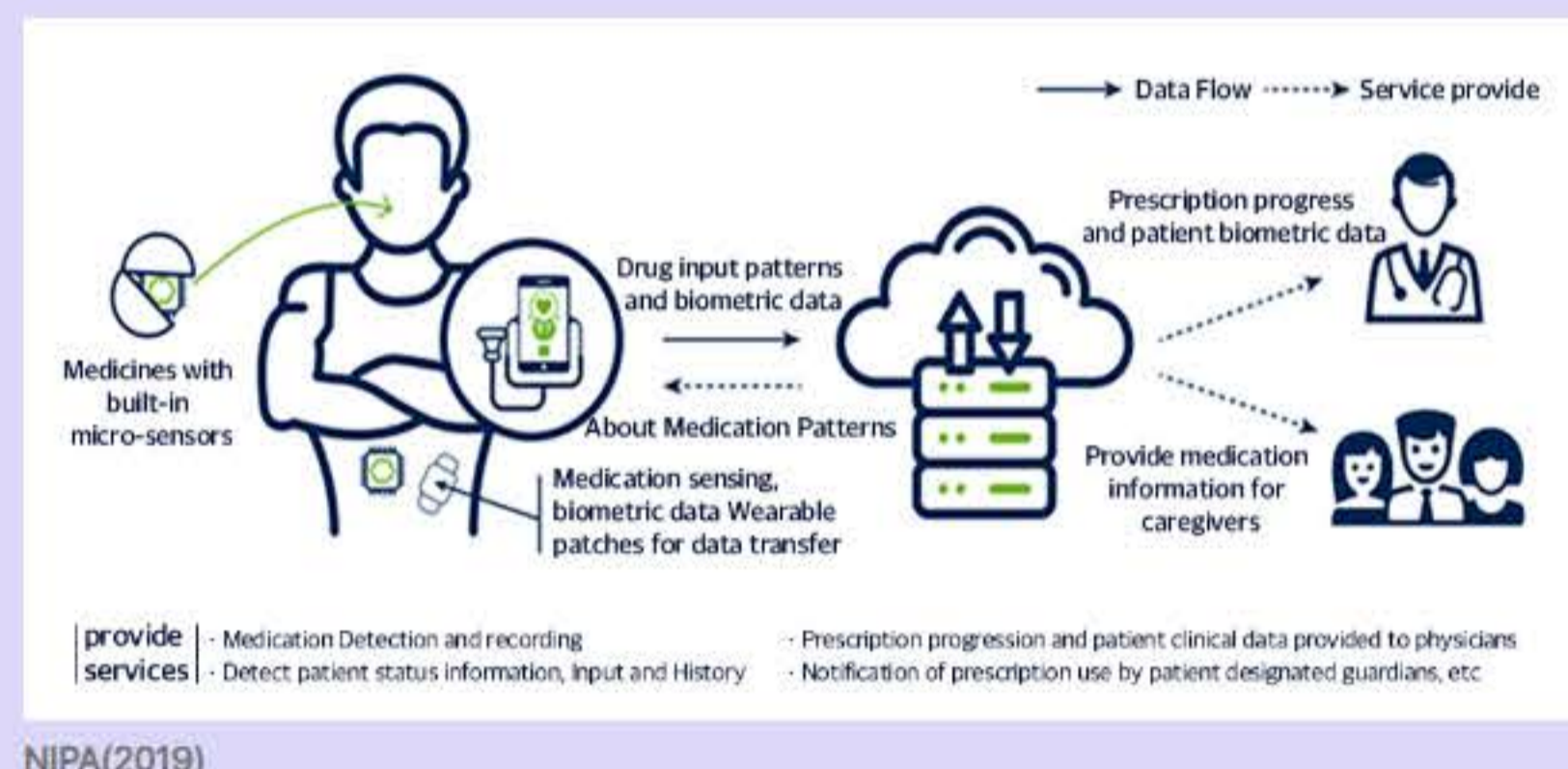
Based on a literature review of Babylon Health services, NIPA (2019)

Medical and psychological care services utilizing super-sized AI

Babylon Health is a self-diagnosis AI-based healthcare service unicorn founded in 2013 in London, UK. They provide a service to self-diagnose the severity of patients using AI-based chatbots when there is a shortage of medical personnel and face-to-face medical treatment using medical personnel is difficult. After interactive symptom input between the counselor and the chatbot, AI-based disease and severity inferences are provided, and users can check through self-diagnosis through the chatbot and pursue 1:1 remote consultation based on the results.

AI-based medication monitoring service

Medication monitoring services improve adherence to medication schedules, thereby reducing the social cost of illness. In the United States, it is estimated that the losses caused by patients not taking medicines according to the prescription schedule are \$100 billion a year (CBC News, November 14, 2017). Proteus Digital Health, a U.S.-based company, provides a service that allows doctors and patients to monitor drug intake patterns through the convergence of injectable sensors and capsule/tablet medicines. For this purpose, it has a monitoring solution system consisting of sensors embedded in medicines, patient-attached patch-type communication/(additional) sensor devices, and prescription fulfillment.



Digital therapeutics SW is writing the future of healthcare

Digital therapeutics refers to advanced SW that prevents, manages, and treats diseases based on digital technologies such as mobile apps, games, VR, chatbots, artificial intelligence, and metaverses. It can be seen as a third treatment that has emerged after conventional medicine. It provides value that existing therapies could not provide and presents a treatment alternative for diseases that do not yet have a cure or medicine, such as dementia. Above all, it has many advantages. First of all, because it is SW, the development cost and production cost are lower than other medicines. In addition, real-time and continuous patient management is possible based on data through patient participation, and side effects are very small because it is based on non-invasive methods such as mobile devices. Recently, digital treatment software has been actively applied to chronic diseases such as mental illness and diabetes. Lyra, a provider of digital therapy software for mental health, provides in-person and virtual mental health care services to more than 1,500 leading organizations around the world. It provides a platform that identifies depression, anxiety and more, and connects people with neuropsychiatrists, counselors and therapists. Current clients include Morgan Stanley and Zoom. It has various service systems such as digital platforms, self-management applications, and manager consulting. Digital therapy software is also being applied to chronic diseases. For example, WellDoc in the U.S. has an SW called "BlueStar" that helps diabetic patients manage their diabetes themselves or provides their management information to their doctors so they can provide better care. On the other hand, Livongo, a U.S. company, provides remote chronic disease services using digital technology for chronic diseases such as diabetes, hypertension, and obesity. In particular, blood glucose monitoring devices depending on the disease. Blood pressure monitors, weight scales, etc. are sent and monitored through the accumulated data. Through monitoring, it sends warning alarms when abnormal signs occur, and provides real-time consultation management services when necessary (KPMG, 2022).

4. Implications

The domestic digital health market is still in its infancy and requires a lot of effort to become globally competitive. Of course, considering the global competitiveness of medical services, the potential is endless. As such, an environment where various business models can be demonstrated and commercialized is paramount for the digital health industry to create the next generation of food. However, in Korea, the barriers to entry due to regulations are very high. For example, counseling on the possibility of disease occurrence for specific symptoms of individuals using AI, such as Babylon Health, can be considered a 'diagnosis' under the Medical Act, making it difficult to introduce in Korea. In addition, matching based on AI analysis, such as in the Lila case, is a medical referral, which is difficult under the Korean medical law. There are many other cases where domestic introduction is limited. Therefore, in order to be competitive in the global market, it is necessary to improve the system according to market changes. In particular, as it is closely related to the safety of the public, it is necessary to scientize and rationalize regulations that lead to social consensus based on scientific data.

The Case for Digital Healthcare and human life

The growing geriatric population globally is increasing the demand for continuous disease monitoring and medicines, which is leading to the widespread adoption of health information systems, contributing to the growth of the overall market. Health Information Technology (HIT) is the application of IT in the healthcare industry to store data about the health and wellness of the population as well as the data of patients to support healthcare by sharing secure health data, thereby increasing patient satisfaction and reducing costs. We will introduce digital healthcare technology cases by country and talk about the growth of digital healthcare and how it has changed people's lives.

#ICT #Future technology #Medical Information System #Health IT #Digital Healthcare case

1. Digital healthcare examples by country

As the healthcare market consolidates, companies with digital superpowers in the U.S., France, Japan, Korea, and other countries are leading the way with powerful technologies. SK Biopharm unveiled a wearable device for epilepsy, Cala Health launched a wearable device for treating hand tremors, and France launched the RPM remote monitoring system, all of which demonstrate the importance of modern digital healthcare.



Source: SK Biopharmaceuticals

• SK Biopharm

In addition to clinical development for epilepsy, SK Biopharm is also developing a wearable device based on a new drug for epilepsy. For wearable devices, the company has launched Project Zero™ through the development of Zero App, which aims to completely eliminate seizures in epilepsy patients. SK Biopharmaceuticals is strengthening the digital healthcare field by introducing five devices for epilepsy patients: Zero Glass™, Zero Wired™, Zero Headband™, Zero Earbud™ and Zero Headset™. In particular, the Zero App™ records vital signs in real time. It measures vital signs such as brain waves, heart rate variability and movement in real time, and records and analyzes the collected data to help patients manage their conditions.

• Cala Health, USA

US digital therapeutics company Cala Health has developed a non-invasive treatment to dramatically reduce tremors in patients with essential tremor (ET) and Parkinson's disease with its wearable device, Cala Trio. Cala trio is a wrist-worn device that delivers electrical impulses to nerves in the wrist, which are then projected to the central brain network responsible for hand tremors in ET. It detects the patient's unique tremor signals, personalizes the stimulation, and applies a specific pattern of electrical stimulation to the skin to regulate neural activity and enhance treatment effectiveness. With clinical results demonstrating the long-term effectiveness of Cala trio, the majority of patients who wore the device reported that it helped them with daily activities such as eating, drinking, sending smartphone messages, and writing.



Source: Cala Health



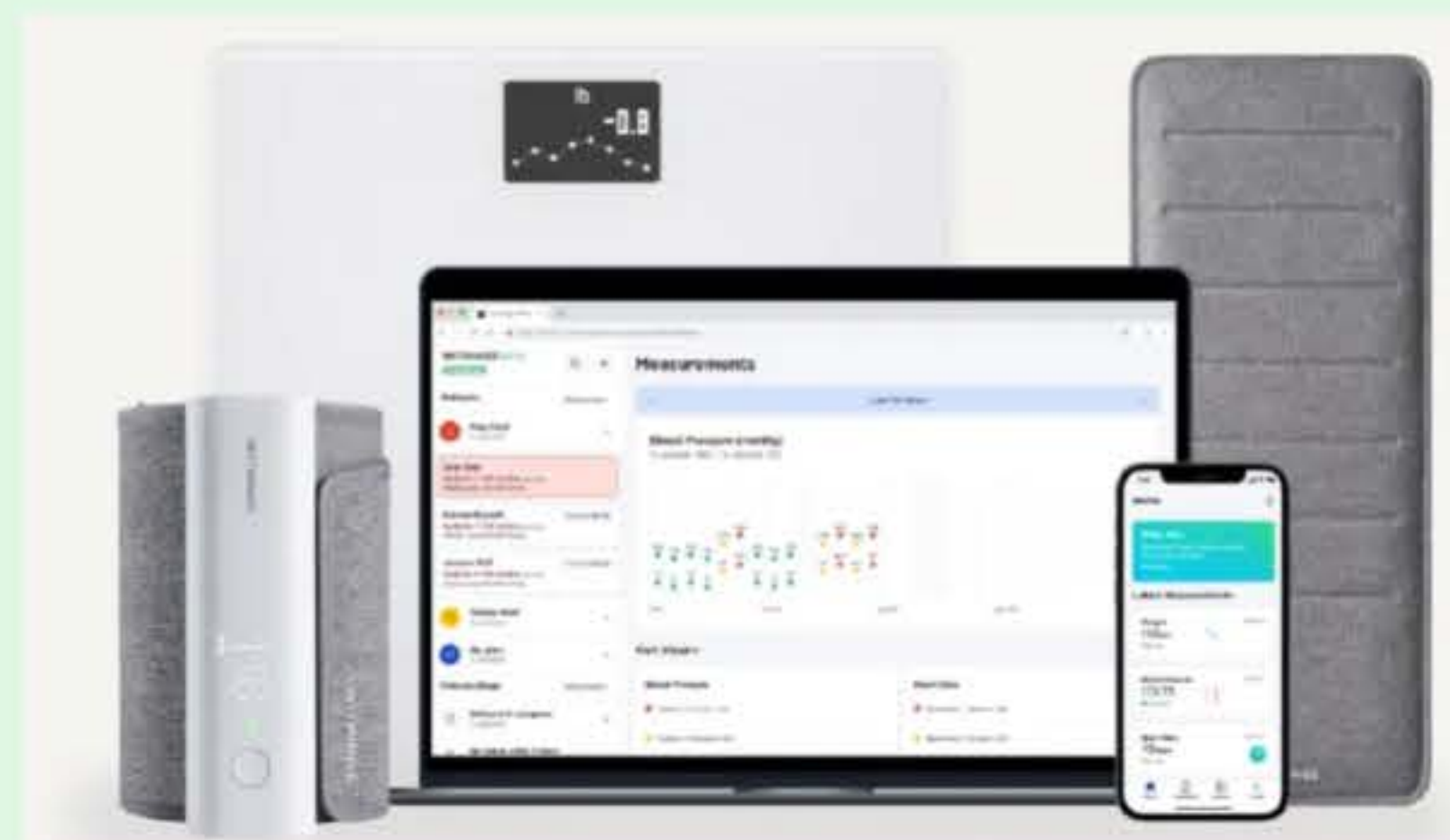
Source: The Yomiuri Shimbun

• OMRON Healthcare, Japan

Japan's OMRON introduced an app that uses AI to analyze a user's health based on a combination blood pressure cuff and electrocardiogram device and acquired data. OMRON introduced a remote patient monitoring service to reduce the workload of doctors and detect diseases early. OMRON is focusing on digital healthcare to eliminate brain and cardiovascular diseases, which are likely to increase as the population ages.

• Withings, France

Withings Health Solution has announced a new patient remote monitoring program called Withings RPM. It uses the company's connected devices, including scales, watches, thermometers, and sphygmomanometers, to monitor patients' metrics, including heart rate, activity, blood pressure, and sleep patterns. A digital assistant included in the app tracks patient activity and provides monthly reports to support electronic health records (EHRs) and patient engagement tools. Through the RPM program, we monitor patients and help them stay on top of their health.



Source: Withings



Source: Aevice Health

• Aevice Health

Aevice Health, a company specializing in the development of remote respiratory monitoring solutions, has received approval from the Singapore Health Sciences Authority for its flagship medical device, the AI-powered wearable stethoscope AeviceMD. The stethoscope can detect abnormal breathing sounds such as wheezing and monitor vital signs including heart rate and respiratory rate. The device is approved for use in patients aged 3 years and above, and its unique form factor allows for comfortable monitoring across a range of ages, from children to the elderly, who are more prone to respiratory conditions. Chronic respiratory disease affects people around the world and the AeviceMD Monitoring System helps reduce ED presentations and readmissions by providing specialists with an overview of a patient's lung health, enabling early detection of potential deterioration.

2. Digital healthcare and human life

Digital healthcare, the application of artificial intelligence (AI) to healthcare, has a wide range of impacts on the human realm. In particular, it provides sophisticated and efficient support for doctors and medical staff, enabling them to not only grow professionally, but also get things done faster and at a lower cost. Artificial intelligence uses machine learning to analyze medical data and replicate human cognition to learn and make decisions to predict and prevent healthcare. The potential of AI in healthcare is enormous, as it can solve problems that humans could not do alone. Are there only advantages to digital healthcare with AI? Cyberattacks can have a huge impact on the healthcare industry by compromising the security of confidential patient data. It can also lead to major problems if the wrong information is used for treatment due to outdated devices, program errors, etc.

Reference

- Global Healthcare IT Market Size By End-User (Healthcare Providers and Healthcare Payers), By Component (Service, Software, And Hardware), By Product & Services (Healthcare Provider Solutions, Healthcare Analytics), By Geographic Scope And Forecast
- SK바이오팜, SK(주)와 美 디지털 치료제 업체 공동 투자
- SK바이오팜, 뇌전증 치료 라인업 강화...'프로젝트 제로' 가동
- Withings rolls out new remote patient monitoring program
- Singapore approves Aevice Health's wearable stethoscope for respiratory monitoring
- Digital healthcare draws attention at CES show

Making all data in the world safe with an AI image analysis solution without privacy violation

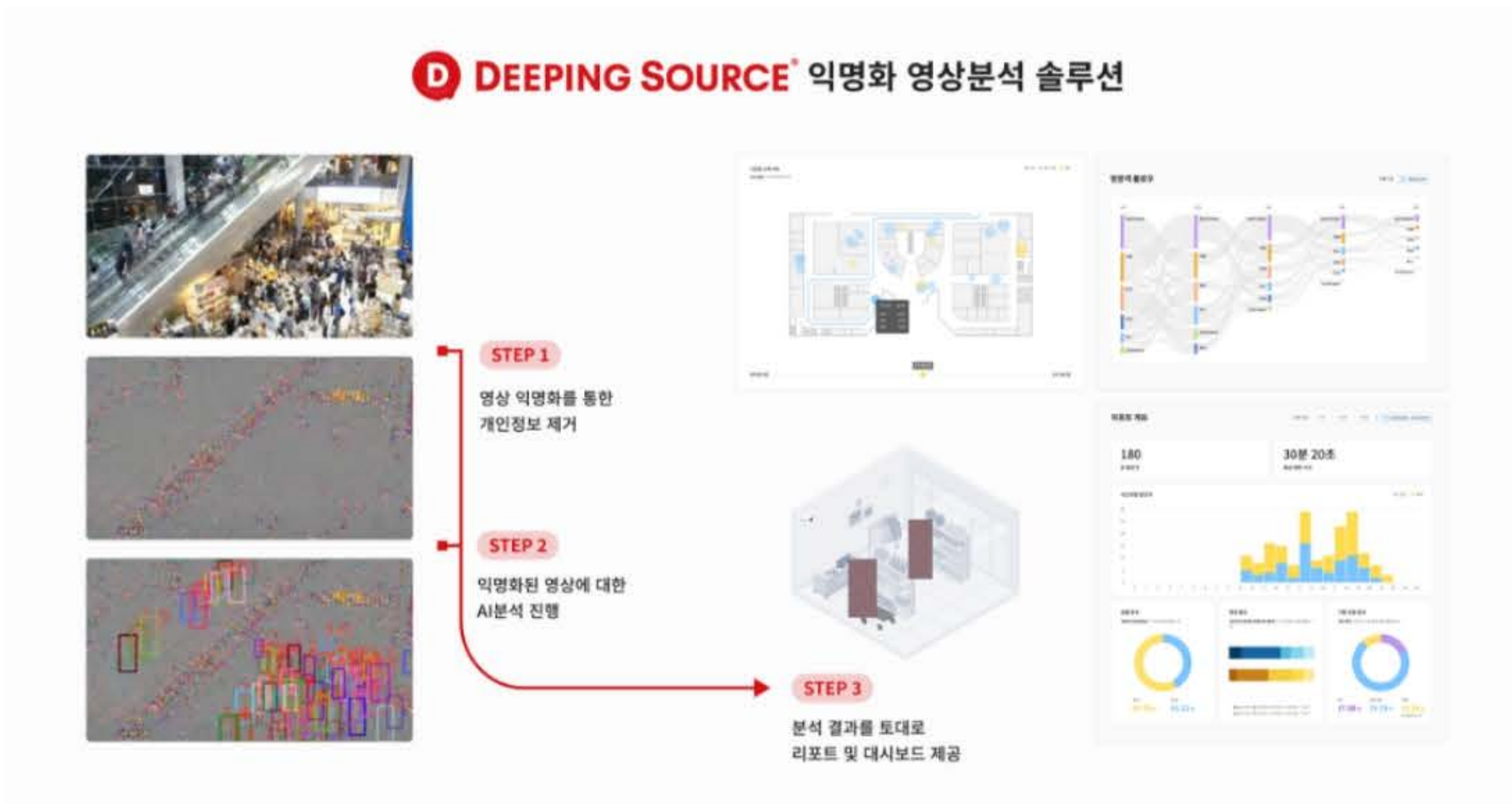


Dipping Source Co., Ltd.

Core Technologies and Achievement Highlights

- Developed data anonymization for AI learning for the first time in the world (holding 79 patents at home and abroad as of May 2023).
- Pioneered a new domestic market for AI image analysis using the AI image analysis solution without privacy violation.
- Contributed to strengthening national AI competitiveness by implementing multiple ICT Funding Project.

Introducing advanced safety management solution for AI video analysis



AI image analysis technology initially emerged as a tool for crime prevention and security in CCTV systems. However, its applications have now expanded across multiple industries, including unmanned retail, cultural spaces, smart cities, and smart factories. The introduction of AI technologies like ChatGPT has further fueled the demand for data across various sectors. Nonetheless, as the current Personal Information Protection Act classifies CCTV images as personal information, there is growing apprehension regarding the security of personal data, particularly concerning its usage for marketing purposes. Dipping Source, established in 2018, has been at the forefront of addressing the industrial need for AI data. The company's unique "data anonymization" technology is the world's first of its kind, enabling the retention of AI utilization even after removing personal identification information from video data. Through this cutting-edge technology, individuals' images in videos are de-identified to a level where they cannot be recognized visually, resembling a mosaic. However, crucial information such as gender, age, human traffic patterns, and gaze can still be extracted by AI algorithms. This innovative approach achieves a dual objective: compliance with the Personal Information Protection Act while ensuring the availability of valuable AI data. Dipping Source's technology has garnered significant interest from international companies that prioritize personal information protection. This interest stems from the fact that privacy policies worldwide, such as the CCPA in the US and GDPR in Europe, share similar principles regarding image analysis. In addition to overseas companies, domestic enterprises are also recognizing the value of Dipping Source's technology, particularly with the enforcement of three data-related laws. Presently, Dipping Source is engaged in collaborations with prominent companies both domestically and internationally, spanning the United States, Europe, and Japan.

AI image analysis technology is being applied in various industries



Demonstration of AI image analysis solution

To develop an AI image analysis solution, a significant amount of data is necessary. Dipping Source has leveraged the unique technology it possesses to expand its global business through the implementation of the ICT Funding Project. This endeavor not only aimed to contribute to the growth of the data economy but also allowed Dipping Source to advance its solution. The company actively participated in the data distribution and utilization ecosystem creation project, managed exclusively by the Korea Data Industry Promotion Agency under the Ministry of Science and ICT. In 2021, Dipping Source served as a supplier, providing high-quality data. In 2022, it played the role of a demand company and developed an exceptional AI model. Throughout the ICT Funding Project, Dipping Source acquired a diverse learning dataset, encompassing various age and gender conditions, leading to improved accuracy in AI image analysis for a mobile population. These achievements culminated in Dipping Source receiving the prestigious Minister of Science and ICT Award. Building upon its successes, Dipping Source continues to expand its business by delivering top-notch solutions to clients across various industries, including retail, exhibition halls, cultural spaces, and the autonomous driving industry.

Making efforts to expand business all over the world

During the project implementation, Dipping Source encountered certain challenges. There was a miscommunication issue between Dipping Source and the supplier responsible for data labeling during the joint AI learning data construction for the Fund Project. As a result, adjustments had to be made to the data nearing completion. However, with the active cooperation of the supplier, Dipping Source successfully modified the data and established high-quality data building standards, allowing the project to be completed. As the AI image analysis market has experienced explosive growth, the application potential of Dipping Source's technology knows no bounds. Currently, the company is collaborating with global retail customers through its US subsidiary. Dipping Source is actively seeking sales partnerships worldwide, in addition to its presence in the US, to expand its business reach. Moreover, with the launch of its internally developed cloud-based data anonymization service, Dipping Source is enhancing collaborations with customers who require AI image analysis, such as those in the autonomous driving industry.

Creating a world where all data can be used safely

Dipping Source aims to create an environment where AI image analysis technology can be used in various industrial areas, and AI image analysis companies in the same or similar industry can utilize safe data, based on its original technology. When the environment is created, Dipping Source plans to lead the global AI image analysis market and strengthen national AI competitiveness. Dipping Source also plans to conduct aggressive marketing activities throughout the industry in the long term so that even small-sized businesses or small-scale businessmen can gain business value using its AI image analysis solution. In the mid- to long-term, Dipping Source will expand its business to the analysis and consulting of offline spaces. Thanks to Dipping Source's AI video analysis and safety management solution, citizens can ensure that their personal information can be protected even if it is collected and analyzed by AI in their daily lives. In addition, companies can prevent unintended problems that can occur when they use data containing personal information. Dipping Source is creating a world where AI technology can be safely used by both personal information subjects and companies.

ICT Funding Project

- **Dedicated Institution** Korea Data Agency
- **Business Objective** Strengthening industrial competitiveness based on data
- **Business Description** Creating an ecosystem for data distribution and utilization

Company information

- **CEO** Kim Taehun
- **Type of Business** Software development and supply
- **Year of Establishment** 2018. 06
- **Website** www.deepingsource.io

TIME LINE



In the era of convergence security,
we create an ecosystem for
nurturing information security
personnel



DEEPING SOURCE

kisia
한국정보보안산업협회
Korea Information Security Industry Association

SNET SYSTEMS

PRIBIT

Korea Information Security Industry Association

Core Technologies and Achievement Highlights

- ICT-based training of information security professionals and development of National Competency Standards (NCS)
- Investigation and research on the information security industry and information security
- Discovering new start-ups related to information security and supporting overseas expansion of information security companies

Nurturing security professionals in both the private and public sectors



Since the culmination of last year, there has been an escalating frenzy surrounding generative artificial intelligence (AI), represented by ChatGPT. In the fast approaching AI era, changes are also taking place in the realm of art and creativity. From companies to the public sector, generative AI such as ChatGPT is being used to improve work efficiency, but on the contrary, confidential information of individuals and companies may be leaked due to hacking. In fact, as cases of generative AI being used for hacking have emerged, experts in the field of AI security are attracting more attention. The KISIA is taking the lead in nurturing such security professionals. Established in 1998, the association is a statutory corporation established to develop the information security industry and improve the level of information protection across the national industry. This year marks its 25th anniversary. The main tasks of the association include industry support, investigation and research, human resource training and infrastructure creation (NCS development and improvement), overseas expansion support and startup development. The association's education center, together with the Ministry of Science and ICT, is carrying out the ICT Funding Project including security manpower training for ICT convergence industry, manpower training for AI security technology development, support of university information security clubs, and information security job fairs, while striving to cultivate convergence security talents and nurture next-generation security personnel in cooperation with various ministries and agencies such as the Ministry of Employment and Labor, the Seoul Metropolitan Government, and the Songpa-gu Office.

Trend-tailored talent training in AI security, metaverse, block chain, etc.



The direction of talent development that the association intends to cultivate is 'nurturing talents with convergence security and AI technology capabilities that can respond to ever-changing trends.' Last year, it achieved 1.5 times the target number of graduates, and reflecting the demand of trainees and the latest trends, it launched blockchain and metaverse courses to train industry-specific security personnel. In addition, in the University Information Security Club Support (KUCIS) projects designed to discover and nurture next-generation security personnel, the association held seminars for each region and online information security mentor days and held information security job fairs to match and mentor information security talents with companies, resulting in more than 85% satisfaction from both companies and job seekers. In the process of manpower training, advanced and diversified forms of AI technology have not yet been applied to the training of security personnel, so it was somewhat difficult to secure professional instructors to develop and lecture the educational content let alone secure educational datasets. However, with the cooperation of the Korea Internet & Security Agency and member companies of the association equipped with AI security technology, we were able to develop educational content and build educational datasets. The information security industry changes rapidly in technology, systems, and policies, so it is necessary to pay attention to technological trends and the latest legislative revisions. Accordingly, the association does not rest on its laurels and strives to reflect the latest trends so that it can develop cutting-edge educational programs that align with the latest trends year after year.

To train 100,000 cybersecurity talents

The KISIA expects to continuously expand trend-tailored education demanded by both industries and job seekers through the ICT Funding Project with the purpose of nurturing professionals in the information security field while broadening the base by raising awareness. The association has expressed its ambition to be reborn as the best institution for nurturing 100,000 cybersecurity talents based on its corporate infrastructure and know-how in developing customized programs. First, we plan to strengthen the training of industry-specific convergence security experts and AI security technology development experts by supporting capacity building of incumbents and undergraduate (graduate) students and continuing research on educational contents followed by the launch of new training courses. Second, through the Security Academy and the most elite security SW developer (S-developer) training project, launched in 2023, we plan to train 100 industry-specific talents and 50 elite security SW developers every year over the next five years. Third, we plan to train a minimum of 600 to a maximum of 1,450 people a year as professionals by providing them with on-tact convergence security education that remains untethered by limitations of time and space for incumbents and university students in rural areas and overseas. In order to support the expansion of the base through raising awareness, we plan to expand support for university information security clubs so that more university club members can develop their core competencies in information security while expanding the scale of job fair events and promoting the diversification of the event in order to solve the manpower shortage in the information security industry.

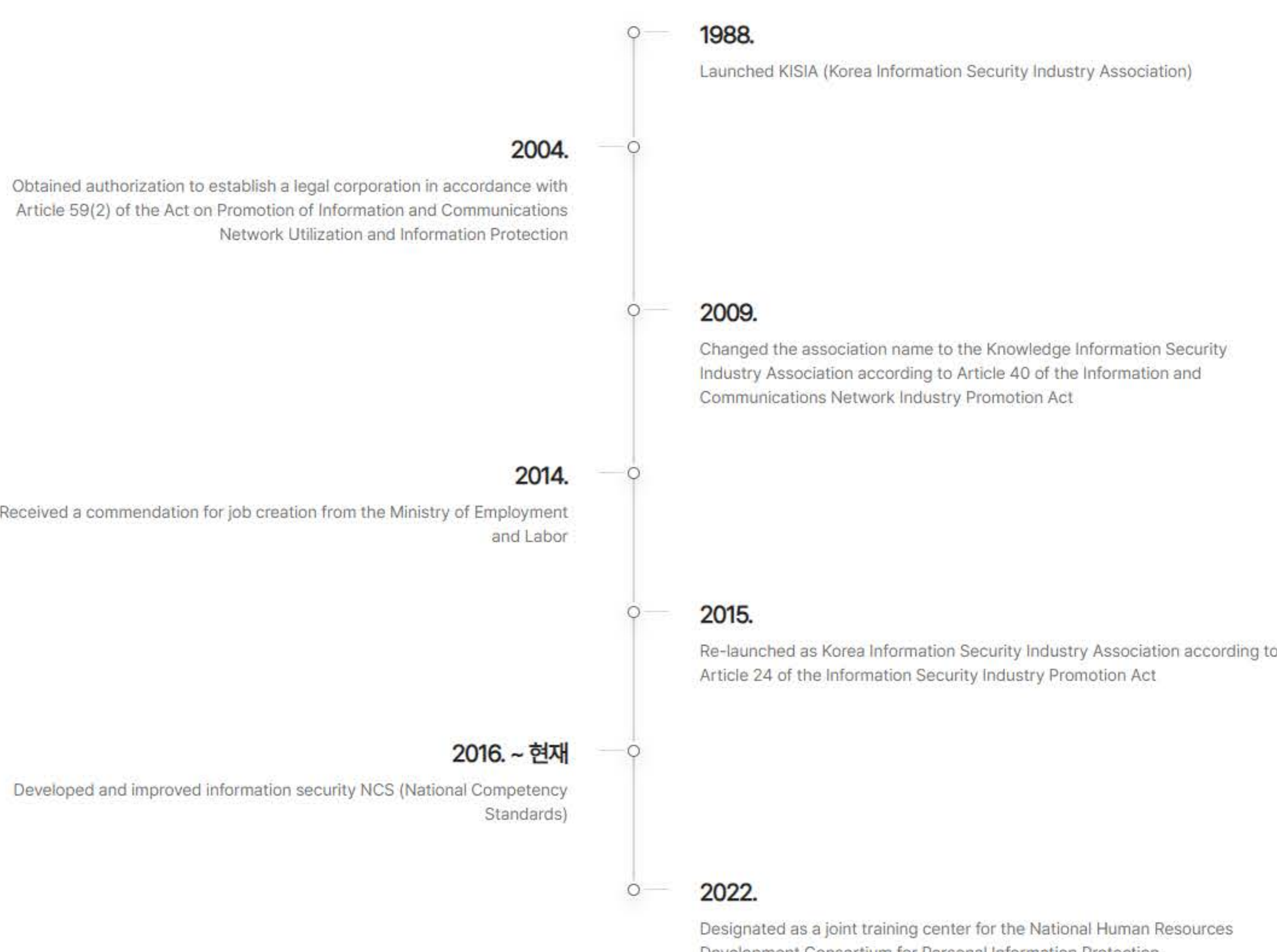
ICT Funding Project

- **Dedicated Institution** Korea Internet & Security Agency
- **Business Objective** Nurturing creative talents in information and communication
- **Business Description** Training of information security professionals

Company information

- **CEO** Lee Dongbeom
- **Type of Business** Information security promotion, science & technology services, other humanities and social sciences R&D
- **Year of Establishment** 1998.
- **Website** www.kisia.or.kr

TIME LINE



Leading the digital transformation of mid-sized manufacturing companies



DEEPIING SOURCE

kisia
한국정보보안산업연구원
Korea Information Security Research Institute

SNET SYSTEMS

PRIBIT

Snet Systems Co., Ltd.

Core Technologies and Achievement Highlights

- Leading the IT infrastructure market with all-in-one ICT platform services required for digital transformation
- Realizing a digital work environment that companies want by converging cutting-edge technologies such as AI, IoT, etc., with ICT
- Development of EMS platform for AI-based energy optimization

Leading digital innovation with optimal AI solutions

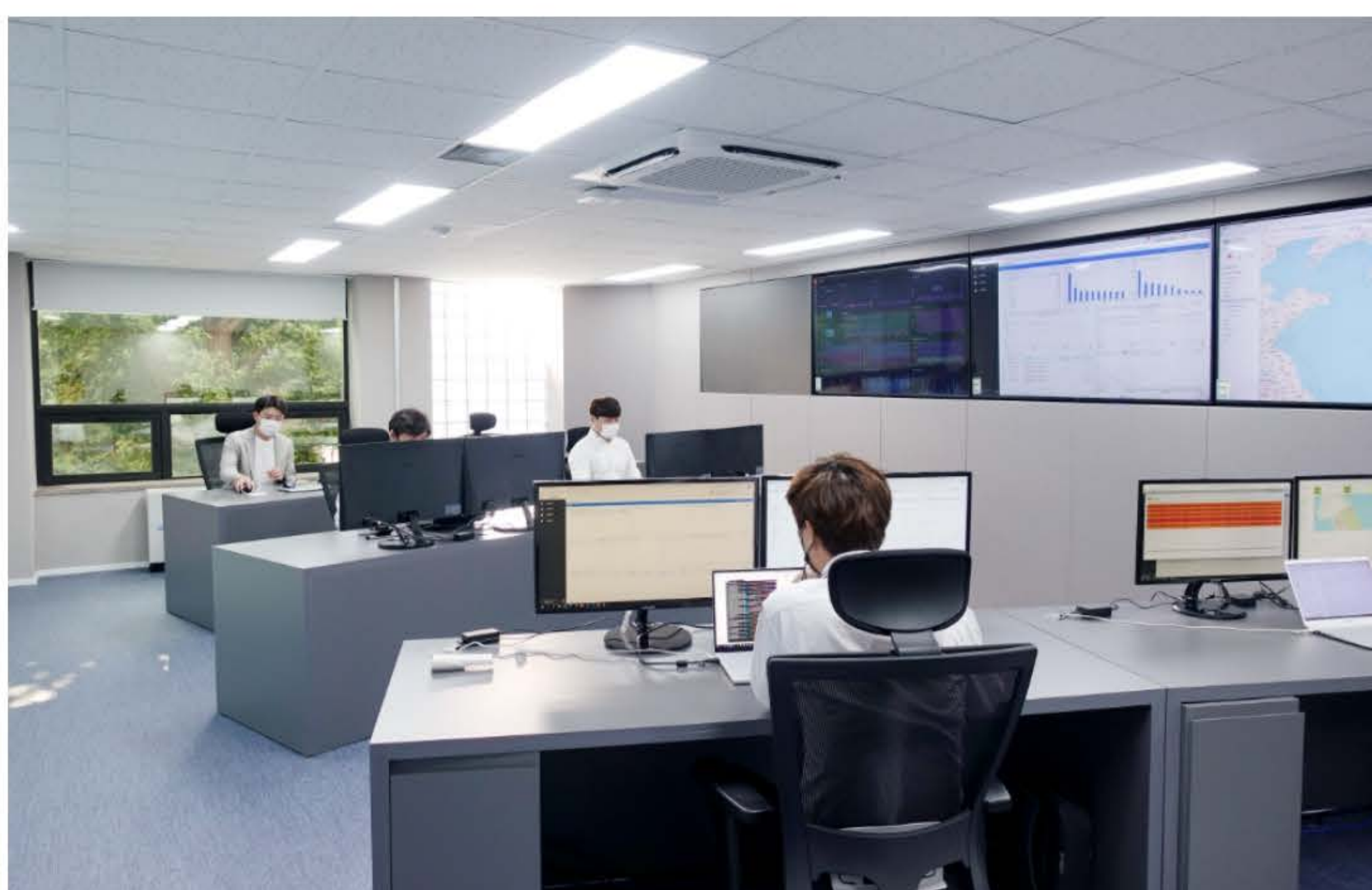


Photo of integrated monitor room

Digital transformation (Digital Transformation) and ESG (Environmental, Social, and Governance) are becoming essential elements in corporate management. In particular, rapid digital transformation due to the development of 4th industrial revolution technologies such as AI and ICT provides optimal solutions at almost all stages to achieve corporate goals, such as production, purchase, manufacture, sales, verification, etc., and brings about management innovation. Since its establishment in 1999, Snet Systems has grown over the past 24 years by focusing on the IT infrastructure business. Today, it has expanded its business area to cloud services along with IT technology advancement based on SI services integrating corporate hardware, software, network, and storage. In 2015, it opened the Five Senses Research Center to realize the digital environment that companies want by converging cutting-edge technologies such as AI and IoT with ICT. It has researched and developed various solutions to provide user-centered IT services. Through personality information and management integration in 2020, the company is striving to grow together by strengthening the competencies of group companies and realizing the value of sharing and co-prosperity among technology vendors and partners. Following its launch in 2021, the AAI (Applied AI) team is focusing on expanding its AI business in earnest to increase business productivity and lead digital innovation.

AI-based energy optimization platform for medium-sized manufacturers

Most of Korea's medium-sized manufacturing companies perform work in poor environments; in particular, they are at a more difficult level in the field of data-based manufacturing efficiency or manufacturing innovation using artificial intelligence technology. Moreover, the recently emerging energy problem is an area that highlights the importance of systematic management due to legal regulations on climate change beyond simply saving energy. Mid-sized companies that own workplaces with high energy consumption have a problem considering both the continuous rise of energy costs and industrial competitiveness. Snet Systems, which has been actively investing in related fields with high interest in AI, expects to establish an energy management system quickly and secure industrial competitiveness through ICT Funding Project. Snet Systems performed research tasks to apply AI-based energy optimization platforms and secure corporate industrial competitiveness for small and medium-sized manufacturing companies that have difficulties promoting energy optimization projects due to the burden of initial investment costs and lack of professional human resources. As a result, it has completed a platform that can be applied to mid-sized manufacturing companies as a field work-oriented solution that combines the latest AI technology, cloud technology, and wireless network technology. In particular, despite the high-cost burden on manufacturing companies due to rising fuel prices such as electricity and gas, Snet System's AI EMS was able to improve the profits and competitiveness of manufacturing companies by increasing energy efficiency and reducing costs.

A system developed with effort and by agonizing over the field

After participating in the ICT Funding Project, the manufacturing EMS solution was verified by applying the AI EMS platform to the manufacturing process of the Gunsan plant of Taekyung SBC, a demanding company. Moreover, during the assignment period, the company could apply E2E (End-to-End) supply chain management solutions from real-time IoT sensor data collection to AI EMS modeling and analysis. By applying the multivariate ensemble AI model compared to the existing univariate prediction model, the company realized a solution optimized for high energy consumption facilities (electric furnace, gas furnace, fan, etc.) and completed verifying the basic unit-based optimization model for energy consumption. Previously, moving personally to on-site facilities to check energy use was inconvenient. After applying the system, however, it became possible to monitor energy use in real time from office buildings or headquarters and establish optimal production plans with AI analysis. The company also encountered unexpected difficulties while performing the assignment. While performing the support project, the company set the initial prerequisites for data collection and model construction, but the actual data analysis results were different from the prior information; thus, the company revised the prerequisites and analysis scenarios accordingly. For example, the raw material input process and input time recording were being carried out through expectation and manual operation, resulting in poor data availability and accuracy. Moreover, as the actual properties of the raw material are very different from the expected ones, the initially set compositional premise of a certain range was not applied. Since there were insufficient data on ingredient inspections to confirm this, Snet Systems worked hard to solve this problem together with the field staff of the demanding institution. As a result, it was possible to create and execute new data collection methods and analysis scenarios that reflected the needs of field staff. Thanks to this, field staff could enter work data efficiently, and the company could develop a system that accurately reflects the field situation with improved analysis scenarios.

Leading innovation by expanding to multiple manufacturing plants and enterprise complexes

Snet Systems' AI EMS is a reusable solution, and its application is being expanded to Taekyung Chemical Yeosu Plant. Its expansion to various manufacturing plants, such as Daesan Plant and Taekyung Industrial Yemi Plant, is also being studied. Above all, the company expand the scope of demonstration by setting basic models for fans, compressors, coolers, etc., targeting facilities with high energy consumption. Based on this, the company are discussing business areas with various manufacturing customers, such as non-ferrous metal material companies, chemical companies, and pharmaceutical companies. The company is also expanding the scope of application not only to companies participating in the Cheongju Industrial Complex Corporation's smart energy platform FEMS construction project but also to companies in the complex.

ICT Funding Project

- **Dedicated Institution** National IT Industry Promotion Agency
- **Business Objective** Fostering companies specializing in industry-linked digital transformation
- **Business Description** Fostering companies specializing in industry-linked digital transformation

Company information

- **CEO** Yoo Hongjoon, Chang Byunggang
- **Type of Business** Computer system integration consulting and construction service
- **Year of Establishment** 1992. 2.
- **Website** www.snetsystems.co.kr

TIME LINE



Building a reliable private network with controlling and blocking security technology

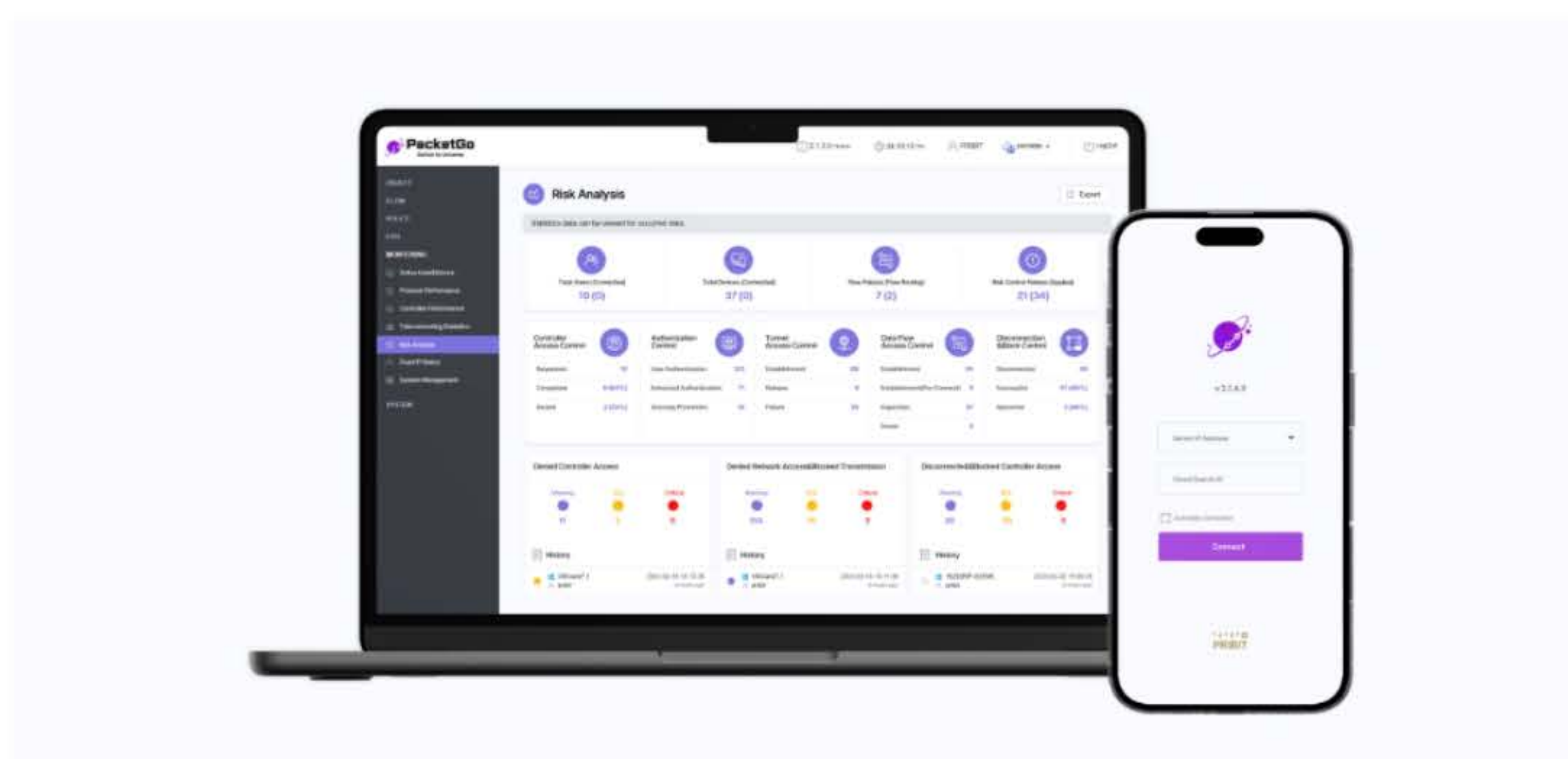


PRIBIT Technology Co., Ltd.

Core Technologies and Achievement Highlights

- Zero Trust solutions secured the largest number of references in Korea by sector, such as telecommunications, finance, and public sector
- Proved the quantitative introduction effect alone in Korea, such as blocking dangerous packets and improving access speed
- Contributed to the establishment of the standard Zero Trust model in Korea by carrying out activities in the industry and technology subcommittee of the Zero Trust Forum

Zero trust solution that creates a safe work environment



Zero Trust-based SaaS service 'PacketGo'

PRIBIT Technology Co., Ltd. has been establishing a global communication standard based on the Zero Trust communication solution developed in 2016. Zero Trust refers to a security policy that blocks from the source security threats that occur due to indiscriminate access by unauthorized sources, based on the policy that even internal employees are not trusted. PRIBIT Technology is creating a safe work environment with Zero Trust core technology that can be applied to all communication environments and expanding the Zero Trust communication security area by providing wireless communication services and supplying Onbook. Nowadays, governments around the world are becoming aware of the importance of cyber security particularly the US. Governments and affiliates of major conglomerates are strengthening information security based on Zero Trust. 53% of the 2,000 global enterprises adopted the Zero Trust security method. Only 4% of domestic companies adopted this method, but the remaining 96% announced that they will also adopt the Zero Trust security method within two years. As a result, demand from the private sector market is expected to increase. Demand from the public sector market is also forecast to grow as the government is developing a digital platform based on Zero Trust standards led by the government. According to global research firm Marketsandmarkets, the global Zero Trust market is expected to grow from USD 27.4 billion (KRW 32 trillion) in 2022 to USD 60.7 billion (KRW 79 trillion) by 2027. The average annual growth rate is also expected to reach 19.6%.

Creating an environment where all networks can be safely connected



Service communication protocols for business are based on HTTP and HTTPS, which are very vulnerable to attacks such as DDoS and session hijacking. PRIBIT Technology implemented the project for developing HTTP and HTTPS authentication technology based on the data flow layer which complies with the Zero Trust architecture by participating in the ICT Funding Project in order to improve vulnerabilities and establish a safe Zero Trust network. Customer Koscom tried to verify PRIBIT Technology's technology by applying it to the financial cloud as a test environment. PRIBIT Technology aimed to strengthen technological competitiveness by developing a Zero Trust architecture technology that addresses the limitations of existing Internet protocols, applying it to real cases, and evaluating its performance at the same time. By participating in this support project, PRIBIT Technology could develop HTTPS authentication technology based on the data flow layer, which is more advanced than existing technologies (guaranteeing smooth use such as improved network speed and response rate and providing stability that resists artificial failure tests and maximum network load for more than 48 hours, etc.), by establishing a Zero Trust network that ensures safety and availability on the cloud. As this technology can be easily applied on the cloud method, the Zero Trust architecture can be conveniently introduced, such as cloud migration based on SSL-VPN technology, application of private cloud for public institutions, and financial cloud security. PRIBIT Technology can also provide Zero Trust authentication service using domestic technology, which is better than that of global companies that lead the Zero Trust market.

Entering the global market for a safe, hyper-connected world!

Based on its excellent technology, PRIBIT Technology is making efforts to be a game changer in the domestic Zero Trust security market. PRIBIT Technology was able to grow rapidly by acquiring GS certification and CC certification for the on-premise type PRIBIT Connect v2.0 product. PRIBIT Technology plans to expand the domestic market based on demand from public institutions. As the Ministry of Science and ICT is trying to make Zero Trust a national security standard, the speed of commercialization is expected to accelerate further. PRIBIT Technology also set up a plan to develop the global market with a subscription (SaaS) model. The SaaS PacketGo has the advantage of not requiring equipment installation. PRIBIT Technology will make efforts to establish a global sales system by actively making use of the service. PRIBIT Technology has also begun to implement strategies to enter the US market in full scale, based on the growth support and cooperation of global sales partners. PRIBIT Technology participated in RSAC 2023 held in April this year and introduced domestic Zero Trust technology to the US market for the first time. PRIBIT Technology plans to develop the global market including the US by establishing a US subsidiary in the second half of this year without setbacks and increase the market share based on proven technology and products, while expanding the supply chain and increasing sales channels and partners. Now is the time when reliable networks have become as important as data science, as the era of AI, big data, and data technology begins in earnest. We hope that the excellent and independent technology of PRIBIT Technology performs well in the global market beyond the domestic market.

ICT Funding Project

- **Dedicated Institution** Korea Internet & Security Agency
- **Business Objective** Cloud computing industry cultivation (informatization)
- **Business Description** Securing cloud reliability and protecting users

Company information

- **CEO** Kim Youngrang
- **Type of Business** System software development and supply
- **Year of Establishment** 2018.
- **Website** www.pribit.com

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