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China's Internet Plus Strategy: Characteristics and Regional Case Study

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I. Introduction

China is pursuing the "Internet Plus"(Internet convergence) strategy to create a new industry ecosystem for the future, in which various economic and social sectors converge with the Internet through an Internet platform and ICT technology. Along with "Made in China 2025," China's Internet Plus strategy is an important strategy to realize innovation as a new growth engine for China. The strategy will be responsible for promoting industrial advancement and formulating an effective response to the 4th Industrial Revolution. It is expected to serve as a catalyst for China's economic growth and an important factor that will transform Korea's business model with China, as new industries that utilize Internet convergence are growing along with the development of the Internet economy. With the development of the Internet economy, the market size of the new economy related to Internet finance (FinTech), online education, smart facilities, app-based business and smart city projects is rapidly growing in China. In addition, China is promoting the innovation of software in the 4th Industrial Revolution and the transition toward "smart" processes in existing industries such as distribution, logistics, and manufacturing. In light of these developments, it is necessary to identify significant changes in Korea's future cooperation with China, particularly in relation to ICT manufacturing and Internet-related industries, an area where Korea is particularly strong.

The Internet Plus strategy covers all areas of the economy and society and is having a great impact on China's economic and industrial structure, production and consumption trends, business models, urbanization and regional development. This indicates an in-depth analysis is needed to establish a strategy for economic cooperation with China that is well suited to recent developments. In particular, each region of China has announced policies in accordance with the economic base or strategic goals of the region and implemented practical projects in order to promote the central government's Internet Plus strategy. In some regions experiments are already underway to pioneer platform technologies of the 4th Industrial Revolution in the field of Internet Plus, which is already incorporating new ICT technologies.

Based on this perception and background, this study examines China's Internet Plus strategy to enable a preemptive response to changes caused by the 4th Industrial Revolution, and

identifies relevant policies, technology and industry demands and related risks unfolding in some sectors and regions. The study then goes on to present new approaches to advance into new areas of the Chinese market and promote cooperation between Korea and China. In particular, we analyze the present status, nurturing policies, and local cases of smart healthcare, smart city, and artificial intelligence projects, which have a large impact on the economy and industry and generate high added value in 11 major fields related to Internet convergence.

II. Main Contents of China's Internet Plus Strategy

China's Internet Plus strategy is more than just a policy to connect various sectors to the Internet, and is pushed forward as a very broad strategy to actively respond to the 4th Industrial Revolution being pursued in coordination with China's long-term development strategy. In particular, to better understand China's Internet convergence strategy, we analyzed its background, main contents of the strategy, and the current status of infrastructure related to Internet Plus.

In November 2017 the Korean government announced I-KOREA 4.0, its plan to actively respond to the 4th Industrial Revolution. Following the announcement of this response plan, specific strategies have been announced in each sector as well. These are sectors which have a large economic impact and areas where the Korean government intends to focus on. Current areas where detailed strategies have been announced are smart cities, smart healthcare and artificial intelligence. These three areas are also included in the Internet Plus strategy, which the Chinese government is focusing on.

(1) Artificial Intelligence (AI) Development Policy and the Case of Beijing

China is in close pursuit of the United States, which has an unrivaled level of competitiveness in the global artificial intelligence market. In particular, China leads the world in accumulated number of AI-related papers and patent applications over the past 20 years, and ranks second in the world in terms of the number of companies and personnel in the field. In China, a large number of start-ups have been established around the three Internet giants BAT (Baidu, Alibaba, and Tencent), which own a large amount of data, thus forming an organic artificial intelligence ecosystem. Leading companies are rushing to pioneer artificial intelligence core technologies and platforms. In particular, they are actively utilizing measures to secure core technologies by promoting investment and cooperation in artificial intelligence startups. They are also expanding their business areas and creating their own ecosystem in related fields through the establishment of an open artificial intelligence platform. As such, the development of artificial intelligence in China is led by the market, with the government's policy support playing a facilitating role. Since the Chinese government set up a long-term development plan for artificial intelligence in 2017, about 20 local governments have announced policies for the development of artificial intelligence suitable for their respective regions. Of these, Beijing is highly regarded as one of the most developed regions for artificial intelligence in China because of its excellent policy environment, research capacity, human resources and information technology related to artificial intelligence. In particular, Beijing has been analyzed as possessing strengths in the area of autonomous driving vehicles, and the city government is solidifying its development base by implementing systematic

measures and pilot projects, such as establishing self-driving related norms, building test roads and pilot operation bases, and establishing innovation centers.

(2) Smart City Promotion Policy and the Case of Zhejiang Province

The global smart city market is expected to grow to a $2 trillion market in 2025, with China in particular expected to drive fast growth. Approximately 500 cities in China are implementing policies to construct smart city projects, among which Hangzhou City is the most active and at a high level of development. Hangzhou City is pursuing a transition toward "smart" processes in various fields, including transportation, administration, policing, environment and finance, among which the smart transportation sector is already evaluated as having achieved the phase of practical application. The Hangzhou model is being applied to other regions of China and overseas. Hangzhou City optimized its signal system through real-time collection, analysis and application of traffic data to facilitate traffic flow. In addition, it has been rapidly promoting the use of smart technology in all areas of traffic including parking, traffic accidents, and policing of traffic violations. The achievements of the Hangzhou City Brain Project can be attributed to an ecological system where each actor carries out its own role effectively to create a virtuous cycle structure. The central government of China has presented general directions for the development of smart cities, while creating an institutional environment favorable to the development of new industries, including the integration and sharing of public data and the comprehensive implementation of the personal information protection system. Hangzhou's municipal government directly created demand in the field by commissioning the technologies and services needed to create smart cities in the form of government procurement orders. Hangzhou City has also designated certain regions as test beds for the new technology, encouraging companies to actively participate. Alibaba has supplied the government with city operating systems through its cloud and artificial intelligence platforms, while providing the platforms needed to implement services to small start-ups with detailed technologies needed to run the cities. Small- and medium-sized startups seek to innovate technology and improve quality based on the test bed projects provided by the government and technology platform created by Alibaba, and in this manner contribute to improving the quality of citizens' lives.

(3) Smart Healthcare Development Policy and the Case of Guangdong Province

Currently, the global smart healthcare market is developing in the U.S., Germany, and other advanced countries. In the future, the Chinese market is also expected to see high growth in this area, focusing on online trading of drugs and online medical treatment. Due to limitations in statistical data, there is a limit to understanding the market by region, but the market size of the eastern coastal region is large. In 2018, China's central government announced a comprehensive guideline on smart healthcare services. This was followed by the release of local government documents reflecting the central government's guidelines. In addition, the policy implementation system was formed with the National Health and Health Commission at the center, and government projects for health care data were carried out at the national level through state-owned enterprises. In addition, an industrial federation was formed and is being operated under the supervision of the National

Health and Health Commission and the Institute of Information and Communication. The industrial ecosystem encompasses companies in various fields, including Internet hospitals, data analysis and artificial intelligence, and genetic analysis, thus creating an online treatment platform in China. The business expansion of Tencent, an IT company representing dual Guangdong Province, and Ping An, a financial company, is proceeding quite actively. The local hub hospital in Guangdong Province and IT companies in the region have jointly established an Internet-based medical treatment platform, and local governments and IT companies are collaborating to develop big data projects in the health care sector. The unique environment in China, such as the lagging state of medical services, acts as a positive factor when it comes to embracing new technologies in China and establishing a self-sufficient ecosystem. Also, in terms of the institutional infrastructure that must be established to provide services, China has been undergoing trial and error and is now in the process of revising relevant laws and regulations.

III. Evaluation and Implications for Korea

For the development of the artificial intelligence sector, the Korean government should establish long-term and sustainable artificial intelligence development policies, among other things, and come up with support measures to ensure that the AI-related ecosystem is smoothly established. Major Chinese enterprises and global AI firms are striving to build their own ecosystem and expand their market dominance through an open artificial intelligence platform. In response, the Chinese government has designated leading companies to create artificial intelligence ecosystems in key areas, seen in projects such as the Baidu autonomous driving, Tencent medical care and video imaging, and iFLYTEK voice recognition projects, and has implemented the National Next Generation AI Open Innovation Platform to provide various forms of support. It will be necessary for the Korean government to actively support the establishment of an artificial intelligence open platform for Korean companies. In addition, Korean companies need to establish a strategy to build an ecosystem in relevant areas by offering an open platform and expanding their market presence. At the same time, it could be worthwhile to consider entering into the alliance ecosystem by participating in the National Next Generation Artificial Intelligent Open Innovation Platform, which is receiving the policy support of the Chinese central government and leading the market in each field, as a partner company.

In the smart city sector, as seen in the case of Hangzhou City in Zhejiang Province, government-led demand generation and corporate technological prowess have emerged as important development factors. The government needs to propose a specialized and mid- to long-term roadmap for smart city development and actively promote projects to directly generate market demand. It is also important to provide a test bed where the new technologies and services of an enterprise can be directly applied to the lives of the citizens. Institutional innovation and support within the space are essential elements as well. As of yet, the current projects in progress within Korea remain limited in scale and slow to develop, while the numerous institutional regulations blocking the utilization of data are pointed out as major obstacles. In addition, smart city projects have important implications for the lives of citizens and are very public in their nature, meaning private companies could struggle with various disadvantages

in terms of short-term profit. At the same time, however, companies can enjoy promotional effects such as raising corporate awareness and improving their image by participating in public services that are certified by the government and directly used by city residents, and feedback and data from the service process will also have a positive effect on improving their product quality.

Finally, in the smart healthcare sector, the implications for the Korean government and corporations are as follows. First, the Korean government needs to introduce and nurture smart healthcare service as a way to solve problems in medical service. At this time, it is necessary to identify priority areas where improvement is urgent, and to form a market and mitigate the impact on existing industries. Also, flexible policies should be applied to companies participating in new businesses that require deregulation. Finally, effective data integration management methods suitable for the Korean medical system should be considered in relation to data, which is a key element of smart health care innovation. While Korean companies can expect to see enormous business opportunities in China, even Chinese companies are still struggling to generate profits, so Korean companies must carefully design their own profit models in advance. Other tasks to consider in advance will be to gain an understanding for the characteristics of Chinese policy operations and policy-related risks, and to consider cooperation with large Chinese enterprises in order to mitigate the related risks. It is necessary to carry out localized strategies in line with China's rapidly changing industrial ecosystem and market changes, and actively utilize local government policies and domestic business support institutions when planning to directly enter the market. Last but not least, while location selection may not be a crucial factor when it comes to the smart healthcare industry, the cases we examined in Guangdong Province show a good example of collaboration between local anchor companies and central hospitals, government agencies and startups in the initial stages of business implementation. Therefore, companies looking to advance into the local market should first understand and make considerations for the local and regional industrial ecosystems in which their cooperation partners operate within. KIEP