MSIT Launches the K-Network 2030 Strategy

The Ministry of Science and ICT ("MSIT"; Minister Lee Jong-Ho) announced that on the morning of February 20, 2023, it tabled the K-Network 2030 Strategy at the Emergency Economic Council Meeting (presided over by the Deputy Prime Minister) on Monday, February 20, and visited Samsung Electronics' Seoul R&D Campus to discuss mutually beneficial cooperation between the public and private sector, and between large businesses, SMEs, and micro-businesses to become an exemplary country for next-generation networks.

The MSIT, recognizing the need for making a proactive investment in next-generation network and creating a foundation for the industry through public and private cooperation, will actively carry out policy tasks to achieve three goals: ① Secure the world's best 6G technology, ② Bring innovation to software-based networks, and ③ Strengthen network supply chains.

Key components of the K-Network 2030 Strategy are as follows:

1. Ramp up innovation efforts for the next generation network to become a market leader

The MSIT is gearing up to take part in the global technology competition by advancing 6G R&D, that used to be centered around original technologies, to promote commercialization and development of materials, parts and equipment industries and open RAN technologies. To this end, the Ministry is conducting a preliminary feasibility study for R&D projects worth KRW 625.3 billion.

According to German analytics company IP lytics, Korea had the second most number of 5G patents last year, making up 25.9% of all, just behind China, which took up 26.8% of all. The MSIT plans to increase that figure to more than 30% with ambitious policies and strong financial support.

In 2026, the MSIT will host the "Pre-6G Vision Fest," that invites telecom companies, manufacturers,

standards experts, and government officials from across the world to Korea, and demonstrate 6G research outcomes. Through the event, Korea plans to take the initiative in 6G standardization efforts and also become a model country for global cooperation.

In addition, the Ministry will endeavor to secure competitiveness in low-orbit satellite communication technologies to embrace the spatial expansion of future communication services (from ground to air). To this end, pilot networks will be established and efforts will be made to achieve technology independence in core technologies. In 2027, core technologies for antennas and modems, etc. will be demonstrated through test launches of low-orbit communication satellites. After 2030, the technologies will be actively deployed in the defense sector.

To gain an upper hand in the quantum communication market, the Ministry plans to establish a pilot network that connects quantum devices (quantum Internet), increase adoption of quantum cryptographic communication in the public sector, and develop and demonstrate post-quantum cryptography.

The MSIT will also take a leading role in Asi@Connect and APIS projects to contribute to promoting Asia-Europe research, network-enabled education, and connectivity in the Asia Pacific region. In parallel, it will to share Korea's policy experiences as a leader in network and ICT by expanding support for network and ICT policymaking capacities in developing countries.

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2. Build more robust and safe network infrastructure

To facilitate high-performance services, network infrastructure enhancement will be implemented, for example for private networks, backbone networks, and submarine cables.

For a better internet experience using private networks, fiber optic cable construction in new buildings will be fully underway (June 2023-), the use of WiFi 6E will be expanded, and the evolution to WiFi 7, the next-generation standard, will be promoted in 2024.

In addition, in a proactive response to future traffic growth, the transmission speed of backbone networks will be doubled by 2026 and quadrupled by 2030. To improve service stability, the Ministry will upgrade the system capacity of submarine cables (from 200Tbps in 2022 to 260Tbps in 2030), and diversify the cable landing stations (currently centered in Busan and Geoje → expand to various regions).

To reduce energy consumption of network equipment and contribute to carbon neutrality that can be accomplished with a low-power network, the Ministry will make efforts to secure AI chip technology for communication and conduct R&D on low-power by design and new devices with higher efficiency.

At the same time, AI chips and AI-enabled power optimization system will be applied to base stations, which make up the majority of power consumption of total energy consumption in the communication sector, to pursue low-power networks.

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3. Create a robust and competitive ecosystem for the industry

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Network equipment is evolving, from hardware to Internet-based resource sharing (e.g. cloud) and software technologies. Accordingly, a new ecosystem is emerging where big tech companies such as Google, Amazon, and Microsoft are competing and teaming up with network equipment companies and launching mobile communication solutions.

To respond to this paradigm shift in network, the MSIT will address the weaknesses of domestic small and medium sized network equipment manufacturers, namely network software capacities, and create an enabling ecosystem for the emerging Open-RAN equipment industry.

The MSIT will establish and operate a specialized support system for network software (tentatively named Network Software House) from 2024 to test, verify and advance network software programs and support commercialization of software-based networking equipments.

The Ministry will support the development of key components of open RAN and relevant technologies, establish a test bed for piloting functions and performance, and host the Plugfest, an equipment interoperability demonstration event, jointly with the three major telecom companies every year. In addition, a public-private alliance will be operated (2023-) to pursue international standard development and commercialization of open RAN, and an Open RAN international certification system ("K-OTIC") will be established to support domestic companies entering foreign markets.

Meanwhile, the MSIT plans to actively participate in discussions on reshaping global supply chains to support the country's network equipment export and expand Korean companies' presence in the global market. A pioneer group for digital exports, composed of representatives from the public and private sector, will be sent to key regions with growing demand for ICT (e.g. Southeast Asia, the Middle East) to support full-scale efforts to enter new overseas markets.

Efforts will also be made to nurture talent who will lead the next-generation network innovation. Postgraduate and doctoral talent who will support innovation in 6G, quantum, and other next-generation technologies, as well as high-demand field professionals in network software.

To foster postgraduate and doctoral talent, more Information Communications Technology Research Centers (ITRCs) will be established in network related universities, and specialized graduate schools in

network will be established (2023-).

At the same time, to nurture field professionals, a specialized curriculum in network software will be developed and courses that allow students to major in network contracting will be expanded to support the school to work transition and teach workplace-relevant skills.

Minister Lee visited the Seoul R&D Campus of Samsung Electronics and attended the briefing session on the achievements and future plans of Samsung Electronics, LG Electronics, Electronics and Telecommunication Research Institute (ETRI), HFR Inc., and OE Solutions relating to 6G network, open RAN and optical communication; then, he had a discussion with experts from industry, academia and research institutes about how to successfully implement the K-Network 2030 Strategy. Minister Lee and the heads of major companies and institutes signed a Memorandum of Understanding (MoU) on Mutually Beneficial Cooperation, which shows their commitment on public-private and large corporation-SME cooperation to realize the vision of becoming a model nation for next-generation network.

Minister Lee said, "Network is crucial to providing digital services; it is critical national infrastructure and an integral element of national security. Korea will make proactive investments in next-generation network technologies, including 6G, open RAN and satellites, in partnership with the private sector to prepare for the global race for technology dominance."

For further information, please contact the Public Relations Division (E-mail: msitpress@korea.kr) of the Ministry of Science and ICT.