Ministry of SMEs and Startups

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MSS Announces Plan to Expand Physical AI Use among SME Manufacturers

The Ministry of SMEs and Startups (MSS) announced a strategy to expand physical AI adoption among smaller manufacturers on October 29 at the 16th National Policy Coordination Meeting. The Prime Minister chaired the meeting at pharmaceutical company Chong Kun Dang in Cheonan, South Chungcheong Province.

The government plans to commit more than KRW 5 trillion in national resources to smart manufacturing innovation by 2030. The strategy will help SMEs test and adopt physical AI by combining digital transformation, AI and robotics – an approach MSS calls its "3X strategy."

Physical AI enables machines to perceive their surroundings, make decisions and take physical action. Manufacturing competitiveness increasingly depends on the ability to integrate data, AI and robotics across production operations, extending automation beyond individual machines.

Smaller manufacturers will be essential to translating Korea's manufacturing expertise and extensive use of robots into leadership in physical AI. Many have already introduced digital systems through smart factory programs, but limited funding and shortages of skilled workers make it difficult to integrate AI and robotics into their operations.

The strategy also seeks to ensure that technologies developed through major national projects can be adapted to the production processes and operating conditions of SMEs.

It sets out four priorities: accelerating AI adoption in factories, strengthening technology suppliers, improving the use of manufacturing data, and expanding regional infrastructure and workforce skills.

Helping Manufacturers Adopt AI and Robotics

MSS will tailor support to each company's capabilities. Businesses with limited digital infrastructure will receive help establishing the systems and data needed to use AI. Those with a stronger foundation will be supported in developing more advanced applications.

Priority areas include technologies addressing emerging security needs, pharmaceuticals and biotechnology, climate tech and Korean consumer products, alongside promising regional businesses.

The ministry will fund demonstrations that integrate AI and robotics at the equipment, production-line and factory levels. Testing these technologies under actual operating conditions will help establish models suited to smaller manufacturers and give businesses greater confidence when deciding whether to adopt them.

MSS will also work with other ministries to connect technologies developed through national strategic projects with existing smart factory support programs.

These include "AI Factory Manager for All," a physical AI operating system for unmanned factories developed at KAIST with support from the Ministry of Science and ICT. The strategy will also draw on AI models supported by the industry ministry that incorporate experienced workers' practical knowledge.

These technologies will be adapted for SME production environments so that national investment in AI delivers measurable improvements for smaller manufacturers.

Developing a Stronger Network of Technology Suppliers

MSS will prepare a technology roadmap to guide smart manufacturing R&D and investment. It will identify the technologies needed to connect data, AI and robotics across automation, networks, business and production software, and intelligent systems.

The roadmap will build on the smart manufacturing technology industry classification introduced in July 2026. Its categories cover robots and equipment; sensors and networks; manufacturing execution and enterprise resource planning systems; and AI and digital twins.

Funding will connect technology development with testing in working factories. Manufacturers' needs and production data will inform R&D, while demonstrations will allow suppliers to assess and improve performance under real operating conditions.

Leading suppliers will be designated as specialist smart manufacturing companies. They will receive preferential consideration for government smart manufacturing programs and targeted assistance with R&D, demonstrations and international expansion.

MSS aims to designate 500 such companies by 2030, increasing the availability of technologies and services that smaller manufacturers need to adopt AI.

Turning Production Data into Better AI and Factory Performance

The strategy will help manufacturers use production data to develop AI applications and improve operations.

Data generated through government-supported projects will be collected systematically, standardized and organized to make it easier to combine information from different machines and systems.

MSS will also support the valuation of manufacturing data and allow companies to count it as an in-kind contribution to government-supported projects. This would reduce the cash companies need to contribute and give them a greater incentive to make their data available for use.

The existing Korea AI Manufacturing Platform (KAMP) will be upgraded to "Manufacturing AI 24." It will support data collection, standardization and valuation, followed by AI model development and deployment in factories.

Data gathered during deployment will then be used to refine the models. This continuous feedback process will help improve both AI performance and manufacturing operations.

Building Regional Infrastructure and Workforce Skills

MSS will connect regional AI hubs, including manufacturing AI data centers, with facilities where companies can test and demonstrate AI applications.

Manufacturers and technology suppliers will receive support to use these resources to develop and adopt solutions that reflect the needs of local industries.

Korea's four institutes of science and technology will offer specialized education linked to regional industries, along with workplace internships, to prepare young people for careers in manufacturing AI. Training for existing employees will strengthen factories' ability to operate and manage AI systems.

Industry associations will help identify regulatory obstacles, while support organizations will coordinate their

expertise to address businesses' technology, staffing and regulatory needs. Closer cooperation between organizations will help ensure that policy plans translate into effective assistance for companies.

Targets for 2030

By 2030, MSS aims to support digital transformation at 30,000 SME manufacturers and AI adoption at 6,000. The goal is to raise the digital transformation rate among smaller manufacturers from 30% to 50% and the AI adoption rate from 1% to 10%.

The 3X strategy connects digital transformation (DX), AI transformation (AX) and robotics transformation (RX): digital systems provide connected data, AI supports decisions, and robots carry out physical tasks. Integrating all three is intended to strengthen competitiveness across SME manufacturing.

"Manufacturing AI innovation among SMEs is essential to Korea's ambition to become a leader in physical AI," Minister Lee Soyoung said. "This strategy will put smaller factories at the center of efforts to test these technologies and expand their use."

"We will help SMEs integrate data, AI and robotics to improve production methods, build technological capabilities and play a central role in national strategic projects."

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