



Science and Technology Daily

VOL.5-NO.183

MARCH 22-23, 2025

AI Invigorates New Industrialization

By Staff Reporters

AI is reshaping the modern industrial system by accelerating the upgrading of traditional industries and fostering new ones.

During this year's two sessions, AI remained a hot topic. The 2025 government work report said under the AI Plus initiative, China will work to effectively combine digital technologies with manufacturing and market strengths.

This is the second time that AI Plus has been written into the government work report. This year's tasks focus more on the application of technology, especially combining digital technology and manufacturing.

In 2024, China's manufacturing industry maintained the top global position in terms of overall scale for the 15th consecutive year. High-end, intelligent and green manufacturing has been significantly accelerated, with 421 national intelligent manufacturing demonstration factories established and more than 4,000 factories with 5G built.

The government work report also pledged to support extensive application of large-scale AI models and develop new-generation intelligent terminals and smart manufacturing equipment. They include intelligent connected new energy vehicles, AI-enabled phones and computers, and intelligent robots.

Intelligent terminal manufacturing opens up new space for new industrialization. In 2024, the added value of China's computer, communication and other electronic equipment manufacturing industry above designated size increased by 11.8 percent, which was significantly faster than the growth of other industries above designated size.

Specialized datasets are necessary for training large AI models, so that AI can enter the real economy and be applied to related fields, said Wang Jiangping, a member of the National Committee of the Chinese People's Political Consultative Conference (CPPCC) and former vice minister of the Ministry of Industry and Information Technology (MIIT).

In 2025, the MIIT will implement an "AI Plus Manufacturing" initiative. This program will focus on developing and applying general-purpose and industry-specific large language models in key manufacturing scenarios.

Infrastructure is essential for the integrated development of industries. CPPCC member Tang Dongsheng suggested strengthening the supply of core technologies for AI upgrading in the manufacturing industry, optimizing the construction of the computing power system, and advancing the layout of digital infrastructure that supports AI development, such as national computing power centers, industrial edge computing power centers, and big data platforms.



A self-propelled sprinkler irrigates a wheat field in Dongtianzhuang town, Fengnan district of Tangshan, north China's Hebei province, March 17, 2025. (PHOTO: XINHUA)

Innovation Frontier

Tech Progress Bolsters Energy Security

By LIN Yuchen

In the early 20th century, China faced significant challenges to meet its domestic energy needs, relying heavily on imports to fuel its burgeoning industries. The discovery of the Karamay Oilfield in Xinjiang Uygur autonomous region marked a turning point, signaling the potential of domestic oil production.

This momentum continued with the discovery of the Daqing Oilfield in Heilongjiang province in the northeast in 1959. It is among China's largest oilfields and enabled basic self-sufficiency in oil production by the early 1960s. China shed its "oil-poor" label.

The subsequent decades witnessed

rapid development in China's oil and gas industry. The 1960s and 1970s saw the development of major oilfields such as Shengli in Shandong province, bolstering domestic production. By 1978, China's annual crude oil production exceeded 100 million tonnes, making it one of the world's leading oil producers.

The strides continue. Notably, the Tarim Oilfield, located in the heart of the Taklamakan Desert in Xinjiang, has emerged as the country's largest ultra-deep oil and gas production base. As of early 2025, a cumulative 150 million tonnes of oil and gas equivalent was excavated from the Tarim Oilfield, from depths exceeding 6,000 meters, underscoring China's advancements in ultra-

deep drilling technologies.

In the first two months of this year alone, the field produced over three million tonnes of oil and gas equivalent, with production increasing daily. This achievement highlights China's commitment to exploring and developing challenging reserves to ensure energy security.

In addition, the China National Petroleum Corporation, for instance, has established a presence in 33 countries, with its overseas production exceeding 100 million tonnes annually as of 2019. These investments not only secure energy supplies but also foster bilateral relations and economic partnerships.

See page 3

Pioneering the Future of Embodied AI

By YU Haoyuan

Cutting-edge embodied AI technology was included in the government work report for the first time during this year's two sessions. This not only marks a leap forward in China's manufacturing industry from digital empowerment to deep integration of intelligence and physical entities, but also demonstrates a forward-looking approach to the global technological revolution.

Embodied AI refers to AI systems that can operate in the physical world through a body or robot form. It acquires information, understands problems, makes decisions, and implements actions through the interaction between the intelligent agent and the environment, thereby generating intelligent behavior and adaptability.

The industrial opportunities and

national strategic significance behind this technology deserve in-depth interpretation.

Why develop embodied AI?

At the heart of embodied AI technologies is the "body," which enables machines to actively learn and evolve through real-time interactions with their environment via perception and action, much as humans do. This is something AI cannot do.

Beyond theoretical discussions, this approach has already shown benefits in several practical applications and contributed to economic growth.

First, embodied AI devices and robots enhance productivity by efficiently and accurately performing tasks. Electronics manufacturing is a prime example. Today, high-precision assembly robots powered by embodied AI have already significantly accelerated product

assembly, improved quality, and reduced error rates in factories.

Second, the development of embodied AI levels up innovative business models and services. For example, autonomous vehicles or drones are revolutionizing traditional logistics models by enabling faster and more efficient deliveries. Autonomous driving also reduces the burden of long-distance driving for drivers. These advancements not only offer a more convenient lifestyle but also create new revenue streams for companies.

Third, while automation may replace some traditional jobs, it will also create new positions requiring advanced skills. Continuous advancement necessitates ongoing education and training for employees, promoting personal development and adaptation to industrial upgrades.

See page 2

China, ASEAN Accelerate Digital Cooperation

International Cooperation

By LIN Yuchen

At the Third Session of the 14th National People's Congress, the Guangxi delegation proposed the establishment of the China-ASEAN Artificial Intelligence Innovation Cooperation Center, which marks a new chapter in digital collaboration between China and ASEAN countries.

The past few years have seen rapid growth in digital cooperation between China and ASEAN, creating new opportunities for regional development. Key initiatives include the China-Laos AI Innovation Cooperation Center and the port of the Friendship Pass, which incorporate advanced AI and 5G technologies to enable fully automated customs and freight operations. With these innovations, the port aims to streamline logistics, improve customs efficiency, and boost cross-border trade, exemplifying the potential of digital technologies to accelerate economic integration.

China's investment in ASEAN's digital infrastructure is also expanding. The establishment of cross-border optical fiber networks and data centers in countries such as Malaysia and Indonesia highlights the region's growing interconnectedness. In addition to bilateral cooperation, China and ASEAN countries have signed several memorandums of understanding to deepen digital economic ties. The recent inclusion of a digital economy chapter in the version 3.0 of the China-ASEAN Free Trade Agreement sets the stage for a more integrated digital ecosystem, with expectations that ASEAN's digital economy will reach two trillion USD by 2030.

As the digital economy evolves, talent development plays a crucial role. Chinese tech giants like Alibaba and Huawei are actively contributing to this effort, partnering with local governments and universities to offer digital training programs. These initiatives are preparing the next generation of digital professionals, ensuring that ASEAN countries can fully harness the benefits of digital transformation.

See page 4

WEEKLY REVIEW

First Domestic Space Mining Robot Unveiled

The China University of Mining and Technology has developed the country's first space mining robot, drawing inspiration from insect locomotion. The six-legged robot has three wheel feet and three claw feet to adapt to the microgravity environment in space. The university has applied for a patent, which has passed the preliminary review.

CERES-1 Sends 8 Satellites into Space

Approved by the China National Space Administration, China's commercial carrier rocket CERES-1 successfully sent eight satellites into their designated orbit on March 17. With six meteorological space remote sensing satellites, the Yunyao-1 55-60 and the AIRSAT-06 and -07 satellites, data can be retrieved to support weather forecast, climate monitoring and disaster prevention.

New Modulator Breaks Terahertz Mark

Scientists from ETH Zurich developed the world's first plasmonic modulator that can transmit data at a frequency of over a terahertz, which is five to 10 times faster than the speed of previous modulators. The development of 6G technology is likely to benefit from this new modulator as terahertz is crucial to its development.

Ultra-Broadband Signal Amplification Enhanced

Researchers from EPFL and IBM Research Europe-Zurich developed a photonic-chip-based amplifier that achieves a net gain of more than 10 dB over a bandwidth of about 140 nm. This is three times the bandwidth of traditional erbium-doped fiber amplifiers. The new amplifier can offer new possibilities for high-performance computing systems.

New Graphic

In 2024, China's R&D expenditure exceeded

3.6 trillion RMB 8% y/y

The investment in basic research accounted for 6.91% of its R&D expenditure

Source: National Development and Reform Commission
Designed by YAO Yili / Science and Technology Daily

WECHAT ACCOUNT

E-PAPER

