

China to Advance Smart Manufacturing

Policy Express

Edited by TANG Zhexiao

China aims to capitalize on the trends of a new scientific and technological revolution and industrial transformation, to advance its new-type industrialization, according to a State Council executive meeting held on June 5.

During the 14th Five-Year Plan period (2021-2025), China recorded historic achievements in new-type industrialization. By 2025, its manufacturing industry had maintained its position as the world's largest by scale for 16 consecutive years. A host of emerging industries, including new energy vehicles, photovoltaics, shipbuilding and marine engineering equipment have expanded rapidly, and the capacity for independent control of key industrial chains has risen exponentially.

Advancing new industrialization constitutes a long-term strategic task. The meeting put forward requirements to stay committed to the intelligent, green and integrated development pathways, and coordinate the transformation and upgrading of traditional industries, the growth of emerging industries, and forward-looking layout of future industries.

It also highlighted next-generation smart manufacturing as the main focus,



A battery pack production line for new energy vehicles at a technology firm in Hefei, Anhui province. (PHOTO: XINHUA)

urging the project to reconstruct industrial foundations and drive high-quality development of key manufacturing industrial chains. In addition, a call came at the meeting to expand high-standard opening-up and cooperation, while fully implementing the catalogue of encouraged industries for foreign investment.

China's industrial development has shifted from quantitative accumulation to quality improvement, and is now at a pivotal stage of growing from large to strong, according to the Xin Yongfei, head of the Policy and Economic Re-

search Institute at the China Academy of Information and Communications Technology.

"Targeting the goal of basically realizing new-type industrialization by 2035, a series of arrangements introduced at the meeting in the inaugural year of the 15th Five-Year Plan period will further shore up confidence in development and clarify priorities," said Xin.

The meeting proposed a package of arrangements to accelerate the cultivation and growth of future industries, including: stepping up forward-looking

planning and promotion to firmly seize the initiative in development; consolidating technological foundations by steadily increasing investment in basic research; prioritizing ecosystem development to foster in-depth integration of industry, academia, research and application; and fully utilize the guiding role of government investment funds.

Wang Peng, associate research fellow of the Institute of Management Studies of the Beijing Academy of Social Sciences, said that while China's cultivation of future industries has maintained sound momentum, challenges such as insufficient original innovation capacity, an imperfect innovation ecosystem, and institutional and mechanism barriers still remain. The measures outlined at the meeting are highly targeted, instructive and operable, offering guidance for coordinated nationwide work and problem-solving.

The meeting also stressed the need to guide rational industrial layout and improve regulation and governance to prevent herd investment and unnecessary construction.

Experts noted that adapting measures to local conditions and highlighting distinctive strengths are crucial methodologies for proactively positioning future industries. Localities should leverage their respective comparative advantages, pursue tailored development strategies, and continuously drive industrial growth through innovation.

Case Study

Kunshan Pioneers Next-Gen Industrial Tech

By TANG Zhexiao & ZHANG Ye

According to the latest statistical communique on municipal economic and social development released by Kunshan's Bureau of Statistics, the city in Jiangsu province accredited more than 1,300 national high-tech enterprises in 2025, with over 3,500 high-tech enterprises registered by year-end.

Kunshan boasts one IT industrial cluster (covering computers, communications and other electronic equipment manufacturing) worth over 100 billion RMB and 11 industrial clusters, each with an output value exceeding 10 billion RMB.

Additionally, the output value of Kunshan's strategic emerging industries and high-tech manufacturing accounted for 62 percent and 65.6 percent respectively in 2025, while the core AI industry has surpassed 80 billion RMB in scale, a previous municipal government report showed.

In recent years, aligned with Jiangsu's deployment for new industrialization, Kunshan has advanced core technology research, innovation platform development and talent ecosystem cultivation in an integrated manner, emerging as an exemplary county-level case of high-quality development driven by innovation.

Breakthroughs in core technologies

Last November, Montage Technology, based in Kunshan, released its independently-developed DDR5 Clock Driver (CKD) chip with a maximum data transfer rate of 9200 MT/s, enabling home-grown chips to power high-performance servers, cloud computing facilities and data centers.

Montage Technology and Shanghai Jiao Tong University established a joint laboratory in 2021, focusing on the integrated circuit sector to drive the deep integration of scientific innovation and industry.

This exemplifies collaborative R&D efforts among governments, enterprises and research institutes to crack core bottleneck technologies.

Launched in 2019, Kunshan's Zuchongzhi Innovation Initiative kicked off a new round of projects in 2026 alongside its three-year action plan spanning 2025 to 2027. The project aims to solve technical bottlenecks for enterprises through a mechanism that

involves enterprises proposing technical challenges, global contenders bidding for research contracts, government support, and the commercialization of research outcomes.

Official statistics show that since its launch, the Zuchongzhi Innovation Initiative has rolled out 783 projects, backed by 50 million RMB in government subsidies that have catalyzed an additional 17.63 billion RMB in corporate R&D investment, with over 400 key challenges successfully awarded to winning research bidders.

To date, Kunshan has set up 90 innovation consortia, forming an integrated innovation ecosystem led by leading enterprises and innovative small and medium sized enterprises.

Empowerment via innovation platforms

Inside the robot research institute of Freewon, a precision metal component manufacturing enterprise, equipment operates at high speed while engineers analyze real-time data to conduct repeated tests on miniature lead screw products.

Rigorous precision standards are required for components used in robot joint drive and linear motion control, said Ma Jinfeng, dean of the institute, adding that their self-developed miniature lead screws help domestic robot joints achieve enhanced flexibility and positioning accuracy.

Pivoting from traditional precision machining to the booming humanoid robot sector, the company has secured the upper hand in high-end manufacturing thanks to its self-developed R&D platform.

Such in-house research institutes have become primary innovation hubs for Kunshan's high-end manufacturing sector: the city now hosts 27 enterprise research institutes and 194 corporate R&D platforms of various types. These facilities drive continuous technical upgrading for local manufacturers and underpin Kunshan's push for core technology breakthroughs and high-end industrial transformation.

Meanwhile, Kunshan has built a connected chain of sci-tech incubators. During the 14th Five-Year Plan period (2021-2025), 40 new provincial-level and above incubation bases were established to deliver full-cycle support for start-ups and research teams engaged in high-end manufacturing.

Training Initiative for Humanoid Robots, Embodied Intelligence

By TANG Zhexiao

China has launched a nationwide real-world training initiative for humanoid robots and embodied intelligence, aiming to advance the deployment and application of these technologies.



SUYUAN 2.0, an industrial humanoid robot developed by Shanghai Electric. (PHOTO: VCG)

According to a notice jointly issued by the Ministry of Industry and Information Technology (MIIT) and the State-owned Assets Supervision and Administration Commission of the State Council, China will push for the commercial roll-out of 10,000 humanoid robots and over 100 high-value application scenarios by the end of 2026.

China's humanoid robots and embodied intelligence are shifting from laboratory testing to real-world deployment, and from demonstration verification to regular operation, said an official from the MIIT's science and technology department. However, the official noted that bottlenecks remain in areas including model algorithms, hardware performance, scenario adaptability and real-world data accumulation.

Practical real-world training is the key solution to tackling these limitations. Centralized, standardized and shared training venues can eliminate

redundant scenario creation and resource waste. This process is essential to transform humanoid robots from just being functional to becoming highly reliable and practical.

The training initiative centers on six key tasks covering industrial, service and special-purpose sectors: constructing real-world training venues, establishing innovation and application institutions, developing practical operational capabilities, advancing real-world application verification and regular deployment, strengthening support for core development enablers, and consolidating proven best practices.

The initiative addresses application demands for humanoid and quadruped robots across core scenarios, such as manufacturing, inspection and analysis, maintenance, warehousing and logistics, catering and retail, medical care and rehabilitation, emergency rescue, and disaster prevention and mitigation.

Dedicated real-world training units will be designated as training venues, with clear functional demands, defined operating conditions, high standardization, and sound economic viability.

Regarding the establishment of innovation and application institutions, the initiative encourages the formation of scenario-specific institutions led by end-users and original equipment manufacturers or application service providers. These institutions should also include supply chain enterprises specializing in model algorithms and components, as well as research institutes.

Additionally, the initiative calls for enhanced data governance, promoting secure and orderly data sharing, while fully ensuring data security, privacy and trade secret protection.



New Toolkit for Ecological Restoration Unveiled

By LI Linxu

China has recently released the third batch of innovative and applicable technology catalog for ecological restoration.

The catalog was jointly released by the Ministry of Natural Resources and the National Forestry and Grassland Administration, aiming to empower ecological restoration practices during the 15th Five-Year Plan period (2026-2030) through sci-tech innovation.

A total of 35 technologies were ultimately selected for the catalog, covering 10 major ecological restoration scenarios. The final selection followed a rigorous process involving voluntary application, preliminary evaluation, comprehensive review and public notification.

The selected technologies will be used in forest, grassland, wetland, and desert ecological restoration, marine ecological restoration, aquatic ecological restoration, and mine ecological restoration.

Technologies in degraded land ecological restoration and treatment, invasive alien species control and pest management, ancient and notable trees protection, ecosystem carbon sinks, natural ecological monitoring and evaluation are also included.

The selected technologies have been proven effective through engineering practices, serving as a tailored toolkit for different regions and various types of ecological restoration.

During the 15th Five-Year Plan period, China's ecological restoration will place greater emphasis on systematic governance, precise restoration, synergistic integration and quality and efficiency enhancement.

According to officials from relevant departments, they will focus on innovation in ecological restoration technologies, with a particular emphasis on putting effective technologies into practice, enriching the ecological restoration toolkit, and invigorating collaborative sci-tech innovation.

Announcements will be released to



The Hutuo River Ecological Zone in Shijiazhuang city, Hebei province. (PHOTO: XINHUA)

the public to promote their application, guiding localities to prioritize advanced and applicable technologies throughout the entire lifecycle of ecological restoration projects, including design, implementation, acceptance, monitoring and evaluation.

Efforts will be made to continuously solicit and update ecological restoration technologies, dynamically optimize the catalog's contents, and accelerate

the formulation of supporting technical standards and norms.

Support will also be provided to encourage R&D in ecological restoration, organizing joint research initiatives to tackle critical technological bottlenecks.

Advanced technologies, such as AI, will be harnessed to develop a batch of original and pioneering technologies.



Birth of World's First Hybrid Cargo Drone

From page 1

Electric plus gasoline, efficient and affordable. This crazy idea triggered heated debate, but eventually the team agreed: for cost control and mass production, the automotive supply chain had a clear edge over traditional aviation.

The team partnered with EV makers and spent months modifying a car engine for thin, freezing air up to 8,000 meters. They redesigned the turbo system, rewrote control logic, and tested the engine on high-altitude rigs for three months. It turned out that the hybrid system was cheap, scalable, and offered both shaft and electric power, which greatly expanded mission flexibility.

In October 2025, they made a bold call to scrap the original aero-engine plan entirely and go all in on the hybrid. That meant redesigning flight controls, electronics, and engine bay from scratch. Without complaint, the team finished the overhaul in just two months.

Cracking the energy-matching code

But the test flights revealed a new problem: the hybrid engine was great for steady cruising but sluggish for quick takeoffs, rough terrain, or bad weather.

A hybrid system in the sky had

never been done, so no blueprint existed. The team therefore had to build a database to collect the precise power demand during all flight phases and under multiple situations, which is like providing a navigation map for energy scheduling.

On this basis, they invented a predictive-control algorithm that pre-judges flight conditions and dynamically balances the power output of engine and battery.

It took sleepless weeks of trial and error and there were times when the algorithm caused power surges or drops. But the team persevered, and the final real-time energy scheduling system delivered impressive results: takeoff response up 40 percent, cruise energy loss down 20 percent, and stability in complex conditions up 50 percent.

Today, the YH-1000S is undergoing final tests for airdrops and short-distance takeoffs and landings. The team plans to push real logistics routes, obtain airworthiness certification, and launch regular, scaled demonstration flights. What started out as a crazy idea — an air pickup with the heart of a car — is now emerging as a frontrunner in China's low-altitude economy.