

中国日报 CHINA DAILY

ALL YOU NEED TO KNOW
CHINA WATCH

Ecosystem of industries drives growth

Nation's intelligent manufacturing, tech breakthroughs boosting resilience.
Ma Si reports

Every minute, the fastest Fuxing high-speed train travels 5.8 kilometers in China, and more than 600 shipping containers depart from the country's ports. Every hour, roughly 2,000 new energy vehicles roll off assembly lines while over 30,000 kilograms of crops are harvested by intelligent systems. Every day, a few thousand invention patents are created, and the national supercomputing internet platform processes over 1 million application programming interface calls.

These are not abstract statistics. They represent the rhythm of heartbeat of an economic powerhouse that has built the world's largest and most complete industrial system — a strategic foundation that has served as and will continue to serve as the bedrock of the nation's economic resilience, said experts and corporate executives. As China injects fresh momentum into building a modern industrial system, the country will move up value chains steadily, sharpen its edge amid global competition and create new engines for global economic growth, they added.

In January, Chinese President Xi Jinping said that building a modernized industrial system is an important strategic task to be fulfilled in the 15th Five-Year Plan (2026-30), and emphasized the need to promote intelligent, green and integrated development.

Last year, during his visit to Luoyang Bearing Group in Henan province, Xi said, "China has always adhered to the path of developing the real economy. From the past reliance on imported matches, soap and iron, to now becoming the world's largest manufacturing country with the most complete industrial categories, we have taken the right path."

Chen Yanbin, director of the Institute of Industrial Economics at the Chinese Academy of Social Sciences, said that over the years, China's economy has maintained strong resilience and vitality. "The strategic underpinning for this



A visitor photographs a live-line operation robot at China Southern Power Grid's stand during the 2025 World AI Conference in Shanghai on July 28. CHEN HAOMING / XINHUA

has been its complete industrial system."

Xi's emphasis on manufacturing shows that amid growing external uncertainties, "Made in China" will be backed by a stronger and smarter industrial system, Chen added.

China's manufacturing scale ranked first globally for the 16th consecutive year in 2025, providing strong support for higher-quality economic growth.

What makes China's industrial ecosystem unique is the speed at which scientific breakthroughs become commercial products. Zhang Li, president of the China Center for Information Industry Development, calls this the "accelerator effect" of a modern industrial system.

China's comprehensive industrial ecosystem provides the perfect soil for industrializing technological innovations, Zhang said, adding that it solves the "perennial problem of scientific achievements struggling to find real-world applications".

The Beidou Navigation Satellite System, independently developed by China, boasts an extensive chain

that spans upstream foundational products like chips, midstream terminal equipment such as vehicle navigation systems, and downstream operational services.

The value of satellite-enabled navigation and positioning services in China, especially those based on Beidou, is expected to surpass 1 trillion yuan (\$148 billion) within five years, up from 629 billion yuan in 2025, according to official data.

Another example is robotics. In an industrial park in Shenzhen, Guangdong province, engineers put a four-legged robot through its paces. At 62 kilograms, it is no toy. In a three-minute test, it performs continuous backflips, side flips and a spinning jump that launches it 87 centimeters off the ground.

The secret lies in a local supply chain so efficient that the company can source all 30,000 components within half a day. That speed allows eight product iterations in just six months — a pace that leaves many overseas competitors struggling to keep up.

Zhang Yin, vice-chairman and secretary-general of Guangdong Artificial Intelligence and Robotics

Industry Alliance, said: "The (Guangdong-Hong Kong-Macao) Greater Bay Area is the only region in the world that has both AI technology and mechatronics technology, and the ability to deeply integrate the two."

Hong Qunlian, a researcher at the National Development and Reform Commission's Chinese Academy of Macroeconomic Research, said that as a new round of technological revolution accelerates, global economic competition has shifted from product rivalry and corporate battles to a competition between entire industrial ecosystems.

Quantum technology, AI, hydrogen and nuclear fusion energy, and brain-computer interfaces — these are among the battlefields in which nations are seeking dominance, Hong said. "Whether China can seize opportunities and meet challenges by building a modern industrial system aligned with this technological revolution will determine our strategic position in future development," he added.

At the World Intelligence Expo 2026 held in Tianjin last month, the message from international

business leaders was unambiguous: China's intelligent manufacturing transformation is not just a domestic story; it is a global catalyst.

"China is not just a huge market, it is a global engine for innovation and manufacturing," said Rainer Kern, chief financial officer of Kärcher Greater China. The German cleaning solutions provider sees China's complete supply chain, rapid technology adoption and vast market as unmatched strengths.

A recent European Chamber of Commerce survey found "signs of an uptick" in confidence among European businesses in China. Seventy-five percent of respondents said their China-based production is more efficient than operations elsewhere. "If you want to learn how to manage your business in a highly dynamic and fast-developing environment, come to China and learn from the fastest," said Christoph Schrempf, vice-chair of the European chamber's Tianjin chapter.

Zhang Chenxu contributed to this story.

COMMENT

Supply chain resilience needs China, South Korea

By MOON SUNG WOOK

The global economy is entering an era in which supply chains are judged not solely by efficiency but increasingly by resilience. Geopolitical tensions, technological competition and pandemic-era disruptions have pushed governments to rethink how critical industries are organized. Few sectors illustrate this shift more clearly than semiconductors, batteries, robotics and biotechnology — industries that now sit at the intersection of economic competitiveness and national security.

For countries deeply embedded in global manufacturing networks, the challenge is particularly acute. China and South Korea occupy pivotal positions in the industrial ecosystem of East Asia. Their economies are tightly connected through production networks, intermediate goods trade and technological supply chains. At the same time, strategic rivalry and geopolitical pressures have complicated the environment for bilateral economic cooperation.

Yet precisely because of these pressures, pragmatic collaboration between the two countries in advanced manufacturing deserves renewed attention — along with the spirit of mutual openness that such collaboration calls for.

Over the past two decades, the two countries have built formidable capabilities in high-technology industries, though through different development paths. South Korea's strength lies in specialized technical leadership. Its firms dominate the global market for memory semiconductors and are among the world's leading innovators in advanced battery technology and biopharmaceutical manufacturing.

China, by contrast, has developed unparalleled manufacturing scale. It has the world's largest industrial ecosystem, supported by vast domestic demand, extensive industrial clusters and strong government backing for strategic sectors.

These differences often invite comparisons framed purely in terms of competition. But they also reveal important complementarities — ones best realized through a shared commitment to constructive and open engagement.

In semiconductors, South Korea leads in memory chips and advanced manufacturing processes while China rapidly expands its domestic ecosystem. In batteries, South Korea's innovation in high-performance cell technology complements China's comprehensive supply chain spanning materials, components and large-scale production.

Competition between major economies will persist. But it need not preclude cooperation where interests overlap. For China and South Korea — two of the region's most important manufacturing economies — pragmatic collaboration in advanced industrial supply chains could help ensure that resilience does not come at the cost of fragmentation. The path forward lies in a shared commitment to open and reciprocal engagement — one that serves the long-term interests of both economies. In a world shaped by growing uncertainty, such cooperation may prove not only desirable but necessary.

The author is the former minister of Trade, Industry and Energy of the Republic of Korea, a distinguished professor at the Graduate School of Economics in Yonsei University and a senior adviser at Yilbion LLC Law Firm. This is an abridged and edited version of an article that appeared in China Daily. The views don't necessarily represent those of China Daily.

Testing out the future of transport

By LUO WANGSHU

After decades in which China's infrastructure has expanded rapidly, the country is placing greater emphasis on making its vast transport network safer, more efficient and more intelligent by applying digital technologies.

These developments, including those in the research stage and those already being used in the real world, are causing major operational shifts in how things are moved on land and by sea and air.

From highways and ports to waterways and deep-sea equipment, researchers are working to solve how to better manage large traffic flows, how to identify risks earlier, how to support safer navigation in complex waters, and how to make critical equipment more reliable and self-dependent.

At the State Key Laboratory of Intelligent Transportation Systems in Beijing's Tongzhou district, researchers are exploring how roads can be made safer, more efficient and less congested.

By using sensing networks and cloud platforms the researchers can enable roads themselves to become an active, responsive participant in the transport network. Using these sensors, roads can provide instant updates to connected

vehicles and drivers, informing them of accidents, traffic, weather conditions and detours.

"Road-to-vehicle coordination is not simply about connecting vehicles and roads," said Wang Lin, deputy director of the laboratory and director of the intelligent transport research center in the highways research institute of the Ministry of Transport. "It's about changing the way people travel."

The goal is to make "vehicles understand roads, and roads remind vehicles", Wang said, so that common bottlenecks in road transport can be mitigated and even avoided altogether.

Even though China has built one of the world's largest road networks, congestion hot spots are inevitable, so researchers are working on shifting from building roads to managing them better.

At the Tongzhou laboratory, researchers are testing out these intelligent transport systems to make them reliable enough for real-world use.

In a 250-meter tunnel, rain can be made to fall at the push of a button, while fog, low visibility and water-covered road surfaces can be repeatedly re-created.

Li Zhenhua, an engineer at the laboratory, said the facility allows researchers to bring weather conditions indoors, instead of waiting

for them to appear on real roads.

"Extreme weather on real roads is difficult to predict and even more difficult to test safely. Here we can reproduce the same scenario again and again, compare the data and improve the system step by step."

In the port city of Tianjin, researchers are applying a similar logic to water transport by making risks visible before they potentially turn into accidents.

At the Tianjin Research Institute for Water Transport Engineering of the Ministry of Transport, a huge wave flume stretches 450 meters long and 5 meters wide. With a water depth of 8 to 12 meters, the flume can produce waves as high as 3.5 meters, simulating some of the most extreme sea conditions.

The flume is used to study coastal engineering disaster prevention, sediment transport, wave-structure interaction and the dynamic response of large floating structures.

Chen Hanbao, chief scientist at the institute, said the flume is useful because coastal engineering projects can develop unexpected problems that can be avoided with wave impact testing.

"Large-scale tests allow researchers to better understand how ports, breakwaters and offshore structures behave under real wave conditions," Chen said.



A train driver uses a simulator at a depot in Beijing in December 2024. BAI TIANQING / CHINA NEWS SERVICE



An underwater maintenance robot is lowered to conduct inspection work on a bridge of the Xinxiao-Yanzhou Railway in Jinan, Shandong province, in February. GUO XUELI / XINHUA