



# Science and Technology Daily

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## Innovation Pathway

### Blueprint for High-quality Development of Marine Economy

Edited by TANG Zhexiao

China will promote high-quality development of its marine economy, giving priority to six aspects. They were outlined in a recent article in the *Qiushi Journal*.

The six aspects are: strengthening top-level design and policy support; enhancing independent innovation capacity in marine science and technology; building stronger, more competitive and scaled-up marine industries; strengthening overall planning for major bays; enhancing marine ecological and environmental protection; and actively participating in global ocean governance.

The government work report delivered in March proposed, for the first time, to "enhance overall planning for major bays and see that China's maritime sector gets stronger, performs better, and grows in size."

Minister of Natural Resources Guan Zhiou said in an interview after the closing meeting of the fourth session of the 14th National People's Congress that greater emphasis will be given to innovation-driven development to comprehensively enhance the capacity for deep-sea exploration and development. With a focus on win-win cooperation, extensive marine cultural exchanges will be carried out to build a maritime community with a shared future.

With the Laoshan Laboratory for Marine Science and Technology in Qingdao, east China, fully operational, Meng Xiang, the world's largest drilling vessel, entering service, and the Deep Sea No.1 offshore oil and gas platform in the South China Sea running, China's "blue economy momentum" maintains robust growth.

China's marine economy experienced steady growth in 2025. The gross ocean product reached nearly 11.02 trillion RMB (about 1.6 trillion USD), a year-on-year increase of 5.5 percent, contributing 0.4 percent to national economic growth, according to data released by the Ministry of Natural Resources.

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Farmers tend to early rice seedlings at a greenhouse in Qidong county, Hengyang city, Hunan province, March 30. (PHOTO: XINHUA)

## STI Frontier

### 3MW Gas Turbine Powers New Era of Energy Security

By WANG Xiaoxia & ZHU Hong

At a recent industry event, the China State Shipbuilding Corporation (CSSC) unveiled its latest technological gem: the CGT3, a three-megawatt gas turbine.

Dubbed the "crown jewel" of manufacturing, gas turbines are notoriously difficult to design and build, with the technology long dominated by a few countries.

The new machine represents a major leap forward, heralding that China's small gas turbines are now fully self-reliant. A team of engineers spent over a decade turning a bold promise into reality.

#### Inspiration from a folk instrument

The journey began with a seemingly impossible mission: to build a combustion chamber that could run on two different fuels — diesel and natural gas, with seamless switching between them, without ever shutting down. This "dual-fuel" capability is essential for offshore

platforms, which start operations using shipped-in diesel but later tap into their own natural gas.

The core challenge was integrating oil and gas lines into a single, precise nozzle. The two fuels have vastly different energy values and burning behaviors; a tiny miscalculation could cause power fluctuations or even destroy the engine's core.

The team from CSSC No.703 Research Institute worked around the clock, building a dedicated test platform and developing an "intelligent strategy" that acts like a precise brain, enabling a smooth fuel transition in under 30 seconds.

But then, a new problem emerged: carbon buildup. When one fuel was in use, the idle fuel line would clog. The team's solution was an ingenious "collaborative purging method," effectively installing an automatic cleaner for the nozzle.

The most dramatic challenge came

just six months before delivery: dangerous pressure pulsations that could shatter the turbine blades.

Racing against time, the team formed an alliance with top universities to find a solution but remained stumped for four months. Then a eureka moment came from the shape of a traditional Chinese suona horn: a conical tube leading to a flared bell.

They redesigned a key transition section in that shape — a streamlined shape culminating in a flared end and the airflow became smooth and stable.

#### Taming the vibration beast

For any turbine, excessive vibration is a silent killer. It can wear down parts and lead to catastrophic failure. From the very beginning of the R&D work, the team prioritized vibration control and ensured the rotor dynamic balance design in all aspects, from component processing to assembling the entire machine.

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## Why Technology Trade Surges in China

By LIANG Yilian, SUN Mingyuan & HUA Ling

The 2026 Zhongguancun Forum (ZGC Forum) Annual Conference, a global barometer of technological innovation, was held in Beijing from March 25 to 29 under the theme "Integrate Technological and Industrial Innovation."

At the venue, the momentum of this integration was palpable. At the 2026 ZGC International Technology Trade Fair, new project signings in frontier industries were announced one after another, and the buzz around technology transactions and commercialization continued to build.

From the laboratory to the produc-

tion line, China's technology trading market is experiencing unprecedented growth.

At the forum, Chen Hongsheng, an official from China's Ministry of Science and Technology, presented a striking set of figures: the value of technology contract transactions nationwide surged from 2.83 trillion RMB in 2020 to 6.84 trillion RMB in 2024, a remarkable 141 percent increase.

Another set of data released at the forum shows that in Beijing, the value of technology contract transactions rose from 700.57 billion RMB in 2021 to 986.5 billion RMB in 2025, representing a 40.8 percent increase. With the strong national momentum continuing, technology

transactions are expected to expand across more regions in 2026.

Behind the rising numbers lies a deeper transformation: China's role in the global innovation landscape is evolving, while the mechanisms that turn scientific breakthroughs into market-ready technologies are being rapidly reshaped.

#### From one-way introduction to two-way collaboration

Once largely seen as a destination for imported technologies, China's technology market is increasingly becoming a hub of two-way collaboration, where ideas, talent and technologies flow in multiple directions.

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## International Cooperation

### China-Vietnam Sci-tech Unity Potential

By GONG Qian

China's Foreign Minister Wang Yi told the 17th meeting of the China-Vietnam Steering Committee for Bilateral Cooperation that both sides should expand the breadth of pragmatic cooperation. This process includes promoting railway connectivity, strengthening cooperation in agriculture, electricity, finance, key minerals and technological innovation, and jointly safeguarding the multilateral trading system, said Wang.

Not long before this meeting, held in Hanoi on March 17, Vietnamese Ambassador to China Pham Thanh Binh spoke at the Chongyang Institute for Financial Studies, Renmin University of China in Beijing. He noted that China's 15th Five-Year Plan, focusing on high-quality development, outlines key plans to build a leading country in science and technology, develop new quality productive forces, and make progressive moves in emerging sectors.

Both views align with Vietnam's strategic goal of taking scientific and technological innovation and digital transformation as the core drivers of economic growth going forward, Binh said.

Enterprises from the two countries have focused on cooperation in emerging areas including digital transformation and innovation, artificial intelligence, green economy, renewable energy and smart infrastructure, Binh added.

China-Vietnam sci-tech cooperation is currently enjoying a new period of strategic opportunities. In 2025, the 75th anniversary of diplomatic relations between China and Vietnam, the two countries signed a memorandum of understanding on strengthening cooperation in the development and governance of AI. In November of the same year, the China-Vietnam AI Application Cooperation Center was officially inaugurated in Hanoi, marking the first national-level AI cooperation platform between the two countries.

Cooperation in the digital economy and cross-border e-commerce are key highlights. The new "livestreaming + cross-border" model has effectively removed information barriers in traditional trade, allowing Vietnamese agricultural products and Chinese industrial goods to be directly marketed to consumers in both countries.

To address bottlenecks in cross-border e-commerce, China and Vietnam have completed piloted smart port projects in the border region, which has further reduced cross-border logistics costs and improved trade efficiency. See page 3

## WEEKLY REVIEW

### Changying-8 Cargo UAV Makes Maiden Flight

China's first seven-tonne-class cargo unmanned aerial vehicle (UAV) Changying-8 successfully completed its maiden flight in Zhengzhou, central Henan province, on March 31. It has an ultra-large cargo compartment with a volume of 18 cubic meters, a maximum takeoff weight of seven tonnes, and a maximum payload capacity of 3.5 tonnes.

### Lijian-2 Y1 Carrier Rocket Launched

China's Lijian-2 Y1 carrier rocket was launched from a commercial aerospace innovation pilot zone in northwest China on March 30 and successfully sent three satellites into the planned orbit. It is China's first launch vehicle using a "common booster core" design.

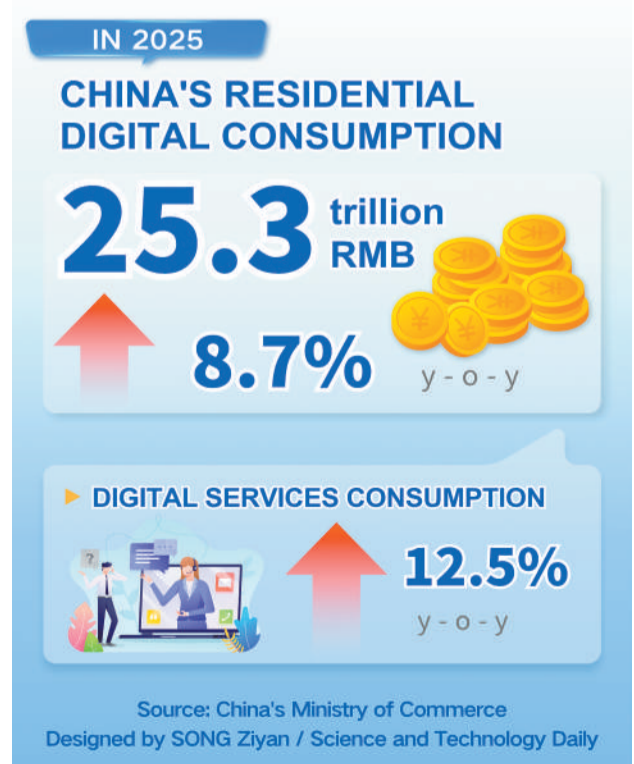
### 'Supergenies' That Speed Up Evolution Uncovered

Scientists from the Cambridge and Antwerp universities have uncovered how some species evolve with surprising speed. Certain sections of DNA, known as "flipped" segments, appear to help fish rapidly adapt to new environments and even split into entirely new species. Their findings were published in *Science*.

### Scientists Turn MXene into Nanoscroll Supercharger

Scientists at Drexel University turned ultra-thin MXene sheets into powerful nanoscrolls, about 100 times thinner than a human hair, that could supercharge everything from batteries to quantum tech. The research was published in *Advanced Materials*.

## New Graphic



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