

Science and Technology Daily

VOL.5-NO.209

SEPTEMBER 20-21, 2025

China Rises to Global Innovation Top 10

By Staff Reporters

China has risen to the 10th position in the global innovation ranking for 2025, marking its first entry into the top 10, according to Global Innovation Index (GII) 2025 released by the World Intellectual Property Organization (WIPO) on September 16.

The GI 2025 uses approximately 80 indicators, ranging from research and development (R&D) spending, venture capital (VC) deals, high-tech exports and intellectual property filings to evaluate nearly 140 world economies on their innovative performance. It is the world's benchmark resource for policymakers, business leaders and others in promoting innovation and building strong innovation ecosystems.

This year, China rose one place from its 2024 position, driven by strong performances in R&D investment, technological innovation, and intellectual property generation. Notably, China alone is home to 24 of the world's top 100 innovation clusters. The Shenzhen- Hong Kong- Guangzhou cluster ranked first globally, marking a milestone.

The index highlights a broader trend of rising innovation capacity among middle- income countries. Alongside China, nations such as India and Türkiye have shown consistent improvement in their rankings. In fact, 17 low- and middle-income economies have outperformed relative to their levels of economic development.

However, global innovation growth is showing signs of moderation. WIPO data indicates that global R&D expenditure grew by just 2.9 percent in 2024, down from 4.4 percent the previous year. The organization forecasts a further slowdown in innovation investment growth in 2025.

"The GI 2025 maps the contours of innovation across the world, showing us that the fastest-advancing economies in the GI are those that view innovation as a fundamental engine of resilience, growth and competitiveness. This year's GI reveals both encouraging progress as well as challenges that still need to be addressed for countries to fully harness their innovation potential. It is a reminder that innovation ecosystems require support and nurturing through thoughtful policies, meaningful investments and cross-sector collaboration," WIPO director general Daren Tang said.

New Graphic

China Led in Global Digital Economy Core Industries Patents in 2024

The number of authorized invention patents reached

500,000
↑ 23.1%

Source: China National Intellectual Property Administration
Designed by SONG Ziyang / Science and Technology Daily



China successfully conducts the first-stage propulsion system test for the Tianlong-3 large liquid-propellant carrier rocket at the Haiyang Oriental Aerospace Port in Shandong province on September 15. (COURTESY PHOTO)

STI Frontier

Sowing Seeds for Better Future

By Staff Reporters

In northern China, corn has a short growth period, which often includes adverse conditions such as drought, floods, high temperatures, insufficient light and diseases. Sowing and harvesting methods are also diverse — so faced with so many uncertainties, how can farmers ensure high and stable yields, along with high-quality products?

To solve this conundrum, a smart maize variety "Jingke 501" has been developed, Zhao Jiuran, researcher at the Maize Research Institute, Beijing Academy of Agriculture and Forestry Sciences (BAAFS), told *Science and Technology Daily*.

The breeding of this new corn variety is a microcosm of the innovation in BAAFS' efforts to develop the seed industry. Over the years, it has made breakthroughs in breeding staple grains, vegetables, fruits and aquatic products.

Today, many of its achievements are leading global seed breeding standards, enriching people's diets and safeguarding food security.

Intelligent breeding

With AI- driven tools, the accuracy and efficiency of seed breeding have been greatly enhanced, said Wang Yuandong, a researcher at BAAFS.

At the 32nd China Beijing Seed Industry Conference held recently, Zhao's team released the Maize6H- 60K chip. This high- density- high- quality SNP chip, utilizing whole-genome resequencing data from 388 representative maize inbred lines, was developed both at home and abroad. Based on this, the team successfully perfected a new molecular identification technology for corn that is compatible with solid-liquid chip platforms.

Along with the Maize6H- 60K chip, BAAFS unveiled the QeeG large model. As a service platform, it has

gathered 1,165 datasets including grains, oil plants, fruits and vegetables, as well as 170 million cross- domain knowledge rules, and can provide full-chain services such as variety screening, pest and disease identification, and intelligent Q&A.

In fact, as early as eight years ago, BAAFS launched China's first large-scale breeding data management platform with independent intellectual property rights, known as the Golden Seed Breeding Cloud Platform. Currently, this platform has served 268 breeding enterprises and achieved full- process information management.

BAAFS has made breakthroughs in multiple key breeding technologies and has obtained over 100 international or national patents. In conjunction with the QeeG large model and service platforms, an intelligent breeding ecosystem integrating data, algorithms and technology has been established.

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Belt and Road Media Cooperation to Bridge Civilizations

By YU Haoyuan

Media around the world should strengthen cooperation, practice and promote the Silk Road spirit, and uphold the principles of equality, mutual learning, dialogue, and inclusiveness among civilizations, attendees at the 2025 Media Cooperation Forum on Belt and Road said.

Themed "Shared Media Responsibility for Exchanges and Mutual Learning among Civilizations," the forum, held in Kunming, southwest China's Yunnan province, on September 16, brought together over 200 representatives from 87

countries, international and regional organizations, and 165 media outlets and institutions.

They said the media should serve as recorders and storytellers of development achievements, continue to report on Belt and Road cooperation, and help build broad momentum for win-win cooperation.

At the opening ceremony, Pavel Neogitsa, general director of Russia's Rossiyskaya Gazeta, said the Internet should serve as an important platform for the Belt and Road Initiative (BRI), which is supported by over 100 countries and international organizations, to spread

knowledge of outstanding cultural achievements and positive energy. The global Internet governance system should evolve toward a more fair and reasonable framework that fairly reflects the voices and interests of the majority of countries.

Hani Wafa, editor-in-chief of Saudi Arabia's *Al Riyadh* newspaper, said modern media has evolved beyond merely transmitting news or facilitating communication. It now plays a pivotal role in shaping public opinion, clarifying the truth and supporting development policies.

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Redstone Model for Sustainable Development

International Cooperation

By SUN Jin & FENG Zhiwen

The Redstone Concentrated Solar Thermal Power plant in South Africa's Northern Cape province, now supplying around 200,000 South African homes with clean power, marks South Africa's energy leap and the success of China-South Africa green energy collaboration.

The 100 MW project, the largest investment project in the province, is built by SEPCOIII Electric Power Construction Corporation, a subsidiary of PowerChina, and began commercial operation in May 2025.

The plant uses advanced tower-based molten salt storage technology. Over 41,000 heliostats — devices with flat mirrors that track the sun's movement to reflect sunlight onto a fixed target — circle the nearly 250-meter-high central receiver tower and reflect sunlight onto it.

The concentrated sunlight heats the molten salt in the tower into a heat transfer fluid and thermal energy storage medium. The 12-hour molten salt energy storage system can generate electricity day and night without fossil fuel backup. It is expected to generate 480 gigawatt-hours (GWh) of clean electricity annually, meeting the electricity needs of 200,000 households and effectively alleviating the power rationing crisis with more than 300 days a year.

According to South Africa's Department of Energy, the project will increase the country's renewable energy proportion by 1.2 percent, and reduce reliance on traditional fossil fuels. It could replace 147,000 tons of standard coal annually, making a vital contribution to the country's transition towards renewable energy.

In terms of climate action, the project will reduce CO₂ emissions by 426,000 tons annually. Its lifecycle carbon footprint is estimated to be 37 percent lower than that of photovoltaic power plants. It will contribute 4.3 percent of the national target to reduce carbon emissions by 28 percent by 2030.

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WEEKLY REVIEW

New Carrier Rocket Succeeds in 2nd Static Fire Test

China's new-generation manned carrier rocket Long March-10 successfully completed a second static fire test on September 12. This marks a breakthrough in developing the initial prototype of the Long March-10 series of carrier rockets.

Test Satellite Launched for Satellite Internet Technology

China successfully sent a test satellite for satellite Internet technology into space from the Jiuquan Satellite Launch Center on September 16. The satellite has reached its preset orbit.

DeepSeek-R1 Makes Breakthrough in AI Reasoning

The DeepSeek-AI team published the training method for their open-source AI model DeepSeek-R1 in *Nature* on September 17. It demonstrates that large language models can significantly enhance their reasoning capabilities through pure reinforcement learning, reducing reliance on human-labeled data. The trained model gives superior performance in verifiable tasks such as mathematics, coding competitions and STEM fields.

Progress Made in the Hunt for Light Dark Matter

A new experiment called QROCODILE, led by the University of Zurich and the Hebrew University of Jerusalem, has achieved record sensitivity in the hunt for light dark matter. This opens the door to future breakthroughs in one of physics' greatest mysteries.

Real-time Imaging of Brain Activity Achieved in Mice

Researchers at the University of California, Davis, have created a miniaturized microscope for real-time, high-resolution, non-invasive imaging of brain activity in mice. The first-of-its-kind imaging system, known as DeepInMiniscope, will revolutionize how neuroscientists study the brain.