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To Accelerate High-quality Sci-tech Services

By Staff Reporters

China is moving to develop more "China Services" brands and promote high-quality growth in its service sector. Policymakers are leading the charge in this move to empower manufacturing, expand domestic demand and create jobs. To enable this development, China hosted its first national conference on the service sector, from April 7 to 8, emphasizing the expansion of professional and high-end R&D design, and sci-tech services.

As an emerging sector that utilizes modern scientific knowledge and technological means, the sci-tech service industry (SSI) focuses on the full-chain development of sci-tech innovation and the efficient transformation of sci-tech achievements. In this way, SSI provides intellectual services to society through technology R&D, achievement transformation, consultation and training. This business model has a high added value and a strong radiation and driving effect, equivalent to the "software" infrastructure of the national innovation system.

The development of the SSI is crucial for unblocking the entire chain of sci-tech innovation, cultivating new quality productive forces, building a modern industrial system, and promoting new industrialization. It serves as a pivotal link in the transition from scientific and technological advancement to industrial and economic prosperity.

Currently, China's SSI is experiencing both rapid quantitative growth and effective qualitative improvement. Considering the challenges of global sci-tech competition, the new requirements for building a leading country in science and technology, and the new opportunities brought by the breakthroughs and applications of new technologies, such as AI, expediting the improvement of quality and efficiency, and transformation and upgrading of China's SSI has become essential.

From a strategic and overall perspective, the SSI needs a deeper understanding, along with the implementation of related tasks — for example, improving the policy system for the SSI, establishing a national integrated technology market, and enhancing the standardization, marketization and internationalization of sci-tech services.

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An overseas visitor interacts with a digital employee of Sinopec's at the 2026 China International Consumer Products Expo in Haikou, Hainan province in south China. (WANG Zhuhua / Science and Technology Daily)

STI Frontier

New Neural Disease Treatment Rewires the Brain

By WANG Xiaoxia & ZHANG Jiaying

Imagine trying to understand a bustling city by looking at satellite images of its buildings. While you may be able to see the shapes, you have no idea which structure is a hospital, a school, or a power plant. That, in essence, has been the challenge for doctors treating complex brain disorders like Parkinson's disease, depression, or Alzheimer's. Conventional MRI scans show the brain's structure — tumors, atrophy, or bleeding — but not the function of its 140 billion neurons.

Now, a team of Chinese scientists has unlocked this puzzle. After years of relentless effort, beset by major setbacks, the team led by Professor Liu Hesheng from the Changping Laboratory and Peking University has developed the world's first non-invasive precision brain stimulation system.

Recently approved for clinical use, this technology could fundamentally alter the way neurological diseases are treated.

Identifying the target

"Radiology cannot reliably diagnose Parkinson's disease," said Liu. "Existing brain maps are too generic for individual treatment."

The team's first breakthrough was identifying a reliable treatment target — the brain's "functional circuitry" responsible for the disease. This required analyzing data from hundreds of Parkinson's disease patients. To do this, researchers worked for months making frame-by-frame comparisons of stimulation signals with clinical outcomes.

Since the existing algorithms performed poorly, Liu led the team to develop a new one. With each algorithm iteration, faint signal features grew increasingly distinct. Ultimately, the common

signals became bright enough to form functionally significant areas.

"We spent days and nights in the lab, matching signal after signal," recalled Liu. "Then, a connectivity finally emerged — a brain network called the somato-cognitive action network (SCAN) plays a critical role in the disorder." This discovery pinpointed the "neural target" for the treatment of Parkinson's disease.

Mapping you, not just anyone

Finding the "neural target" was only half the battle. The next challenge was the slow process of creating a personalized brain map for each patient. Using existing software, it took over two days to process a single patient's data — impractical for clinical use.

Moreover, brain injuries or lesions often created "dead zones" in the data, causing the analysis to crash. This led the team to build their own AI solution.

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New Graphic



WECHAT ACCOUNT



E-PAPER



6th CICPE: Hi-tech Illuminates New Consumer Lifestyle

By YAO Yian

Themed "Opening Up Drives Global Consumption, Innovation Empowers A Better Life," the sixth China International Consumer Products Expo (CICPE) kicked off in Haikou, capital of Hainan province in south China, on April 13 for a six-day run through April 18.

With "new, exotic, unique and cool" as its distinctive feature, the expo houses eight exhibition halls.

A key showcase for the Hainan Free Trade Port (FTP) following the full launch of its island-wide special customs operations in December 2025, the sixth CICPE has drawn more than 3,400 brands from over 60 countries and regions worldwide. Its total exhibition area

is 143,000 square meters, up 13,000 square meters from the previous edition.

International exhibits take up 65 percent of the total floor space, a 20-percentage-point jump from the last event. More than 200 new products are making their global debut, doubling the previous edition's figure, covering sectors from healthcare and jewelry to digital technology.

Smart products unlock new experiences

With cutting-edge technologies making their way from the laboratory to daily life, there is a wide range of new products, spanning categories from daily wearables to health and wellness.

AI glasses brand VITURE showcased its Beast XR glasses. "The screen stays

perfectly locked in place. It doesn't shift at all when I turn my head, and it even supports split-screen operation for work," a visitor said after trying on the glasses.

Rokid has debuted the world's lightest mass-produced AI+AR glasses at the expo. Weighing in at just 49 grams, the headset is powered by the Qualcomm AR1 chip, paired with diffractive optical waveguide and micro-LED technology. It supports full-scene use cases, including glance-to-pay payments and real-time captioning for the hearing impaired.

The world's first land-air amphibious split-type flying car also made its debut, bringing the sci-fi vision of hailing an air taxi for daily work commutes to life.

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Observer

Chinese Electricity Becomes 'Digital Oil' Powering Global AI

Edited by WANG Xiaoxia

With the rise of intelligent agent tools like OpenClaw, developers around the world are increasingly turning to Chinese AI models. According to OpenRouter, the world's largest AI model aggregation platform, Chinese models have surpassed their overseas counterparts in application programming interface (API) calls for a month running, consistently ranking among the global leaders in API call volume.

Behind the scenes, invisible currents flow through the solar panels in the Gobi Desert in western China and the wind turbines across its grasslands. Channeled through the world's largest power grid, this electricity feeds into AI computing clusters, where it is transformed into tokens — the smallest information units for AI — and then travels at the speed of light across oceans to reach global users.

Why can China's invisible electricity, packaged as tokens, drive global AI like "digital oil"? The answer lies in a combination of systemic advantages that make Chinese tokens both abundant and affordable — an edge that is exceptionally hard to replicate.

Low-cost green power builds a fundamental moat.

China has built the world's largest renewable energy supply system. Western and northern China are rich in wind and solar resources, and the low cost of electricity makes it economical to convert it locally into high-value tokens.

This not only addresses the challenge of renewable energy curtailment but also gives China's computing industry a significant cost advantage. Brokerage estimates show that the comprehensive inference cost of Chinese AI models is only one-tenth to one-sixth that of overseas models, giving Chinese token services a strong competitive edge in global markets.

The computing-energy synergy strategy removes supply-demand bottlenecks.

The national "East Data, West Computing" initiative has established eight major computing hubs, deeply integrating power transmission with computing networks. This enables intelligent scheduling: The western regions handle non-real-time tasks such as AI training and batch inference, while the eastern hubs support low-latency applications like finance and industrial control systems. See page 3

WEEKLY REVIEW

Rare Millisecond Pulsar Challenges Traditional Theoretical Models

A team of Chinese researchers has reported the discovery of a new millisecond pulsar, which exhibits an exceptionally high spin-down rate, two orders of magnitude higher than that of other known millisecond pulsars, according to a recent article in *Nature Astronomy*.

Key Gene Improves Rice Resistance to Disease

Chinese scientists have identified a key gene, which they named Xa48, in an indica rice variety called "Shuangkezaao." It helps rice fight off bacterial blight, and the study shows how this defense mechanism can be rebuilt from the ground up. The study was published in *Nature*.

Next-generation Atomic Clock Tested at Sea

Researchers in Australia have successfully tested a new type of portable atomic clock at sea. The device, trialed aboard a Royal Australian Navy vessel in July 2024, uses laser-cooled atoms of the element ytterbium to keep time with extreme precision. The study was published in *Optica*.

Archaeological Findings Offer New Insights into Early Humans

The Ethiopian government announced on April 14 the discovery of ancient Homo sapiens fossils and stone tools dating back about 100,000 years, a discovery it said provides "important new insights" into human evolution and early human lifestyles. They were uncovered at a site in the Awash Valley of Ethiopia's Afar Depression, about 300 km northeast of capital Addis Ababa.

Guideline Released for Trustworthy AI

Policy Express

By YAO Yian

A recently released pilot guideline on the ethics review and service of AI technology, by the Ministry of Industry and Information Technology and nine other government departments, is set to provide a framework for trustworthy AI.

Central to the guideline are efforts to support technological innovation in AI ethics review and to strengthen the use of technical measures to prevent AI-related ethical risks.

"The guideline represents an important extension, refinement and improvement of the country's sci-tech ethics institutional framework," said Wei Yiming, an expert in the field of industry and information technology.

He noted that the guideline is grounded in the inherent features of AI technologies, including rapid iteration and deep cross-sector integration. It has realized domain-specific and refined adaptation on the basis of general review rules, filling institutional gaps in the sci-



Visitors at the 2025 World Internet Conference Wuzhen Summit in Zhejiang province in east China. (PHOTO: XINHUA)

tech ethics review of AI, Wei added.

The guideline recommends a review centered on six aspects, including human well-being, fairness and justice, controllability and trustworthiness, and privacy protection. It also outlines key

issues that should be addressed in the review, such as the rationality of algorithm design, information disclosure rules, and private data protection.

The guideline also outlines targeted initiatives across five key areas: standard

system development, service promotion, innovation encouragement, publicity and education, and talent cultivation. It specifically addresses prominent pain points in the ethics governance of AI enterprises, including inadequate technical means, incomplete standard specifications, and a shortage of professional governance tools.

In addition, an inclusion of specific rules for the full workflow of AI sci-tech ethics reviews, including their application scope, implementation rules, working procedures and supervision requirements is mentioned, to standardize the ethics governance of AI-related activities.

"Ethics governance needs both institutional rules and technical support," said Wei. He noted that tech-focused enterprises, universities and research institutions should take the lead in developing "hard tech" for AI ethics governance, advance R&D of key technologies including explainable AI and deepfake detection, and translate ethical principles into practical technical solutions to drive the engineering application of ethical governance.



'AI+Drug Regulation' Roadmap Unveiled

By LI Linxu

As part of efforts to modernize drug oversight and build a high-level unified intelligent regulation system, China's National Medical Products Administration has released implementation guidelines on "AI+drug regulation".

The document outlines a roadmap to accelerate AI's innovative application throughout the entire life cycle of drug regulation.

By 2030, an integrated innovation system for drug regulation and AI will be initially established.

The operational management mechanism for "AI+drug regulation" will basi-

cally take shape, and the computing power infrastructure will become more intensive and efficient.

High-quality datasets, vertical large models, and intelligent agents that meet the requirements of intelligent regulation will be developed.

AI will be effectively applied in scenarios such as review and approval, supervision and inspection, testing and monitoring, and government services.

The efficiency of human-machine collaboration will be significantly improved, and the capability of digital-intelligent regulation will reach a new level.

By 2035, a new landscape of intelligent drug safety governance will be basically formed, characterized by being

data-intelligence driven, agile, autonomous and controllable, and ecologically collaborative.

To achieve such goals, the document details key directions for digital-intelligent drug regulation, including developing an intelligent review and approval system based on human-machine collaboration, boosting full-chain smart supervision capabilities, advancing digital and intelligent upgrade of the risk supervision system, and pushing forward smart and standardized regulatory inspection and enforcement.

Collaborative regulatory synergy and effectiveness will be strengthened, smart capabilities of government services elevated, and collaborative digital and

intelligent development between regulation and industry fostered.

To solidify the foundational support for "AI+drug regulation", the policy urges constructing high-quality drug regulatory datasets, strengthening AI application support system, and computing infrastructure.

It also highlights establishing a robust security and governance framework to ensure that AI applications are compliant, transparent, and trustworthy.

A dedicated governance mechanism will oversee AI application approvals, safety reviews, and operational management.



Fuzhou's Tech Evolution Enables New Quality Productive Forces

Hi-tech Zones

By TANG Zhexiao & XIE Kaifei

Fuzhou has recently issued a range of policies to stimulate scientific and technological innovation, including encouraging all business sectors to increase R&D investment, and support the transfer and transformation of scientific and technological achievements from universities to practical application.

With the construction of a full-chain support system ranging from original innovation to industrial transformation, the city is forging a "Fuzhou Track" for new quality productive forces, injecting new momentum into building a high-level innovative provincial capital.

Strengthening technological supply

In the past, the global LED industry was monopolized by foreign "phosphor

glue technology." In the Fuzhou Hi-tech Industrial Development Zone, a research team led by Hong Maochun, an academician of the Chinese Academy of Sciences and the director of the Mindu Innovation Laboratory, successfully developed ultra-high-power LED phosphor ceramic engineering and LED packaging technologies with complete independent intellectual property rights, after more than two years of research. This led to the launch of the world's first kilowatt-level KCOB light source module, overcoming technical barriers set by the international community in the high-power LED lighting sector.

This new product boasts an extremely long service life — exceeding 50,000 hours without light decay — and costs half that of traditional products. Consequently, it has not only been deployed at Fuzhou's Mawei Port but also successfully entered international markets including Japan, South Korea and the U.S., enabling Chinese light sources to go global.



The Fuzhou Hi-tech Industrial Development Zone in southeast China's Fujian province. (PHOTO: XINHUA)

Established in 2019, the Mindu Innovation Laboratory is one of the first four provincial-level innovation laboratories in Fujian province, jointly built by the Haixi Institute of the Chinese Academy of Sciences

and Fuzhou University.

Zheng Fakun, deputy director of the laboratory, said that the lab has set up 18 joint R&D centers with leading enterprises, universities and research institutes, made breakthroughs in more than 80 key technologies, incubated over 30 tech enterprises, and generated an added value of more than 30 billion RMB in the industrial chain.

To promote the development of national-level platforms such as the Mindu Innovation Laboratory, Fuzhou has introduced a series of measures to support the upgrading of high-level scientific research platforms, through a combination of recognition rewards and performance subsidies.

For leading enterprises newly approved to establish national-level scientific research platforms, a municipal incentive of five million RMB will be provided in addition to the provincial incentive of 10 million RMB. For newly recognized municipal-level proof-of-concept centers and public industrial technology R&D service platforms, a one-time incentive of up to 500,000 RMB will be granted.

Building innovation clusters

Currently, Fuzhou is accelerating the growth of strategic emerging industries, proactively planning for future industries, and improving the overall efficiency of its regional sci-tech innovation system.

Meanwhile, to boost its universities' high-quality research outputs to the market, Fuzhou plans to establish a one-billion-RMB sci-tech achievement transformation fund. The fund will offer

a maximum subsidy of two million RMB for enterprises who buy sci-tech achievements from universities.

According to the city's measures for increasing R&D investment, for technology-based enterprises that meet annual R&D funding requirements and achieve growth, Fuzhou will provide municipal matching funds of up to three million RMB, on top of provincial incentives (up to six million RMB). Subsidies equivalent to 30 percent of R&D equipment investment will be offered to newly recognized municipal-level innovation consortia, with a ceiling of five million RMB.

This year's Fuzhou Government Work Report calls for all-out efforts to develop the "358X" industrial clusters: "3" refers to three pillar industries, including the modern chemical industry, intelligent vehicles and optoelectronic information; "5" represents five supporting sectors such as textiles and chemical fiber, and machinery manufacturing; "8" stands for eight strategic emerging industries including artificial intelligence and biomedicine.

Central to the city's "358X" industrial clusters, including next-generation information technology, high-end equipment and new materials, the Sci-Tech Innovation Corridor has established 197 distinctive innovation and entrepreneurship carriers such as Boshi Entrepreneurship Park, which accelerates the clustering of emerging industries across various districts, according to Wang Bobin, director of the Fuzhou Municipal Bureau of Science and Technology.

Case Study

Tech-industry Synergy Powers Guangdong's Growth

By YAO Yian & LONG Yuemei

A breakthrough in integrated development of sci-tech and industrial innovation in China's Guangdong province has seen the number of the region's high-tech enterprises reach 74,000, driving the province's rise as a global tech and manufacturing hub.

Since March, Guangdong has rolled out a batch of policy packages to boost this innovation. The moves, focused on four-chain integration, new quality productive forces cultivation and building a globally influential industrial sci-tech innovation hub, will deliver strong impetus to the province's high-quality development.

Breakthroughs in core technologies

In the exhibition hall of Chaozhou Three-Circle (Group) Co., Ltd. in east Guangdong, a multilayer ceramic chip capacitor (MLCC), widely dubbed "the rice of the electronics industry," takes a prominent position.

It is built on local independent innovation achievements, and has successfully reduced the thickness of its dielectric layers from five microns to less than one micron, while also managing high-precision stacking of up to 1,000 layers.

In recent years, the company has triumphed over several technical hurdles and enhanced its core competitiveness. It has secured major breakthroughs in both high-end electronic components and ceramic fuel cells for new energy products.

Under the "Strong Chip" initiative, Kirin high-end chips have achieved full end-to-end integration from design to manufacturing, with multiple automotive chips producing domestic substitution. In addition, the native HarmonyOS operating system has now also entered full commercial operation.

Leadership of innovation entities

Guangzhou MINO Equipment Co., Ltd., founded in 2008, began its journey as a technical service business with just two employees.

After a decade of technology development, the company built China's first non-standard, intelligent, flexible manufacturing production line. It also

developed an intelligent industrial big data analysis and diagnosis platform for automotive production lines.

At MINO, engineers keep a close eye on screens, remotely debugging production lines at overseas factories. Today, one in every 10 new energy vehicles worldwide benefits from the solutions developed by the company.

This is just the tip of the iceberg among Guangdong's vast pool of outstanding tech enterprises. Shenzhen, a leading tech hub in southern China, is home to global industry leaders including Huawei, BYD, Tencent and DJI. It has also developed many promising cutting-edge enterprises, with 26,000 national high-tech enterprises.

Across the entire province, the number of technology-based small and medium-sized enterprises stands at 56,000. Roughly 90 percent of Guangdong's scientific research institutions, 90 percent of its R&D personnel and funding, and 90 percent of its invention patent applications come from enterprises.

Transformation of R&D achievements

In 2002, a leading seed base of aquatic products under a national high-tech development plan was built on Donghai Island, Zhanjiang city in western Guangdong.

The base partnered with Sun Yat-sen University for a decade of dedicated research. In 2011, it succeeded in breeding "Zhongxing No. 1," China's first disease-resistant strain of Pacific white shrimp (Litopenaeus vannamei).

It has since become a landmark brand in China's Pacific white shrimp farming sector. In 2025, the annual sales of this shrimp fry doubled year-on-year. Its national breeding success rate has since reached as high as 85 percent.

Guangdong has long prioritized transforming lab samples into production-line products and translating researchers' academic findings into tangible business outcomes. The province continues to conduct in-depth research, and has taken targeted measures to develop this critical job of commercializing scientific and technological achievements.



An electric vertical takeoff and landing aircraft carries out a demo flight in Shenzhen, south China's Guangdong province. (PHOTO: XINHUA)

To Accelerate High-quality Sci-tech Services

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High-end service capabilities also need improvement, "chain leader" enterprises in the SSI with ecological dominance require cultivation, and a growth pole for the SSI should be created.

In addition, promoting the transformation and upgrading of the industry, and strengthening the professional talent pool are indispensable. Also essential is strengthening digital and intelligent empowerment, along with

driving the "intelligent and digital transformation, and network connection" of the SSI, utilizing technologies such as AI to upgrade products and processes.

Finally, transformation and industrialization of sci-tech achievements require development, in order to cultivate interdisciplinary talent with "technology + market + law" in the industry field, and build a "technology manager +" ecosystem.

China's Chip Boom Defies Export Restrictions

Clear Voice

By LIANG Yilian & HU Dingkun

Several members of the U.S. Congress, including Chuck Schumer and John Moolenaar, have been busy recently introducing the Multilateral Alignment of Technology Controls on Hardware (MATCH) Act. In essence, it seeks to tighten export control measures to prevent "adversary countries" from obtaining critical semiconductor manufacturing equipment and technologies from the U.S. and its allies.

The legislation contains several key provisions. First, it requires the U.S. Department of Commerce to identify a list of semiconductor manufacturing equipment that "adversary countries" are unable to produce independently. Second, it would prohibit the sale of such equipment and related technologies to those countries, while also banning the provision of maintenance and support services. Third, the act would designate all chip fabrication facilities operated by several Chinese semiconductor companies — including ChangXin Memory Technologies, Huawei, and Semiconductor Manufacturing International Corporation — as "controlled facilities," effectively cutting off exports, maintenance services, and technical support. Fourth, it seeks to ensure that these restrictions are uniformly implemented by the U.S. and its allies. If allied countries fail to make sufficient progress within a specified timeframe, the Commerce Department would impose unilateral controls on foreign-made products that incorporate U.S. software, technology, or components.

Although the act nominally targets "adversary countries," its primary focus is clearly China. In addition to explicitly



Workers test and sort semiconductor chips at Jiangsu Nuanyang Semiconductor Technology Co., Ltd. in Yancheng city, Jiangsu province. (PHOTO: XINHUA)

naming several Chinese semiconductor companies, statements released by the lawmakers on congressional websites make little effort to conceal the legislation's intent. Schumer, Senate Minority Leader, said "the MATCH Act would stop the flow of advanced semiconductor manufacturing equipment that China desperately needs to build up their own chip industry." Meanwhile, Moolenaar, chairman of the House Select Committee on China, claimed the legislation would "ensure the next decade of growth in chip manufacturing — and the jobs that come with it — happens in the United States and allied countries, not China."

Taken together, the MATCH Act represents an attempt by some U.S. lawmakers to significantly escalate pressure on China's semiconductor sector. The act not only aims to turn the screws on U.S. export controls on semiconductor equipment and technologies destined for China, but also seeks to compel American companies to stop maintenance services for critical equipment al-

ready exported to Chinese facilities. Furthermore, it proposes the use of extraterritorial measures to pressure U.S. allies into aligning with Washington's policies and coordinating broader restrictions on China's access to advanced chip technologies.

The proposal of the MATCH Act also suggests that some U.S. politicians have failed to draw lessons from the repeated failures of Washington's semiconductor containment policies toward China in recent years. Attempts to stifle China's chip industry through export controls alone are unlikely to succeed. On March 24, experts including Sujai Shivakumar from the "Renewing American Innovation" project at the Center for Strategic and International Studies, published an analysis arguing that export controls imposed by the U.S. and its allies on advanced semiconductor technologies have only had limited progress in restricting China's development in AI and high-end chips.

Instead, their primary effect has been to hasten the adoption of domesti-

cally produced equipment and products within China. The analysis noted, "Ironically, U.S. measures are proving more successful at catalyzing true Chinese chip innovation, as opposed to reverse engineering — manifested in recent achievements in advanced packaging, alternative forms of lithography, and other SMEs, and novel systems architecture."

At the same time, the MATCH Act also reveals the hegemonic logic of some American politicians. Lawmakers promoting the act claim it is intended to create "a level playing field for U.S. companies." Their reasoning is that Washington's export controls were previously stricter than those of its allies, allowing China to purchase large quantities of semiconductor equipment from other countries.

Yet China is the world's largest buyer of semiconductor manufacturing equipment and a major production base for mature-node chips. Forcing U.S. allies to tighten export controls on semiconductor equipment destined for China would inevitably cause economic losses for countries that rely on the Chinese market. It could also disrupt global semiconductor supply chains. In this sense, the "American-style fairness" invoked by these lawmakers would in fact amount to unfairness for both China and U.S. allies, while undermining the stability of the global semiconductor industry.

Ultimately, sanctions and technological blockades are not sustainable for international technological competition. Any legislation or initiatives aimed at obstructing China's semiconductor industry development is unlikely to succeed. Given China's determination and growing capabilities to become semiconductor self-reliant, such efforts will ultimately prove ineffective. It's time some U.S. politicians recognize this and reconsider their approach.

Voice of the World

Chinese Innovative Drugs Gain Global Reputation

By Staff Reporters

China claimed the top spot in the world in innovative drugs under research by the end of 2025. with Chinese innovative drugs achieving "world first" breakthroughs, according to official data.

By the end of 2025, there were 4,751 innovative drugs under research in China, accounting for 33.7 percent of the global total. The rapidly rising innovative strength has made global equity cooperation on Chinese innovative drugs highly desirable in the international market, and China's reputation in the global pharmaceutical innovation field is rising.

At the recently concluded China Development Forum in Beijing, many top executives of major international pharmaceutical companies expressed their optimism about China's bio-pharmaceutical innovation environment and confirmed China's position as a hub of global pharmaceutical innovation.

Guo Jinjiang, head of Data Science Department, Global Health Drug Discovery Institute, said, "It has become an international consensus that the R&D capabilities of China's pharmaceutical innovation have been upgraded as a whole." China's bio-pharmaceutical industry has a new image of pursuing target innovation and mechanism innovation, he added.

In the emerging field of bio-pharmaceuticals, China's R&D capabilities account for half of the global total. Among the cell therapy projects under development, China makes up 48 percent. Among the antibody-drug conjugate projects under research, China accounts for more than 50 percent.

According to new research from Georgetown University, the Lombardi Comprehensive Cancer Center and the

National Bureau of Economic Research of the U.S., early-stage drug development worldwide has nearly doubled over the past decade, shifting from a U.S.-dominated model to a dual hub centered in the U.S. and China.

The new analysis of global early-stage bio-pharmaceutical development programs from 2015 through 2025 found that while the U.S. remains the single largest originator of early-stage drug programs, China's share has grown substantially.

In 2015, about 48 percent of early-stage programs originated in the U.S. and eight percent in China. By 2024, the U.S. share had declined to just over 37 percent, while China's share rose to over 32 percent.

Today, China's innovative pharmaceutical industry is embarking on a new journey of high-quality development. This is not only a profound transformation of China's new drug R&D from isolated exploration to systematic operation, but also a footnote of the era when Chinese wisdom and solutions inject new impetus into the global health cause.

Cheng Zengjiang, vice president of the China Food and Drug Corporation Quality and Safety Promotion Association, said, "It is not accidental but inevitable that multinational giants can purchase potential new drugs in China."

There are over 20,000 pharmaceutical R&D institutions in China. Once an innovative target in academic research emerges, many leading institutions follow and develop it.

Li Kefeng, associate professor of the Center for Artificial Intelligence Drug Discovery, Macao Polytechnic University, said China has become the core source of innovation in new drug R&D represented by cell therapy, gene therapy and antibody-drug conjugates.



Chinese scientists have for the first time identified the transport mechanism of key bile acid transporters. (PHOTO: XINHUA)

Caihong Wins Key U.S. Patent Ruling

By WANG Xiaoxia & ZHANG Jiaxin

A Chinese display material manufacturer has won a landmark legal victory in the U.S., securing an initial ruling of non-infringement in a high-stakes patent case.

This ruling not only gives Chinese-made glass substrates a compliance "green light" to enter the U.S. market, but also signifies a major advancement in breaking the global glass substrate monopoly and achieving technological autonomy in key materials.



Chinese display material manufacturer Caihong Display Devices Co., Ltd. (Photo from Caihong website)

The legal battle

On April 7, the U.S. International Trade Commission (ITC) issued an initial ruling that Caihong Display Devices Co., Ltd.'s "616" formula glass substrate does not infringe on patents held by U.S.-based Corning Inc.

The case centered on glass substrate formulas determining key performance indicators.

Corning's three related patents sought to protect the company's dominant market position with over 50 percent global share. The patents focus on the key links in the manufacturing of glass substrates. Caihong argued that Corning's so-called patents should be declared invalid due to a lack of novelty and feasibility. Its self-developed "616" formula is significantly different from Corning's

patented technology.

The ITC initial ruling affirmed that Caihong's current products made with the 616 formula do not infringe on Corning's patents.

New opportunity

The core of the dispute was the chemical composition of the glass substrate, a foundational material for LCD panels.

According to Caihong, its independently developed "616" formula has essential properties like high flatness and low thermal expansion while enabling greener production, through a distinct design path.

Notably, Caihong fully upgraded its production lines for LCD glass in 2024 and has been using the "616" material formula since January 2025. Its previously used "615" formula product, which constituted patent infringement, was discontinued in 2024.

The initial ruling is seen as a significant step for China's display industry in breaking foreign technological monopolies in key upstream materials, clearing a major intellectual property hurdle for

Caihong's new-generation products to enter the U.S. market.

Furthermore, the Corning patents are set to expire in October and November, limiting the potential impact of any final ruling.

Shift in the industry

This dispute reflects not only the changes in the global display industry landscape, but also the trend of the industry's capacity shifting to Asia in recent years.

Data shows that China has invested over 1.5 trillion RMB to build more than 60 LCD panel production lines, with an annual production capacity of 250 million square meters, accounting for 78 percent of global LCD panel capacity.

Caihong's technical compliance is critical in securing the supply chain for key materials like glass substrates.

This ruling supports the coordinated push by Chinese material makers and panel giants (such as BOE and Huaxing) to build an autonomous supply chain, marking a shift from a technology follower to a definer of industry standards.

Chinese Electricity Becomes 'Digital Oil' Powering Global AI

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The spatial and temporal alignment of computing and green electricity significantly reduces overall energy consumption and operating costs.

A self-sufficient supply chain ensures a robust infrastructure.

From domestic GPUs, liquid-cooled servers, and high-density computing clusters to cross-border subsea cables and global low-latency networks, China

has built a complete computing infrastructure supply chain. This reduces reliance on any single external link and ensures stable, efficient computing power supply.

Meanwhile, rapid progress in domestic models — through advanced computing techniques and iterative engineering optimizations — continues to lower token-wise computing resource consumption and boost inference effi-

ciency, further amplifying cost advantages.

The rise of the token economy is reshaping global AI and energy landscapes.

It has broken the pricing monopoly of overseas tech giants, restructuring global computing markets with high cost-performance. It is opening new avenues for green power absorption in western China, creating a win-win loop between energy transition and digital

economy.

It is also accelerating China's upgrade from a "physical world factory" to a "digital world smart factory," exporting intelligent services rather than just hardware. Finally, it is driving the entire industry chain — including computing leasing, cross-border networks, and AI plugin ecosystems — going global, forming a new paradigm for digital service globalization.

6th CICPE: Hi-tech Illuminates New Consumer Lifestyle

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Numerous life-focused embodied AI products are attracting large crowds of visitors for hands-on trials at the expo. Smart products ranging from child-accompanying AI devices to pet health monitors have also impressed visitors.

Global brands flocking to China

Exhibitors expressed strong optimism about China's consumer market. They called the expo a high-efficiency platform connecting the Chinese market to global buyers. Hainan, backed by its FTP privileges, is a key gateway for brands to deepen their footprint in the world's second-largest economy.

The CICPE continues to drive the industry's shift from product innovation to ecosystem co-construction, and serves as a new bridge for global opening-up and cooperation.

"The Chinese market is vital to us, and the Hainan FTP is a critical gateway

for bringing our products and innovations to Chinese consumers," said Thomas McDonald, global CEO of New Zealand-based Spring Sheep Milk Co. "We aim to lift our brand profile at this year's CICPE, and bring the natural nutrition of our grass-fed dairy to more Chinese families."

"The development of the Hainan FTP creates exciting opportunities for international brands to connect more closely with Chinese consumers through duty-free retail and cross-border channels," said Daniel Wermelinger, director of the Consumer Health Business Unit at Swiss brand Doetsch Grether. "For us, participating in this expo is not only about presenting our brand, but also about building long-term partnerships and understanding the needs of Chinese consumers. We are very optimistic about the future of the Chinese market and look forward to growing together with our partners here."

AI Must Be Understood While Serving

Dialogue

By LONG Yun & BI Weizi

In a recent interview with *Science and Technology Daily*, Professor Lena Halounová, president of the International Society for Photogrammetry and Remote Sensing (ISPRS), was adamant that from the outset, AI, while powerful, must be handled with care.

The need for AI governance and public understanding

Halounová described AI as a complex field that brings together enormous amounts of software, mathematics, and data, too big for a single person to process. However, she cautioned that data selection is critical, because choosing the wrong data will inevitably lead to poor results. "AI is a fantastic tool," she said, "but our personal role stays at the highest level." She gave an example of a student who chose good data but failed to realize that its spatial resolution was too rough for his specific purposes, leading to inaccurate results.

This emphasis on responsibility led to the broader question of AI governance. Halounová acknowledged that while AI can bring enormous benefits, it also risks harming humanity if not properly governed. In this regard, she noted that China has been actively participating in global AI governance and building international consensus. She sees China as an "incredibly wide market of knowledge, technology, and human resources." In Halounová's opinion, China's highest priority should be to go global, offer cooperation, and invite international scientists and students to work together, something China is already doing, as evidenced by the many tech-related conferences that attract people from around the world.

Looking ahead to China's 15th Five-Year Plan period (2026- 2030), Halounová admitted it was difficult to predict



Professor Lena Halounová. (PHOTO: ISPRS)

how far China's science and technology would develop, given the rapid trajectory it is on. However, she recommended that not only China but all countries should create a "white public area" to explain what AI means and how the public should understand the limits of new technological results. Without such understanding, people cannot know what kind of data or methodology produces a given result, and therefore cannot grasp its limitations.

From governance, the conversation shifted seamlessly to international cooperation. When asked which areas of science and technology hold the greatest potential for collaboration, Halounová gave a surprising answer: psychology.

She explained that understanding each other and finding a common language, not English specifically, but a shared way of communicating, is fundamental. "If you just follow films (about a country), you have no idea how the people live there, what their habits are, and what they eat for breakfast," she said. Without that understanding, behavior

can be misinterpreted, and cooperation suffers. Halounová stressed that personal meetings and people- to- people exchanges are the basic part of future cooperation, because when people rely on each other, much more can be achieved together than separately.

A long-standing partnership with China

Turning to her organization's long-standing relationship with China, Halounová confirmed that ISPRS has been working with Chinese experts since the 1980s, and the collaboration is solid. She noted that in every four-year period, there have always been Chinese experts in their groups. Currently, the secretary general of ISPRS comes from China, along with many working group officers and the Technical Commission president.

She also highlighted that China was the first country to provide ISPRS members with free satellite data, available for download from a public website. When asked about new innovations in remote sensing and GIS to support digital earth

and sustainable development, she acknowledged that it is difficult to pinpoint what is "new" because remote sensing data has undergone extensive development. Today, the wide variety of data types with different spatial and spectral resolutions allows scientists to focus on specific topics with higher accuracy.

She also emphasized the need for strategic planning: different applications require different data collection frequencies. Such strategies should be planned and budgeted accordingly.

Encouraging the next generation

Throughout the interview, Halounová repeatedly circled back to the importance of nurturing the next generation. When asked for a message to China's youth, she described remote sensing as a fantastic opportunity, because it deals with data about the Earth's surface and what lies underground.

Halounová encouraged young people to choose how they want to relate to this field, whether by collecting data, processing it, or using it for further applications. "[Ask yourself] what do you want more?" she asked.

Having visited both the Chinese Academy of Surveying and Mapping in Beijing and Wuhan University, she concluded that China is "at the top of the world as far as remote sensing data processing, data collection, and data storage," adding that "you always have to [have people] exchanges, otherwise you will stay isolated." Exchange is beneficial in every sphere because everyone knows something different and holds different opinions. Through discussion, people can move forward together, which is how she sees the process.

Halounová believes that sincerity, whether in AI governance, international cooperation, or mentoring young scientists, is what makes all the difference. For a field as technical as remote sensing, her message was remarkably simple: technology serves people, but only people can truly understand people.

During the Ming and Qing Dynasties, bamboo weaving, craftsmanship, and architecture applications reached their zenith, giving rise to famous regional bamboo production centers. In the Ming Dynasty, Portuguese merchants brought bamboo seeds and finished products to Europe. Later in the Qing Dynasty, Britain and France imported Chinese bamboo species for ornamental landscaping. In modern times, bamboo species from China were successively introduced to the U.S., South America, Africa, and Oceania, spreading across the globe.

In traditional Chinese culture, bamboo is a symbol of Oriental beauty. It symbolizes virtues such as moral integrity, resistance, modesty and loyalty. It also symbolizes the harmony between nature and human beings. Ancient Chinese scholars referred to plum blossom, orchid, bamboo, and chrysanthemum as the "Four Gentlemen," and grouped pine, bamboo, and plum blossom together as the "Three Friends of Winter."

those patterns," explained Ren. The lag vanished. After solving a cascade of other issues — from system calibration to motion tracking — the world's first non-invasive precision brain stimulation system was born.

The device is now being used in dozens of Chinese hospitals, primarily for Parkinson's disease. The total cost of treatment is less than one-tenth that of invasive DBS surgery.

"This breakthrough, achieved by a large team at a national strategic platform, responds to the call for speed in biopharmaceutical innovation," said Xie Xiaoliang, an academician of the Chinese Academy of Sciences and director of the Changping Laboratory. "Most importantly, it brings new hope to patients worldwide."

Letter to the Editor

Renewable Energy: Our Brightest Future

By Dr. Md Altab Hossin

In an era defined by climate instability and volatile fossil fuel markets, the transition to renewable energy has transcended environmental idealism to become a fundamental pillar of global security.

Investing in clean power is no longer just about saving the planet — it is about building a safer, more stable, and healthier world by reducing geopolitical conflicts over resources, stabilizing energy prices, and cutting the deadly pollution from fossil fuels.

The case for renewables is now overwhelmingly economic. Solar and wind have become the cheapest sources of electricity in almost every country, making energy affordability accessible to developed and developing nations alike.

In 2024, global renewables accounted for over 90 percent of new power additions, with clean energy investments reaching a record-breaking 2.1 trillion USD. This shift is not just about cost but also about health; by replacing fossil fuels, renewable energy drastically reduces air pollution, which the World Health Organization notes affects 99 percent of the global population. A cleaner grid means fewer respiratory illnesses and a more resilient public health system.

China plays a critical role in this scale and transition. Once viewed primarily as a coal-dependent giant, China has emerged as the world's undisputed powerhouse in renewable energy deployment. However, China's contribution extends far beyond sheer scale; its technological, industrial ecosystem, and resource advantages have fundamentally altered the global economics of clean energy.

First, China's major advantage lies in manufacturing dominance and cost reduction. By capitalizing massive economies of scale and vertical integration, Chinese manufacturers have driven down the cost of solar panels by over 80 percent over the past decade.

Today, China produces more than 80 percent of the world's solar photovoltaic (PV) modules and over 60 percent of global wind turbine components. This manufacturing capacity has made renewable energy the cheapest form of new power generation across the globe, a critical factor for energy affordability in developing nations.

Second, China leads the world in ultra-high voltage (UHV) transmission technology. While the world struggles with grid congestion, China has deployed the world's only extensive commercial UHV network. This technology allows electricity generated from remote solar farms (e.g., Gobi Desert or massive hydropower stations) in western China to be transmitted over thousands of kilometers to coastal megacities with minimal energy loss (typically

under five percent). This solves the intermittency problem of renewables by enabling the aggregation of power across vast geographical areas, ensuring grid stability at a scale previously thought impossible.

Third, China holds significant advantages in the clean energy supply chain, particularly in energy storage and electric vehicles (EVs). China accounts for over 70 percent of the world's production capacity for lithium-ion batteries and controls a substantial portion of the global supply chain for critical rare earth elements. This vertical integration allows for the rapid deployment of grid-scale battery storage, which is essential for balancing the variability of wind and solar power.

The data from the China Electricity Council (CEC) reveals the staggering pace of this transition. By the end of 2025, China's total installed power generation capacity reached 3.89 million megawatts. Remarkably, non-fossil fuel sources accounted for 61.7 percent of this capacity, with wind and solar alone making up 47.3 percent. The growth is so rapid that 2026 is projected to be a historic turning point: solar power capacity is expected to surpass coal for the first time.

Crucially, this surge in renewables is meeting real-world demand. In 2025, China's electricity consumption exceeded 10 trillion kilowatt-hours. Despite this massive increase in power use, new energy sources (wind, solar, and biomass) covered an astounding 97.1 percent of the growth in electricity consumption, effectively making clean energy the primary driver of new supply. This structural shift, powered by Chinese technology, is reducing carbon emissions while driving the economic expansion.

Ultimately, the renewable energy transition is a prerequisite for a safe, reliable, and green world. By reducing dependence on imported fossil fuels, nations insulate themselves from geopolitical volatility and price spikes. By investing in domestic solar, wind, and grid infrastructure, they create millions of jobs — three times more per dollar invested than fossil fuels.

As global investment in renewables continues to climb, the path forward is clear. The data and technological advances from China confirm that a high-growth, industrialized economy can indeed be powered by clean energy. This offers a replicable model: a sustainable world is not built on finite resources extracted from unstable regions, but on the infinite, sustainable power of the sun, wind, and advanced technology available.

Dr. Md Altab Hossin is a foreign expert at the School of Innovation and Entrepreneurship, Chengdu University.

Bamboo: Symbol of Chinese Values

Traditional Eastern Wisdom

By BI Weizi

China is the first country in the world to cultivate bamboo. Its hollow yet sturdy, highly lignified above ground stems make it ideal for crafting everyday items, tools, and even architectural structures.

As early as 7,000 years ago, during the Hemudu culture period, ancient Chinese began cultivating wild bamboo. By the Liangzhu Culture period 5,000 years ago, archaeological excavations in China have yielded many woven bamboo artifacts. Around 3,000 years ago, during the Western Zhou Dynasty, the artificial cultivation of bamboo officially began — *The Book of Songs (Shijing)*

contains records describing extensive bamboo groves.

During the Spring and Autumn and Warring States periods, bamboo was used for stationery, agricultural implements, and architecture. Through the Southern Silk Road, bamboo products, such as Qiong bamboo walking sticks, were introduced to India, Central Asia, and Afghanistan.

During the Wei, Jin, and Northern and Southern Dynasties period — following the publication of *The Bamboo Compendium (Zhupu)*, China's first specialized treatise on bamboo — cultivation techniques gradually became systematized. These techniques included selecting loose, fertile, and well-drained soil; choosing robust bamboo seedlings for transplanting with their root balls intact, spaced at appropriate intervals; applying "root-setting" water immediately

after planting to maintain soil moisture while avoiding waterlogging; and performing fertilization, weeding, and branch pruning during the growing season.

Furthermore, measures were implemented to prevent root rot caused by water accumulation during the rainy season and to pack soil around the base of the plants in winter to protect against frost damage.

During the Tang Dynasty, bamboo was widely planted in gardens, agricultural fields, and Buddhist monasteries, resulting in a rich diversity of varieties. In the Song Dynasty, the cultivation of bamboo shoots for food, and bamboo stalks for timber was differentiated into distinct categories; the bamboo industry reached a highly advanced state, and bamboo was introduced on a large scale to Korea and Japan.

New Neural Disease Treatment Rewires the Brain

From page 1

They developed a generative model to fill in missing signals, similar to how large language models predict missing words.

"We tested it on ourselves," said Ren Jianxun, researcher at Changping Laboratory. "We erased parts of our own real brain signals and had the AI generate replacements. When the AI-generated signals matched the real ones exactly, we knew we were on the right track."

With the rapid development of AI technology, the team were able to accelerate the model reconstruction. They developed a fast cortical reconstruction al-

gorithm in 2022, followed by a fast cortical registration algorithm in 2024.

By 2025, their efforts had reduced data processing time from over 48 hours to less than 30 minutes, making rapid, individualized brain mapping a reality.

Breaking the implant barrier

The final step was to provide treatment to patients. The most effective existing treatment, deep brain stimulation (DBS), requires invasive surgery to implant electrodes. It's costly and has a less than one percent adoption rate in China.

The team therefore opted for a non-invasive approach, using a specific

frequency of electromagnetic fields to "re-energize" damaged neural circuits. However, they faced a massive engineering hurdle: the stimulator must track a patient's head movements with pinpoint accuracy. The imported infrared navigation system was too slow and inefficient.

This meant developing imaging technology such as ultrasound and visible light systems using a domestic camera. But initially, the image processing lagged, causing the system to freeze.

The solution came from noticing repetitive patterns in the image data. "We rewrote the algorithm to batch-process



An aerial view of a solar-powered carport on Mianchuan Island, Jiujiang city, Jiangxi province. (PHOTO: XINHUA)