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Innovation Pathway

Editor's Note:

Science, technology and innovation (STI) are undoubtedly among the most talked-about topics in China and around the world. Celebrating our 200th issue, we bring you a new column: Innovation Pathway, aiming to introduce China's remarkable practices in STI, offering Chinese solutions to the world.

New Blueprint for Urban Development

Edited by WANG Xiaoxia

Chinese President Xi Jinping laid out the overall requirements, key principles and priority tasks for urban work at the Central Urban Work Conference held in Beijing from July 14 to 15.

It was emphasized at the meeting that the important expositions of President Xi on urban development must be thoroughly implemented, with a continued focus on strengthening the Party's overall leadership and faithfully practicing the vision of developing people-centered cities. The general principle of pursuing progress while maintaining stability must be upheld, and a policy of tailored approaches and differentiated guidance must be followed, with the aim to build modern, people-centered cities that are innovative, livable, beautiful, resilient, culturally vibrant, and smart. Efforts should center on promoting high-quality urban development, with a focus on quality-oriented growth. Urban renewal should be an important lever for optimizing urban structures, transforming growth drivers, improving quality, advancing green development, preserving cultural heritage, and enhancing governance efficiency. The red line of urban safety should never be crossed. With all these, a new path will be blazed for urban modernization with Chinese characteristics.

Since the 18th National Congress of the Communist Party of China (CPC) in 2012, the CPC Central Committee has adhered to developing cities of the people, for the people, and by the people. Historic achievements have been made in urban development.

Beijing, the capital, was once plagued with the "big city disease" due to its dense population, traffic congestion and air pollution. In recent years, the mega city has explored fundamental paths and effective methods to eradicate the root causes of those problems by refining its urban space, solving traffic problems, and protecting green spaces.

The meeting required the construction of modern, people-centered cities that are innovative, livable, beautiful, resilient, culturally vibrant, and smart, setting a goal for the Xiongan New Area, said Yang Song, director of the construction and transportation administration bureau of Xiongan.

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WEEKLY REVIEW

China's Largest Uranium Project Produces First Batch

On July 12, China's "National No.1 Uranium" demonstration project in Ordos, Inner Mongolia autonomous region, produced its first barrel of natural uranium, marking a shift toward greener and more efficient uranium extraction. The country's largest and most advanced uranium production site, the project uses cutting-edge in-situ leaching and intelligent mining technologies.

World's 1st Single-Cell Multi-Omics Map of Rice Unveiled

Chinese scientists have created the world's first multi-organ, single-cell multi-omics map of rice, covering 112,000 cells across eight organs and identifying 54 distinct cell types. The study enables high-precision gene targeting, laying a molecular foundation for the precise design of improved yield, quality and resilience traits.

Bio AI System Developed to Evolve Molecules Pronto

Researchers at the University of Sydney developed PROTEUS, a new bio-AI system that rapidly evolves molecules in mammalian cells. Capable of developing novel molecules in just a few weeks, PROTEUS mimics natural evolution and promises breakthroughs in personalized medicine and drug development.



China's Xixia Imperial Tombs were inscribed on the World Heritage List on July 11 during the 47th session of UNESCO's World Heritage Committee. The photo shows two Xixia imperial tombs in northwest China's Ningxia Hui autonomous region. (PHOTO: XINHUA)

STI Frontier

Space Freight System Sets New Record

By Staff Reporters

On July 15, China's Tianzhou-9 cargo spacecraft was successfully launched with over six tonnes of supplies, setting a new record for payload capacity among Chinese cargo missions.

Catapulted on a Long March-7 Y10 carrier rocket from the Wenchang Space Launch Site in southern China, it docked with the rear port of the Tianhe core module of the Chinese space station later, marking another milestone in China's rapidly advancing space logistics system.

Tianzhou- 9 is the fourth cargo spacecraft produced in batches during the application and development phase of China's space station. It carries essential supplies for Shenzhou-20 and the upcoming Shenzhou- 21 crewed missions

and is now part of the orbital assembly where astronauts will soon begin transferring cargo for long-term operations.

Record-breaking scale cargo mission

The supplies include consumables for astronauts, propellants and an array of scientific equipment. Among the most notable items are two upgraded extravehicular activity suits, which have extended operational lifespans — up from the previous "three years/15 missions" to "four years/20 missions." This improvement significantly boosts the sustainability of spacewalk operations.

In terms of daily life, the menu onboard just got a lot more exciting. The mission introduced nearly 30 new space food items, increasing the total to over 190 varieties. This culinary upgrade extends astronauts' meal cycle from seven days to 10, providing better nutrition.

Equally significant is the delivery of a core muscle training device designed for in-orbit use. This cutting-edge equipment will assist astronauts in maintaining physical fitness in microgravity conditions.

The spacecraft also transported 776.5 kilograms of scientific payloads for 23 experiments, according to experts at the Technology and Engineering Center for Space Utilization, Chinese Academy of Sciences.

Advanced autonomous docking

Tianzhou- 9 successfully performed a fully autonomous three-hour rendezvous and docking, now the new standard for China's cargo missions. This method, developed by the China Academy of Space Technology, offers a balance between speed and operational flexibility.

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Harnessing Sci-tech Cooperation for Civilizational Exchanges

By LI Linxu & WANG Manxi

From conducting research to composing poetry... AI's range of abilities grows ever broader. As silicon-based intelligence increasingly intertwines with carbon-based life, how can we better ensure steady and sustainable development of human civilization?

Centering on the opportunities and challenges for human civilization in the age of AI, a parallel sub-forum themed "Inter-civilization Exchanges and Mutual Learning: Innovative Development of Science and Technology" was held during the recent Global Civilizations Dialogue Ministerial Meeting in Beijing.

The participants widely agreed that only through exchange and cooperation can we bridge the digital and intelligent divides, transcend estrangement and conflict, and share the fruits of sci-tech innovation and civilizational prosperity.

Championing cooperation and inclusiveness

"Science and technology serve as a crucial bond for inter-civilization exchange and mutual learning, while civilization plays the role of a 'moral compass' during sci-tech advancement," Malaysia's Minister of Science, Technology and Innovation Chang Lih Kang said.

He noted that the Global Civilization Initiative proposed by China responds to the pressing concerns of the times and represents a vivid practice of the concept of a community with a shared future for mankind. Malaysia looks forward to strengthening sci-tech cooperation and people-to-people exchanges with China, especially in fields like AI and cultural heritage preservation.

From the knowledge exchange of astronomical calendars and mathematical algorithms along the ancient Silk Road, to the collaborative efforts today in joint

archaeology and digital infrastructure under the Belt and Road Initiative, sci-tech cooperation has transcended the confines of time, space and cognition, drawing different civilizations closer.

"Roll out the mat so the family can dialogue," Lord Vaea, chairman of the Committee on Tongan Traditions, invoked this local proverb to underscore the importance of resolving differences through dialogue. He said the forum provided an important platform for diverse civilizations to exchange ideas, which is crucial for exploring how to narrow development gaps in the AI era and achieve shared civilizational flourishing.

"Technology is a catalyst for civilizational progress, while civilization serves as the guardrail steering technology for good," according to Liu He, academician of the Chinese Academy of Engineering, and professor at the Research Institute of Petroleum Exploration & Development.

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China's Digital Tech Helps SCO Countries Transform

International Cooperation

Edited by WANG Xiaoxia

In a modern chemical industrial park in the vast Gobi Desert in southern Kazakhstan, engineers monitor the real-time operation data of the equipment on screen. This is a co-operation project between China's Tianjin Cement Industry Design & Research Institute Co., Ltd. (TCDRI) and a counterpart in Kazakhstan, which used digital twin technology to complete the factory modeling.

This project promotes digital intelligent technologies and standards, provides application scenarios for Kazakhstan, and has achieved win-win cooperation, said Liu Tao, general manager of TCDRI.

Together, the 10 member states of the Shanghai Cooperation Organization (SCO) account for nearly half of the world's total population and their economic output makes up about a quarter of the global total. China has been sharing its digital technologies to assist the "intelligent manufacturing" upgrade of fellow SCO countries.

China's huge population, market demand and rich scenarios have enabled its digital economy to develop rapidly. Data from China's Ministry of Industry and Information Technology shows China has built over 30,000 basic-level smart factories. In the first quarter of this year, China's digital industry achieved business revenue of 8.5 trillion RMB, a year-on-year increase of 9.4 percent. On the other hand, the online retail market size of the SCO members exceeded 3.2 trillion USD in 2024.

The benefits of the digital economy are magnified through cooperation. China's achievements and experiences in the digital economy can assist the development of other countries. In recent years, China and other SCO countries have achieved remarkable results in digital economy cooperation, giving rise to a large number of "small but beautiful" projects.

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New Graphic

China's Economic Strength Increases Significantly

During the 14th Five-Year Plan Period



China's GDP is expected to see an increment of over

35 trillion RMB

It has contributed **around 30%**

to global economic growth annually in recent years.

Source: China's State Council Information Office
Designed by SONG Ziyao / Science and Technology Daily

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