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New Quality Productive Forces

Commercial Spaceflight Embraces Rapid Growth

By WANG Xiaoxia

China plans to pull out all the stops to modernize its industrial systems and develop new quality productive forces, by fostering creative growth engines in fields such as biomanufacturing, commercial spaceflight, and the low-altitude economy.

In recent years, China's commercial spaceflight has shifted into a period of rapid development, and its market volume has exceeded one trillion RMB, becoming an important complement to China's space industry and injecting new momentum into the development of new quality productive forces.

Rapid development

On January 11, a Gravity-1 carrier rocket was launched from waters off the coast of Haiyang, Shandong, sending three satellites into a planned orbit. In the process, the rocket, developed by the commercial aerospace enterprise Orienspace, became the world's largest solid-fuel carrier rocket and China's most powerful commercial launch vehicle to date.

The successful launch of Gravity-1 indicates the rapid development of China's commercial spaceflight. According to the *Blue Book of China's Aerospace Science and Technology Activities (2023)*, a total of 26 commercial launches were completed in 2023, accounting for 39 percent of the annual launches, with a success rate of 96 percent.

China's commercial space program is creating a new industrial system and market system. A number of private companies have entered the fields of rocket launch, satellite production and manufacturing, and satellite application services. This has resulted in several leading enterprises demonstrating skill and capacity in rocket and satellite development, constellation deployment, and data services.

Technological innovation

Under a more flexible market mechanism, commercial spaceflight continues to promote the progress of space technology, and a number of technological breakthroughs have emerged.

In 2023, 41 satellites developed by Changguang Satellite were successfully launched, setting a record for the largest number of satellites launched in a single mission in China.

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WEEKLY REVIEW

China's Top 10 Archaeological Discoveries in 2023

The National Cultural Heritage Administration on March 22 announced the list of the top 10 archaeological discoveries of 2023 from 22 nominated sites. The sites cover a broad space, from the Qinghai-Xizang Plateau to the South China Sea, and the earliest could date back to the Paleolithic Age.

Sino-Indonesian Expedition Sets Java Trench Record

The joint scientific expedition conducted by the Chinese Academy of Sciences and Indonesia's National Research and Innovation Agency successfully dived 7,178 meters into the Java Trench in the Indian Ocean, setting the deepest dive record for Indonesia. The joint expedition ran from February 23 to March 23, using China-developed manned deep-sea submersible Fendouzhe.

5G Base Stations Reach 3.5 Million in China

By the end of February, China had built more than 3.5 million 5G base stations, with 851 million 5G mobile phone users, according to the latest data from the Ministry of Industry and Information Technology.

Mysterious Plant Hormone Exporter Identified

Researchers from University of Science and Technology of China have discovered the first brassinosteroid (BR) exporter. BR hormones play a key role in regulating plant development and physiology, including adaptation to environmental stresses. The study was published in *Science* on March 22.



The Boao Forum for Asia (BFA) Annual Conference 2024 is held from March 26 to 29 in Boao, south China's Hainan province, focusing on how the international community can work together to deal with common challenges and shoulder their responsibilities. (PHOTO: XINHUA)

Editor's Pick

Electric Vehicle: An Irreversible Trend

By YU Haoyuan

China's 2024 government work report highlights the significant increase in exports of the "new trio" — referring to electric vehicles (EVs), lithium-ion batteries, and photovoltaic products — which collectively saw a 30 percent rise. Among these, the exports of China's new energy vehicle (NEV) sector soared by 77.6 percent in 2023, reaching 1.2 million units, ranking first in the world for the ninth consecutive year.

Development of EVs — past and present

China's remarkable EV achievement stems from its planning over the past two decades.

In 2007, in alignment with global efforts to combat climate change and achieve carbon neutrality, China imple-

mented the New Energy Vehicle Production Access Management Rules.

In 2018, China removed foreign ownership restrictions on special-purpose vehicles and NEVs. Foreign EV producers then could directly build factories in China without establishing joint ventures with Chinese companies. This move saw U.S. carmaker Tesla launching its mega factory project in Shanghai, while Volkswagen Group China set ambitious goals to produce more than half of the group's global objective of 22 million EVs in China by 2028.

Simultaneously, China witnessed the emergence of domestic NEV startups, with Nio becoming the first Chinese EV company to list shares on the New York Stock Exchange. Today, Chinese-made cars not only dominate the domestic EV market, but are also exported in

growing numbers, with NEV manufacturer BYD ranking among the world's top 10 car companies by sales. Other notable players like Li Auto, Xpeng, and LYNK are also industry leaders.

Technical advantages in EV performance

EV core technologies, including power batteries, electric motors, electronic control systems, and semiconductor chips, have seen significant advancements driven by domestic demand.

The country's EV companies have rapidly upgraded their battery technologies, with major suppliers like CATL introducing innovative solutions that include sodium-ion batteries and super-fast charging LFP batteries. BYD's blade battery and its subsequent enhancements further exemplify this progress.

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Joint Efforts to Build World's Largest Radio Telescope

By BI Weizi

China was right there in the early conversations about what the future of radio astronomy might look like, and has played a critical role in creating the world's largest and most advanced radio telescope - the Square Kilometer Array (SKA).

Philip Diamond, director general of the SKA Observatory (SKAO), told *Science and Technology Daily* this during the 11th SKAO Council Meeting.

The SKA is a next-generation radio astronomy-driven facility of big data received via thousands of small antennae spreading over 3,000 km to simulate a single giant radio telescope with a total collecting area of approximately one

square kilometer.

It will revolutionize our understanding of the universe and the laws of fundamental physics and answer some of the most fundamental scientific questions, including detecting the epoch of reionization and testing gravity with pulsars.

China's commitment to SKAO

"China is a founding member of the SKAO and contributes eight percent of the budget," Diamond said. China also has significant construction contracts to supply the SKA and is fully participating in the science, engineering and management activities of the organization, he added.

The first mid-frequency dish antenna, designed for the SKA and assem-

bled in Shijiazhuang in north China, has already been sent to South Africa, and the second is on its way, marking a milestone in the SKA construction phase.

Made up of 66 individual panels, the structure stands more than six stories tall and weighs more than 50 tons. With a fully assembled dish in hand, engineers will be able to investigate and resolve issues when the next three dishes are shipped to South Africa and installed on site.

"I visited the factory in Shijiazhuang a few days ago. It's very impressive," Diamond said. "It's an example that the other countries can learn from."

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Boao Forum Addresses Common Challenges

International Cooperation

By Staff Reporters

The Boao Forum for Asia (BFA) kicked off its annual conference in Boao, Hainan province on March 26.

Themed "Asia and the World: Common Challenges, Shared Responsibilities," the four-day event centered around five main topics, namely, world economy, scientific and technological innovation, social development, international cooperation, and jointly meeting challenges.

The forum highlighted China's role in global economic growth. "Asia will continue to remain the largest contributor to global economic growth (this year)," BFA secretary general Li Baodong told a news conference in Boao. China's economy enjoys strong resilience and great potential, becoming a major pillar of sustainable global development.

The weighted real GDP growth rate of Asia in 2024 is expected to be 4.5 percent, given the emerging macro policy effectiveness of China and other major economies to boost demand and economic growth, according to a flagship report from the Boao Forum for Asia Annual Conference 2024.

Artificial Intelligence (AI) was also a hot topic. Max Yuan, chairman of Xiao-i Corporation emphasized the importance of integrating AI into our daily lives, as it has become ubiquitous in all aspects of society.

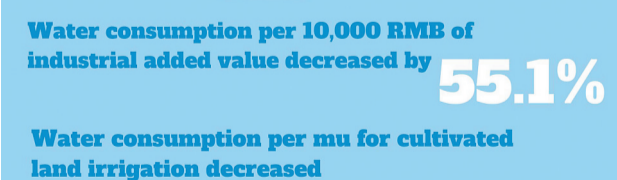
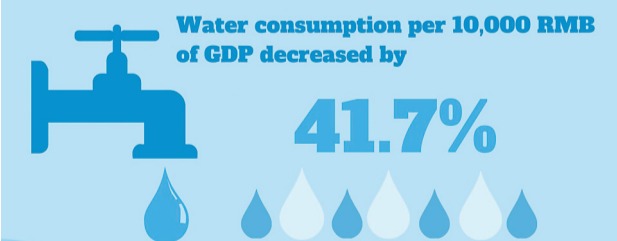
Kyoung Mu Lee, professor at Seoul National University, said that the point at which AI becomes more intelligent than humans will arrive faster than most people think.

This year's BFA drew representatives from more countries and regions than last year's edition. Some 2,000 participants from more than 60 countries and regions attended the annual conference, underscoring the rising influence of the BFA.

The challenges facing the world today are complex, and only by jointly meeting them, shouldering the responsibilities and strengthening cooperation can the world continue to move on the track of peace and prosperity, said Li.

New Graphic

China's Water Efficiency Continues to Improve (From 2014 to 2023)



Source: Ministry of Water Resources
Designed by YAO Yilu / Science and Technology Daily

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