Cultivating New Growth Drivers in Service Consumption

Policy Express

By LI Linxu

In its latest move to boost consumption, China has rolled out a work plan to accelerate the cultivation of new growth drivers in service consumption.

In recent years, China's consumption structure has been shifting from goods-dominant to a more balanced pattern where service consumption plays an increasingly prominent role, said Kong Dejun, director general of the Department of Trade in Services and Commercial Services of the Ministry of Commerce.

Chinese people's expenditure on services has emerged as a key driver of China's high-quality economic growth. From 2020 to 2025, per capita expenditure on services grew at an annual average rate of 8.5 percent. In 2025, services spending accounted for 46.1 percent of per capita consumption, up 3.5 percentage points year-on-year, according to Kong.

The growing vitality of service consumption has been particularly evident in the ice and snow economy. From November 1, 2025 to January 31, 2026, ski resorts nationwide received a total of 118 million visits, including 1.255 million inbound visits, said Ai Yu, deputy director general of the Sports Economy Department of the General Administration of Sport of China.

Tourists have fun at a ski resort in Qingdao, Shandong province. (PHOTO: XINHUA)

During the same period, robust participation in ice and snow sports spurred related consumption. Total spending at ski resorts and surrounding areas reached 69.15 billion RMB, while the number of transactions reached 890 million, up six percent year-on-year, according to Ai.

Looking ahead, China's service-consumption sector is entering an important strategic opportunity period, with the potential to further lift the overall consumption rate and drive high-quality growth.

The role of inbound consumption is also highlighted in the work plan. Efforts will be made to strengthen overseas promotion of entry policies and inbound tourism, accelerate the global coverage of online visa processing, and enhance the convenience of immigration, residence, and overall entry for foreigners.

In 2025, the number of foreign nationals entering and exiting China via all ports reached 82.035 million, up 26.4 percent year-on-year. By the end of 2025, nearly 13,000 tax-refund shops for overseas visitors operated nationwide, and sales of tax-refund goods for overseas travelers surged 95.9 percent in 2025, said Yan Dong, vice minister of commerce.

More efforts will be made to increase the number of tax-refund stores, further optimize tax refund services, and enhance convenience for overseas visitors, so as to attract more inbound tourists, Yan added.

Given its linkage to multiple service-consumption sectors, the Ministry of Transport will foster new growth points through developing self-drive tourism, promoting the high-quality development of small- and mini-passenger vehicle rentals, and expanding night-cruise, yacht and cruise-ship consumption, said Liu Dong, deputy director general of the ministry's Comprehensive Planning Department.

New Standards for Low-altitude Economy Issued

By SUN Jin & YANG Xue

New guidelines setting out a comprehensive standard system for the low-altitude economy were released jointly in late January by China's Ministry of Industry and Information Technology and four other government departments.

The system, aimed at fostering sector growth through clear, unified rules, is expected to be basically established by 2027, according to the guidelines, and by 2030, China will have established over 300 standards for the low-altitude economy. This will form a structurally optimized, advanced, rational, and internationally compatible standards system.

The standards system aims to encompass the full industrial chain, including low-altitude aircraft, supporting infrastructure, air traffic management, safety oversight, and diverse application scenarios.

Currently, in its nascent stage, the sector is transitioning from pilot projects to scaled and standardized development, with accelerated deployment across the industrial chain.

"Clear technical guidance will help reduce the costs of R&D, construction, and operation for related enterprises, bringing new opportunities for the low-altitude sector," said Ding Haiyu, deputy head of the China Mobile Research Institute.

The guidelines establish unified technical pathways and standardize data interfaces for low-altitude communication, navigation and sensing systems.

This is expected to facilitate the coordinated networking of 5G-advanced base stations and the accelerated maturity of integrated sensing and communication technologies.

To enhance safety oversight and operational safeguards, the guidelines reinforce requirements such as the "one drone, one code" rule and real-name registration system.

Additionally, the guidelines clarify performance indicators and testing methods for low-altitude equipment and infrastructure.

As a national initiative for a low-altitude economy standards system, the release of the guidelines strengthens the institutional foundation for the sector's high-quality development.

Ding added that the low-altitude infrastructure field is expected to enter a more standardized phase of development.

The establishment of technical routes and standard requirements for low-altitude networked communication, sensing systems and high-precision navigation networks will accelerate large-scale deployment of low-altitude infrastructure.

In addition, the networking and safety requirements specified in the guidelines will advance the compliance upgrades in drone terminals.

Meanwhile, low-altitude industry applications are expected to scale up. For example, in emergency rescue scenarios, features like trusted access and real-time communication will accelerate the commercialization of applications such as low-altitude emergency communications and medical supply transportation.

Innovation Unleashed: From Smart Cities, Trains to Rockets

From page 1

Thousands of sensors act like loyal sentinels, guarding the lifeline of this city 24 hours a day.

From the digital brain in the cloud to the multi-level underground infrastructure project, Xiong'an has become a vivid example of innovation-driven green development, turning the blueprint for the future city into reality.

Digitalization boosts train manufacturing

From the "Heping" steam locomotive to the "Fuxing" intelligent locomotive, CRRC Datong Co., Ltd. has produced countless locomotives for trains traveling all over China. Digitalization and intelligentization have given new vitality to this cradle of traditional high-end equipment manufacturing.

In the assembly plant of CRRC Datong, automatic guided vehicles (AGVs) come and go along electric screen cabinet manufacturing cell lanes. These cubic, deft machines have greatly enhanced production efficiency.

When the AGVs come across operating staff in their routes, their sensors instantaneously identify the "barrier" and they stop. Only after the staff walk away do the AGVs continue moving along their preset routes to the destination.

When they stop there, trays carrying materials like precision electrical parts pop out automatically, no manual handling is needed.

Liu Tao, an assembler at the factory, said the workers had to use forklifts previously to transport materials. "The factory floors are vast and the workstations scattered; so we had to make dozens of trips a day. Our calves would cramp from all the running," Liu said.

With the AGVs taking care of moving materials, the assemblers can focus on precise assembly.

In the bogie factory, a click on the command button of the operating platform makes a mechanical arm slowly rotate, securely grip the heavy vehicle wheels and axles, lift them and precisely position them into the wheel set assembly machine.

The entire sequence is seamless, with even the bolt tightening torque executed with pinpoint accuracy, perfectly meeting the process specifications.

Ten years ago, experienced craftsmen were needed to do all this work, said Song Wei, head of the wheel set press fit workstation. With the intelligent system, the production plan, material information and technological parameters are all on screen, and the system guides the operator throughout the entire process with real-time reminders.

"Following the system, even green hands can do high standard work. Production efficiency has increased by over 30 percent, and the production qualification rate is nearly 100 percent," Song said.

Weighing rockets to the gram

In a sunlit assembly hall in Haiyang, Shandong, workers are completing final checks on the Gravity 1 Y3 launch vehicle. Its core stage, four solid boosters, and payload fairing will soon be integrated into the world's most powerful all-solid rocket, scheduled to fly in the first half of this year.

One of the last steps is weighing each major component, a process locally called zhang cheng, or "taking the measure."

Crane operator Dong Lei carefully lifts the 10-meter-long, multi-ton core stage and moves it onto a high-precision scale. The reading must be accurate to within 0.1 kilogram.

"Even a small weight difference can affect the flight path," explains Wang Wuqin, deputy director of the test center. Engineers reweigh every part to adjust flight software based on the actual mass, which can vary due to coatings or assembly materials.

What sets Gravity 1 apart is its "three-and-a-half stage" design: three stacked solid cores with four strap-on boosters. This configuration, rare among commercial solid rockets, enables flexible mission planning. Future flights could use zero, two, or four boosters, or even switch to liquid ones.

But bundling boosters creates a tough challenge. They must stay firmly attached during ascent, then separate sideways without shaking the core. The joint between the booster and the core handles about 200 tons of force while enduring intense vibration and heat. If the materials fail, the parts could fuse together and prevent separation.

"This isn't just mechanics," Wang says. "It combines structural design, materials, control systems, and aerodynamics, all at once."

Currently, only China's Long March rockets use this technique. Gravity 1 is the first commercial all-solid rocket in the country to master it, filling a key gap in domestic space capability.

Global Journal Observatory

JAT: Enabling Analytical Chemistry to 'See' Deeper

By TU Hailing

Detecting trace pollutants in environmental monitoring, tracking drug metabolism in the body for precision medicine, and elucidating the composition and structure of new materials — these seemingly unrelated applications all rely on the same discipline: analytical chemistry.

Analytical chemistry bridges the macroscopic and microscopic worlds, and is often called the "eyes" of science and technology. With these "eyes," people can distinguish objective facts from subjective conjectures through precise detection data. The more advanced the technology of the "eyes," the deeper our understanding of the world becomes. My team and I aim to enable these "eyes" to see even deeper, clearer and farther.

The Journal of Analysis and Testing (JAT), the first international English academic journal on analytical chemistry in China, was launched in 2017. The journal's academic influence has steadily increased. It is now ranked in the Q1 category of the Clarivate Journal Citation Reports and has become a pivotal journal in the international analytical chemistry field.

A simple, original aspiration has consistently driven our progress: to enable analytical chemistry to better address the challenges of our time.

Fulfilling academic missions

As awareness of the harm caused by emerging pollutants to society and the environment grows, the rapid identification and detection of these pollutants has emerged as a critical challenge in global environmental governance.

Our team held an in-depth discussion in 2024 and in 2025, we launched a special issue titled *Identification and Detection of Emerging Pollutants* to address the challenges of managing emerging pollutants. It featured cutting-edge research from renowned experts worldwide.

By integrating multidisciplinary approaches such as materials science, biotechnology and AI, this issue provided solutions to key bottlenecks in current detection methods, including slow response times, insufficient accuracy and difficulties in real-time monitoring, while advancing technological innovation in pollutant detection.

Promoting interdisciplinary collaboration

When diseases lurk deep within the human body, how can we detect them earlier, pinpoint their locations more accurately, and minimize harm to healthy tissues? This is a long-standing challenge in medicine, one where analytical chemistry can make a meaningful contribution.

Near-infrared I/II region optical technology, with its superior penetration capabilities and reduced side effects, enables deeper and clearer visualization within the body. Combined with photothermal or photosensitization effects, it facilitates targeted intervention in lesions, emerging as a key direction in next-generation precision medicine.

Front cover of the Journal of Analysis and Testing, Volume 9, Issue 4. (COURTESY PHOTO)

In 2023, we curated a special issue, *Near-infrared I/II Theranostics*, to systematically review this cutting-edge field, focusing on the interdisciplinary integration and innovation of chemistry, materials science, optical imaging and biomedicine.

The issue comprised multiple reviews and research papers authored by domestic university research teams. It elucidated how interdisciplinary collaboration can overcome the limitations of traditional diagnostics and treatments, addressing clinical pain points such as the difficulty in locating deep-seated lesions, the side effects of treatment, and the challenges posed by drug-resistant bacteria.

Although it will take time for these achievements to transition from laboratory to clinical practice and truly benefit patients, the path forward is now clear.

Driving disciplinary development

Reflecting on *JAT*'s nine-year journey, I am increasingly convinced that analytical chemistry is valuable not only in advancing technology, but also in responding to the demands of the times. From environmental governance to precision medicine, and from new material development to energy transformation, analytical chemistry is moving from "backstage" to "frontstage."

Looking ahead, *JAT* will uphold the principles of "precision, interdisciplinary approach, practicality, and internationalization." We foster deep integration between analytical chemistry and fields such as biomedicine, materials science and environment and energy, thereby advancing scientific research from methodological innovation to industrial application.

We look forward to collaborating with scholars worldwide to advance our disciplines and contribute to scientific efforts to address global challenges.

The author is the editor-in-chief of the Journal of Analysis and Testing.

Journal Review

Analytical chemistry, as a fundamental measurement science, serves as a key driver in advancing numerous cutting-edge technological fields. The rapid development of *JAT* is a vivid testament to the vitality and global influence of this discipline.

The success of *JAT* lies in its commitment to the concept of high-level internationalization in journal operations. By establishing an international editorial board and a rigorous peer-review process, the journal has created a platform for sharing knowledge, which fosters intellectual exchange and collaborative innovation among scientists worldwide.

JAT also proactively addresses global issues such as public health and environmental governance by organizing cutting-edge special issues to guide disciplinary directions. This demonstrates the high sense of responsibility of academic journals in serving the scientific community.

Looking ahead, I hope *JAT* will continue to strengthen its role as a hub for global communication in analytical chemistry, not only publishing high-level papers, but also inspiring new ideas and fostering new consensus.

—— *Wang Haizhou, a member of the Chinese Academy of Engineering*