

Superfast Computing Planned for Urban AI

Policy Express

By LIN Yuchen

China has recently unveiled a city-level action plan for millisecond computing, aimed at advancing next-generation computing infrastructure, deepening the integration of networks and AI, and laying a solid foundation for the nation's digital industrial transformation.

The action plan was jointly guided by the Ministry of Industry and Information Technology and local communications authorities. It aims to achieve ultra-low latency connectivity across urban computing centers, ensuring that computational resources can be accessed, scheduled and utilized within milliseconds. This marks an important step toward building a highly efficient, intelligent and responsive national computing network.

According to the plan, medium-sized and above computing centers within the same metropolitan area must achieve optical-layer, one-way connection delays of less than one millisecond, while at least 50 percent of key network nodes should deploy all-optical cross-connect technologies by 2027. Cities are also encouraged to pilot advanced innovations such as lossless high-capacity optical transmission, task-



The photo shows a data center in Zhongwei city, Ningxia Hui autonomous region. (PHOTO: XINHUA)

based scheduling, and intelligent network-operation agents.

The initiative emphasizes the creation of "one-millisecond computing circles," where 70 percent or more of urban areas achieve one-millisecond latency between access points and computing centers. It also promotes full-optical access technologies.

The application interaction experience will be enhanced through the ex-

pansion of integrated computing and networking services, with a focus on key industries such as manufacturing, finance, transportation, healthcare, education, and entertainment. Basic telecom operators are encouraged to develop customized service packages that integrate computing and networking to meet diverse computing demands, providing flexible and inclusive capabilities. These efforts will improve interactive experiences for

typical computing applications such as industrial quality inspection and assisted diagnosis, thereby promoting advanced AI empowerment and driving new industrialization.

The plan sets clear evaluation mechanism and reporting requirements for municipal governments, telecom operators, and computing service providers.

According to the plan, communications administrations of provinces, autonomous regions, and municipalities, in collaboration with local industry and information technology authorities, shall strengthen organizational support. They should fully mobilize local basic telecommunications enterprises, computing power service providers, and computing-intensive enterprises, coordinate efforts to address challenges faced by all parties, and provide the necessary policy, financial, and municipal pipeline resources to support the special initiative.

By enabling "millisecond-level" computing responses, China seeks to empower the development of intelligent cities, boost the performance of AI-driven industries, and accelerate the fusion of network and computing capabilities — paving the way toward a new stage of digital modernization and industrial upgrading.



Case Study

Qingdao Port Almost Runs Itself

By SUN Jin & SONG Yingying

At Qingdao Port in Shandong province, east China, a remote operator's gentle flick of the joystick sets two gantry cranes — hundreds of meters away — sweeping their booms to scoop iron ore from a waiting freighter.

What once involved enormous physical work now is a matter of quiet precision. "One operator can now control two gantry cranes," said Liu Junhao, an operator. "It not only reduces risks but also boosts efficiency."

Qingdao Port, the world's fourth-largest port and China's second-largest foreign trade port, has improved its independent innovation capacity and accelerated the construction of an intelligent port. From containers, dry bulk and breakbulk to liquid bulk, the port has built an intelligent production system for these four types of cargo and achieved full-process automation for all cargo types.

The widespread use of smart equipment has paved the way for smooth and efficient operations across all the port's terminals. It has helped the port break throughput records continuously and supported the opening of new routes.

In May 2025, the port broke the world record for automated terminal efficiency for the 13th time, reaching an average of 62.62 TEUs per hour per quay crane. Last December, it set its 27th world record in bulk operations, unloading 3,167 tonnes of iron ore per hour.

In its production control center, a web of screens forms a "digital brain," streaming real-time data on ship movements and cargo handling, guiding decisions that keep international logistics corridors functioning smoothly.

"In the early stages, we strengthened the connectivity with the ports of

Brazil and Belgium, and smoothed the international logistics channel," said Sun Changjie of Qingdao Port Xilian Company. "We have established efficient transport chains linking sea and land, enabling inland enterprises to export equipment, construction machinery and other materials, as well as import raw materials like pulp. We have successfully achieved unimpeded flow in both directions — with goods available for incoming shipments and outgoing shipments."

Previously, pulp was transported to factories by truck, which often led to shortages in raw material supply, according to a pulp client manager at Qingdao Port. Since the two-way logistics corridor was established, the port has introduced a new transport model and customized solutions, significantly reducing logistics costs and improving delivery efficiency.

Relying on its two-way logistics network, the port has formed comprehensive service advantages such as whole-process logistics, multimodal transport and "one enterprise one policy."

Between January and August this year, the port added five new general cargo routes and laid out more than 40 general cargo routes in total.

While continuing to expand its general cargo network, Qingdao Port has also launched 15 new container shipping routes and three sea-rail lines this year, covering emerging markets such as Southeast Asia, the Middle East and Latin America.

Amid the AI wave this year, the port has seized the opportunity and is pushing into the "AI+Port" sector. It has developed a range of AI-driven innovations, including the Ark TaaS large model, high-voltage shore-power autonomous robots, and intelligent dispatch systems, signaling that China's ports are not just getting busier, but smarter.



An autonomous truck transports goods at Qingdao Port in Shandong. (PHOTO: XINHUA)

Global Cooperation Needed to Accelerate Open Science

By LU Zijian

"We live in a world [where] we are interconnected and [with] more and more complex scientific challenges, therefore we need collaboration between scientists, especially know what the others are doing," Marcelo Knobel, executive director of The World Academy of Sciences (TWAS), UNESCO, told *Science and Technology Daily* in an exclusive interview. "So open science is fundamental for having access to the research done by everyone...International cooperation is an integral part of science."

Knobel was speaking during Open

Science: Prospects for Global Collaboration, a parallel forum of the 2025 World Science and Technology Development Forum, organized by the CAST (China Association for Science and Technology) UN Consultative Committee on Open Science and Global Partnership on October 29.

Open access to research relies heavily on scientific publishing, yet transforming the traditional system is no easy task. Representatives from renowned publishers including Science, Taylor & Francis, and PLOS all discussed the hurdles they face and the strategies they are adopting to transition from subscription-based models to transformative agree-

ments. In this new model, academic institutions pay to publish research as open access.

Despite the challenges, the benefits are clear. Ian Jones, vice president and commercial lead, Asia Pacific at Taylor & Francis, shared a couple of figures in his keynote speech: open access output increased to 77 percent, in-year citations increased by 36 percent, policy mentions by 29 percent and news mentions by 115 percent after the transition.

"This is a great example of how transformative agreements can really accelerate equitable access," he said.

China has been very active in promoting open science. In November 2024, China, Brazil, South Africa and the African Union jointly launched the Initiative on International Cooperation in Open Science to strengthen global cooperation in science, technology and innovation.

On February 28 this year, the Executive Committee of UNESCO's International Decade of Sciences for Sustainable Development endorsed "Towards Open Science Infrastructure Sharing Network: China's Knowledge and Data Sharing Platform — Open for Science", an initiative proposed by the Chinese scientific community.

Coordinated by the National Science Library, Chinese Academy of Sciences, the initiative was launched in June and the new platform Knowledge and Data Sharing Platform — "Open for Science" was launched during the parallel forum, seeking to build an open and shared infrastructure framework while narrowing enduring gaps in access to and use of scientific knowledge, particularly in countries and regions with limited capabilities.

"China has been doing a great job [in promoting open science]," Knobel said. He reiterated the importance of open science, saying science is intrinsically international and open science is fundamental to make the linkage between different ideas and perspectives from different parts of the world.

"Diversity is oxygen for science. So we really need more mobility and possibilities for all scientists to collaborate and contribute," he said.

His remarks echoed the forum's central message: Open science and global collaboration are essential to address the shared challenges of our time.



A Q&A session during Open Science: Prospects for Global Collaboration, a parallel forum of the 2025 World Science and Technology Development Forum. (COURTESY PHOTO)

Henan Manufactures A Smart Makeover

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Currently, Zhengzhou is the world's largest production base for iPhones and intelligent connected buses, and the country's largest production base for gas sensors, super-hard materials, new refractory materials, aluminum plates, cold chain food and in vitro diagnostic products.

Shifting from speed to quality

Since its establishment in 1954, the Luoyang Bearing Group Co., Ltd. has manufactured a full range of bearings, with nine major types and over 30,000 specifications — from robot and new energy vehicle bearings with inner diameters of only a few centimeters, to shield machine and wind turbine bearings with outer diameters of several meters, every progressive advancement embodies the development

of "Made in China."

Today, the output value of high-end bearings accounts for 70 percent of the total output value of the company.

The advancement of the company reflects the transformation of the province. In recent years, Henan has focused on breakthroughs in key core technologies and integrated innovative resources such as promoting the alignment of provincial laboratories with national strategic sci-tech forces. The local government encourages enterprises to increase investment in R&D and purchase R&D equipment through tax incentives and financial subsidies, so as to enhance the innovation capacity and core competitiveness of the industry.

Upgrading from products to brands

At present, CREG's products have been exported to 34 countries and re-

gions, and its production and sales volume have ranked first in the world for eight consecutive years. The company has become a pioneer and leader in the "going global" vision of China's equipment manufacturing industry, with the key lies its commitment to establishing its brand through setting high standards.

CREG has promoted the inclusion of six English versions of national standards into its international bidding and tendering system, to enhance the brand's global recognition and the competitive advantage of the enterprise.

The export of shield machines to global markets is just a microcosm of the rapid transformation of manufacturing in Henan. "Made in Henan" focuses on major national projects such as the Shenzhou spacecraft, domestically-built

aircraft carriers, and the C919 large aircraft. This has led to a large number of equipment manufacturing brands in Henan dominating the industry through independent innovation.

Henan plans to further intensify the cultivation of strategic emerging industries and the implementation of the industrial foundation reconstruction project, focus on a modern industrial system, strengthen the integration and innovation of industries, academia and research, enhance the supply of high-level sci-tech achievements, actively integrate into the construction of a national technology transfer system, all contributing to Henan's strength and goal of building a world-class science and technology powerhouse and promoting high-quality development of the manufacturing industry.

Satellite Application Boosts China-Africa Cooperation

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In talent cultivation, it has organized multiple symposiums, advanced seminars, and online data processing training programs, covering more than 400 participants from various African countries. In addition, it has trained over 10 African doctoral and master's students jointly with universities.

"As the theme of this year's CACSA Week reminds us, cooperation in satellite remote sensing applications is critical to empowering the future of China-Africa partnership," Samuel Abikunda, Rwanda's commercial counselor to China, said. "This gathering is not only a technical exchange but also a reaffirmation of our shared vision to harness science, technology and innovation for sustainable development and a better future for our peoples."

Speaking on the partnership, Joseph Bremang Tandoh, director of the Ghana Space Science and Technology Institute, said, "Our collaboration with China is more than a technological exchange — it is a partnership for development. By combining Ghana's national

vision with China's proven expertise in space science, we are equipping our country with the tools to safeguard our resources, enhance food security, and build resilience for the future."

During the opening ceremony, MNR's Land Satellite Remote Sensing Application Center (LASAC) signed separate MoUs with the Geomatics Center of Burundi, the Cartographic Unit of Comoros, and the Gabonese Agency for Space Studies and Observations.

"The successful implementation of this cooperation agreement will not only reinforce the bonds of friendship between our two nations, but will also contribute meaningfully to the realization of Burundi's Vision 2024-2040," Ngendabakana Frederic, permanent executive secretariat of the Geomatics Center of Burundi, said. He added that the center was committed to implementing this cooperation partnership and fostering its success through sustained collaboration and mutual support.

The CACSA Week 2025 was jointly hosted by LASAC and the National Satellite Ocean Application Center.