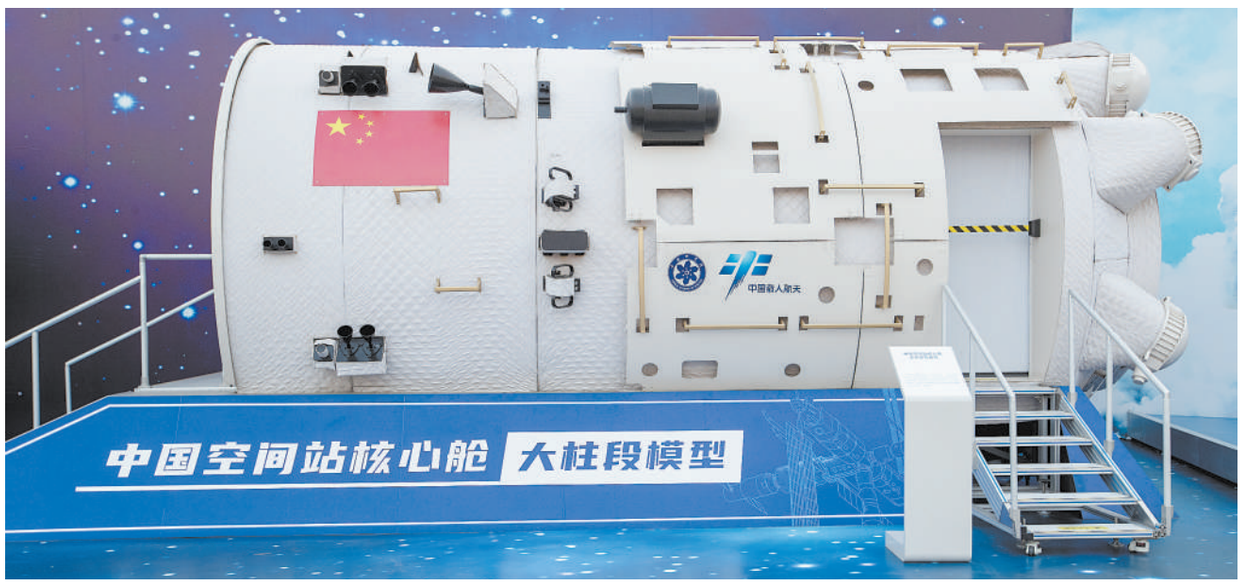
Dedicated Effort Reaps Reward of Innovation Progress

By CHEN Chunyou



The prototype of Tianhe core module displayed in an exhibition themed "Forging Ahead in the New Era," in Beijing Exhibition Hall. (PHOTO: VCG)

In the past ten years, China has witnessed unprecedented changes in terms of science and technology development, entering the ranks of innovative countries, and growing its strength in talent cultivation, industrial and economic development.

According to the Global Innovation Index 2022 released by the World Intellectual Property Organization on September 29, China's overall innovation capacity ranking rose to 11th, increasing by one place from 2021 and jumping 23 places from 2012.

Xing Huaibin, vice director-general of Department of Strategy and Planning of Ministry of Science and Technology, said it is the result of China's implementation of the strategy of innovation-driven development, deepened reform of its sci-tech system, and the carrying out of comprehensive efforts to tackle core technologies, which together supports China's economic and social development, and pushes the country's sci-tech strength to new heights.

According to the report, China's innovation and development show a positive relationship, with increasingly enhanced innovation inputs translated into more high-quality outputs.

Funding for basic research is 3.4 times that of a decade ago, and the total number of research and development personnel in 2021 is around 5.62 million, 1.7 times that of 2012, ranking the first in the world, said Wang Zhigang, minister of science and technology at a press briefing this June.

Talented individuals are the key to sci-tech innovations. In the past decade, a lot of sci-tech system reforms have been carried out. These have centered on researchers, whether in talent cultivation, utilization, evaluation, incentive, or the construction of research integrity mechanisms, easing the burden for researchers and creating a good innovation ecology.

Regional innovation and development have achieved remarkable results, and 21 sci-tech clusters have entered the global top 100 recently, said Zhang Xu, president of Chinese Academy of Science and Technology for Development.

In recent years, China has actively advanced the building of global innovation hubs in Beijing, Shanghai, and Guangdong-Hong Kong-Macao Greater Bay Area, and strengthened the sci-tech innovation and cooperation between eastern and western China, improving the country's overall regional innovation capacity.

In addition, the research capabilities of universities and institutes have continued to improve, and a batch of internationally competitive technological enterprises grow stronger, making the country's innovation system work more efficiently and smoothly.

China has implemented an open, inclusive and mutually beneficial strategy for international sci-tech cooperation in the last decade, and established good sci-tech cooperative relations with 161 countries and regions, achieving positive results in the fields of climate change, food security and human health.

On the global sci-tech frontier, China has made a number of independent achievements with international influence in quantum information, stem cells, brain science and other aspects.

Along with the accelerated application of emerging technologies such as supercomputing, artificial intelligence, big data and blockchain, the digital economy and other new industries and business forms have flourished.

To achieve a high-level of self-reliance and become a world sci-tech power, it's important that China enhances areas such as its original innovation capacity and training of innovative personnel, said Xing.

China, S. Korea Vow Deeper STI Cooperation

By WANG Xiaoxia

A forum was held on September 26 to promote people-to-people exchanges and cooperation in the field of science, technology and innovation (STI) between China and South Korea, while the two countries celebrate the 30th anniversary of their bilateral ties.

Over the past 30 years, China and South Korea have yielded fruitful results in STI cooperation, including joint research and development, high-tech zones, people-to-people exchanges, technology collaboration and innovative startups, said Zhang Guangjun, China's vice minister of science and technology.

Looking ahead at the next 30 years, Oh Tae-Seog, vice minister of science and ICT of South Korea expected more pragmatic cooperation between the two countries' enterprises, institutes and universities.

Facing a broader and deeper technological revolution and industrial transformation, China and South Korea should leverage their complementary advantages to further integrate their supply chains and form a stronger industrial chain through cooperation, said Xing Haiming, Chinese ambassador to South Korea.

As people-to-people exchanges serve as a bridge for practical and win-win cooperation in STI, Xing expected that scientists from the two countries may join hands to strengthen exchanges and cooperation in high-tech fields such as biomedicine, AI, quantum technology, carbon peaking and carbon neutrality.

Gao Xiang, director-general of China Science and Technology Exchange Center (CSTEC), said that there is great potential and a need for further STI cooperation between China and South Korea, and the science community should continue to promote the connectivity of the two peoples.

Authorities and non-governmental organizations should keep in contact and try to provide more cooperation opportunities, said Lee Jinsoo, minister counsellor at embassy of South Korea in Beijing.

The forum was co-hosted by the CSTEC and Korea-China Science & Technology Cooperation Center. Following a series of activities held, it provided a platform for participants from governmental authorities, research institutes and enterprises to share their perspectives on future cooperation.

Related forums are expected to be held in November, where the two sides will discuss cooperation focusing on the digital industry, innovative startups, as well as small and medium enterprises.

The 2nd South Korea (Shandong) Import Commodity Fair. (PHOTO: XINHUA)

Policy

Technology Manager Subject to Career Norm

By ZHONG Jianli

China has released its first standard to evaluate competence of technology managers, aiming to further promote the commercialization of technological achievements.

The *Specification for Competence Evaluation of Technology Managers* was formulated by the National Center for Science & Technology Evaluation under the Ministry of Science and Technology and other related departments, marking that the capacity building and evaluation of technology managers have stepped into a phase of standardized development.

Technology managers are those who are specialized in coordinating, managing, and offering consultation for the commercialization of sci-tech achievements. They are engaged in all processes of cultivation, evaluation, promotion, and transaction of sci-tech achievements, and provide financial, legal, intellectual property-related, and other services.

As the commercialization of sci-tech achievements is a direct way to transform sci-tech achievements into real productive forces, the role of technology managers should be highlighted.

The document specifies the functions, capability requirements, and classification and evaluation of technology managers, providing a guideline for assessing technology managers in a unified and systematic way.

With these standards, technology managers can move up their career ladder more smoothly, and the transfer and commercialization of sci-tech achievements will be more efficient and effective.

Of particular note is that the technology manager, as a new profession, has been included in the Classification of Occupations of China (2022 Edition).

First Stem Cell Int'l Standard Safeguards Human Health

By CHEN Chunyou

The world's first stem cell international standard, led by China, was published on September 24.

The document, called *ISO 24603 Requirements for Human and Mouse Pluripotent Stem Cells*, listed regulations for cultivating and using human and mouse pluripotent stem cells. It specifies their biological property and the requirements for their quality control, information management and transportation, which will provide strong support for technological innovation in stem cells and the development of related industries.

ISO 24603, co-formulated by China, Japan, Germany, Italy, UK and the U.S., is the first stem-cell-related standard of the International Organization for Standardization.

According to Ji Weizhi, academician of the Chinese Academy of Sciences, ISO 24603 is a landmark achievement. This shows that China's basic research and methodological and technological research in this field play a significant role in the world.

In recent years, China has released a series of supporting policies on stem cells. For example, the *14th Five-Year Plan for Bioeconomic Development* issued this May specified many regulations on stem cell treatment, which has created a good environment for stem cell research and industrial development, said Qin Yan, researcher at the Institute of Biophysics, Chinese Academy of Sciences.

Stem cell research, as a frontier field of biotechnology, has promoted rapid development of regenerative medicine, which is another medical revolution after drug therapy and surgery, said Qin.

A stem cell has super regenerative capacity. It can replicate in large quantities rapidly, and differentiate into mature cells with functions, helping the body to maintain vitality and repair damage. Qin said research in this field can provide potential solutions for neurological diseases and anti-aging, and provide new materials and possibilities for organ regeneration and transplantation medicine.

RMB Rises to 4th Global Payment Currency

By LI Linxu

The Chinese currency, RMB, has overtaken the Japanese yen to become the fourth global payment currency, marking an important milestone in its internationalization.

RMB internationalization is gaining momentum. It has been well used in cross-border trade and investment transactions, according to the 2022 RMB Internationalization Report recently released by the People's Bank of China (PBOC).

As of December 2021, RMB's share of international payments increased to 2.7 percent, surpassing that of the Japanese yen, according to SWIFT, a global provider of financial messaging services.

In January 2022, the figure climbed further to 3.2 percent, a record high, said SWIFT.

More foreign central banks held RMB-denominated assets as reserves, and RMB as an invoicing currency witnessed gradual progress, said the report.

Statistics from IMF show that by the end of the first quarter of 2022, the proportion of RMB in globally disclosed holdings of foreign exchange reserves had reached 2.88 percent, 1.8 percentage points higher than that of 2016, when RMB was officially included in the Special Drawing Right (SDR) currency basket.

In May 2022, IMF raised RMB's weighting in the SDR currency basket to 12.28 percent from 10.92 percent, a recognition of greater freedom in RMB use.

Real economy related cross-border RMB settlement maintained a rapid growth, especially in the sectors of commodity and cross-border e-commerce.

Last year, the cross-border RMB receipts and payments of major commodities, such as crude oil, iron ore and copper, reached 405 billion RMB, up 42.8 percent year-on-year.

As the exchange rate of RMB is moving in both directions with enhanced flexibility, there is a stronger need for market entities to use RMB as hedge risk of exchange rate, indicating a greater capability of RMB in serving real economy.

The opening-up of China's financial market is continuously making progress and RMB assets still remain highly attractive to global investors, said the report.

Better Infrastructure, Better Life

From page 1

Tap water has been accessible to 84 percent of all villages and the drinking water safety of 280 million rural residents has been guaranteed.

Work has also been done to improve the irrigation systems within the country as well. The amount of large and medium sized irrigation areas that cover more than 10,000 mu (1 mu equals 666.7 square meters) reached 7,330, and the length of major irrigation canals 400,000 kilometers.

Since this July, drought has been a concern for people living along the Yangtze River. Action was subsequently taken to feed 3.57 billion cubic meters of water to midstream and downstream areas of the river, making sure of water usage to 28.56 million mu of farmland in 356 large and medium sized irrigation areas, benefiting 13.85 million people.

The country has also been tackling the impact brought by floods with dams and reservoirs as important approaches. The annual average loss rate caused by floods has been lowered to 0.31 percent for the past decade, from 0.57 percent of the decade before.

Flourishing new infrastructure

As a key part of the new infrastructure, information technology infrastructure has been growing rapidly for the past decade.

All administrative villages within the country have been connected to broadband service and all counties have access to 5G network. By the end of August, the number of 5G base stations in China had surpassed two million, and ranked first in the world.

In addition, the establishment of a national integrated big data center system has been accelerated, with the number of data center racks reaching 5.9 million and eight national computing hubs starting construction.

The new infrastructure has also been actively integrating with traditional infrastructure.

More than 90 percent of the airports in China realized paperless boarding, and over ten automated wharves have been put into operation.

In the area of Industrial Internet, nearly 80 million pieces of industrial equipment were connected by the end of August, according to the Ministry of Industry and Information Technology.

Industrial Internet has been applied to 45 national economy categories, with 20 typical scenarios and over 10,000 application cases, facilitating the digital transformation of various industries, including but not limited to manufacturing, energy and mining.

Whether it has been a highway connecting a village to the world outside, tap water for drinking, or access to the Internet, all of the ongoing infrastructure growth has brought practical benefits to the people.