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Bar raised, and opening-up extended

Country shares development dividends with the rest of the world.

Liu Zhihua and Zhou Lanxu report

China is expected to advance institutional innovations to steadfastly expand all-round opening-up and quicken the establishment of an open economy of higher standards, according to experts and business leaders.

Such efforts will better connect domestic and foreign markets and share development dividends with the rest of the world, which will bring more certainty to the global economy amid multiple challenges, including the impact of the COVID-19 pandemic and rising protectionism, they said.

"It is quite clear that China has become well-prepared to better align with high-standard international economic and trade rules and advance institutional opening-up," said Huo Jianguo, vice-chairman of the China Society for World Trade Organization Studies.

According to the recent annual tone-setting Central Economic Work Conference, the nation will promote institutional opening-up, better implement the national treatment for foreign enterprises, attract more multinational companies to invest, and promote the early implementation of major foreign investment projects.

The meeting called for taking the initiative to align high-level international economic and trade rules, and vitalizing development through policies of reform and opening-up next year.

Premier Li Keqiang said on Dec 15 that companies worldwide are welcome to further expand investment in China and deepen cooperation in various fields to achieve common development. He made the remark while attending a virtual dialogue with business leaders of the Global CEO Council in Beijing.

Zhang Yansheng, chief researcher at the China Center for International Economic



Employees work at the production line of Sino-German joint venture FAW-Volkswagen in Changchun, Jilin province. ZHANG NAN / XINHUA



An employee (right) addresses visitor queries on a drone during the China Import and Export Fair in Guangzhou, Guangdong province, in October.

LIU DAWEI / XINHUA

Exchanges, said China's pursuit of establishing a higher-level open economy has opened a chapter on a new era, marked by its efforts to promote global cooperation in areas including the services

sector, digital trade and green development.

The nation's application to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, an

11-nation trade agreement with high standards for trade rules and market access, has promised a big step forward in domestic reforms and institutional opening-up, Zhang said.

Huo from the China Society for World Trade Organization Studies said high-level institutional opening-up will further improve the business environment toward more market-based, law-abiding and internationalized to meet high-level international standards. "China is expected to make some major changes in fields including government procurement, intellectual property rights, data flow, environmental protection, labor standards and State-owned enterprises as it aims to join the CPTPP," he said.

Increased trials in pilot free trade zones are forecast to accumulate experience in high-level institutional opening-up, while more measures to better open up the services sector are also expected, as the sector accounts for nearly 80 percent of foreign

investment inflows to China, he added.

As part of its efforts to further open up the services sector, China removed foreign ownership caps on securities, fund and futures companies in early 2020.

More foreign financial institutions are expected to tap into the country's opening-up agenda to expand their investments and business layout in China next year, experts said.

David Chin, China country head at UBS, said the global financial services company is seeking to raise its stake in UBS Securities, its investment banking joint venture in the country, from 51 percent to 67 percent, which will help diversify the company's business line and reinforce its competitive edge.

The company believes China's steps to open up will continue and will provide great opportunities for investment banking, said Chin, who is also head of investment banking in the Asia-Pacific region for UBS.

Unmanned vehicles to aid deliveries at Games

By LUO WANGSHU

Unmanned vehicles will make deliveries between the closed-loop management area and other areas during the Beijing 2022 Winter Olympic Games to reduce people-to-people contact in accordance with pandemic control protocols.

The Games will be held in the closed-loop management area, where athletes, coaches, media representatives, officials and related participants will be required to stay within a biosecure bubble. Their movements will be confined to certain places, such as their hotels and training and competition venues. They will be barred from visiting communities outside the bubble.

At the main distribution center for the Games in suburban Beijing, two blue unmanned vehicles, one large and one small, moved items around in a warehouse, showing their functions to reporters on Dec 9.

The self-driving vehicles can travel on preprogrammed routes. They can recognize and negotiate obstacles in their paths, moving around obstructions.

Li Jin, the head of a team working for the Games organizing committee's logistics department, said the small vehicles will be used in indoor venues, and the large ones at outdoor sites.

"The vehicles can transport small and medium-sized goods between areas in the closed-loop management area and outside it, which will help reduce people-to-people contact and further lower the risk of the spread of the coronavirus," he said.

Cabinets have been installed at designated areas at the borders of the bubble so people can pick up goods that are delivered.

"People from one side can place a parcel in the cabinet, and those on the other side can open the door and receive it, without meeting each other," he said.

About 80 percent of items needed for the venues, including furniture and appliances, have been delivered from outside the bubble, the organizing committee said. At the distribution center's warehouse, computers and printers were packed and loaded onto trucks, ready to be sent to venues on Dec 9.

Other unmanned vehicles resembling the round cleaning robots often seen in households are being used to carry shelves of goods, arranging them by following white tiles on the ground.

Li said the driverless cars have greatly boosted operational efficiency in the warehouse.

Based on experience from previous Games, a similar warehouse would usually have about 500 workers during its busiest period. However, because of the assistance from the vehicles and other high-tech devices, the warehouse is expected to have only 350 workers during its peak. They will mostly be responsible for loading and unloading packages after the Games, he said.

Li Yanling, director of the organizing committee's logistics department, said green concepts have been incorporated in all aspects of the logistics system to serve the Games.

SMEs under spotlight in global e-tail

By HE WEI

Rapid development of digital trade in the Asia-Pacific region is giving rise to a slew of micro-multinational companies and bolstering them to become the main drivers for cross-border e-commerce across the globe, a recent study says.

The companies that typically provide diversified locally-made products and light customization services for global buyers have contributed to more than 85 percent of the region's cross-border e-commerce activities, the global consultancy Deloitte said.

In a report on technology-empowered digital trade in the Asia-Pacific region, Deloitte identified the main characteristics of a micro-multinational company as being more adept at leveraging digital platforms, typically with fewer than 100 employees while having globalized operations with an average of 3.56 overseas outlets.

"The boom in digital trade would not be possible without the active exploration of small and medium-sized enterprises on e-commerce platforms by virtue of their flexibility," said Taylor Lam, vice-chairman and technology, media and telecommunications industry

leader at Deloitte China.

To be specific, SMEs are more motivated to provide products and services in vertical market segments in view of their market positioning, so that digital trade can continuously align with market demand and maintain positive growth momentum, Lam said.

Digital trade manages to mitigate some of the disadvantages of SMEs in terms of cost and risk resistance, providing assistance including one-stop service solutions, logistics and scenario-based finance.

Li Dawei, general manager of Guangzhou YanXun Trading Co Ltd, is a practitioner and beneficiary of flexible manufacturing. Sales by his residential lighting business have risen 50 percent on several overseas platforms since the pandemic began, thanks to customized production in quick cycles.

"We launch 100 to 200 new products a year and devote 10 percent of annual revenue to research and development," Li said. "Bolstered by our strategy to adapt innovation to customer needs, gross profit can reach up to 80 percent, which is encouraging as orders for standard products are all in the firm grip of more established manufacturers."

These multinational startup firms are also adept at using social media for cross-border promotion. Trade dealer A Zhu (his online avatar) employs 20 people managing tons of social media accounts with more than 100 million followers in total. They advertise everything from clothing and pets to furniture, and sell cost-effective Chinese merchandise to the United States, Europe and Japan.

"We are more inclined to establishing our own website rather than opening shops on the likes of Amazon," A Zhu said. "Apart from cost control reasons, we also value the direct traffic diverted to our site."

In the Deloitte study about 70 percent of surveyed companies said they plan to set up independent websites, which are already in place in 33.4 percent of surveyed companies. Independent websites have become a key channel for companies to break through the business ceiling or expand into new markets, as they attract the attention of exporters.

The continuous improvement of digital infrastructure will effectively resolve the two major constraints affecting cross-border trade in logistics and payments, the report says. The penetration rate of digital



Workers sort yellow peaches at an agricultural export company in Zigui county, Hubei province, in August. ZHENG JIAYU / FOR CHINA DAILY

payments is 55 percent and 53 percent for sales digitalization.

Frankie Fan, head of WorldFirst in China, a leading international payments business with more than 40 percent market share in China, Japan and South Korea, said SMEs play a crucial role in the region's economic recovery.

"With the support of cross-border online sales and payment infrastructure and the Regional Comprehensive Economic Partnership agreement starting to take effect next year, SMEs in

the region will increasingly gain a foothold in cross-border trade," Fan said.

The report foresees the region entering a golden age of digital trade over the next three years, especially buoyed by the strengthened regional cooperation led by the RCEP.

"Zero tariffs, unified markets ... people in the foreign trade business are heartened by the changes heralded by the RCEP because it is really expected to address the problems in cross-border e-commerce," Li said.



Workers test devices at the main logistics center for the 2022 Winter Olympic Games in Beijing on Dec 9.

ZHANG WEI / CHINA DAILY

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Directing their video careers

By HE QI

People, especially those of Generation Z, are used to acquiring information through smartphones, resulting in a significant increase in video sharing and creativity alongside the rapid development of the internet and its ever-growing number of users.

The China Internet Network Information Center says the number of people interacting with online videos in China reached 927 million by the end of last year, accounting for 93.7 percent of the country's total internet users.

The earnings report of the Chinese video streaming platform Bilibili said it had 2.7 million monthly active content creators and received more than 10 million monthly video submissions by the third quarter of this year. It had 267 million monthly active users. By comparison, there were only about 570,000 active content creators by the fourth quarter of 2018 and 234,000 in the corresponding period of 2017.

The video clips, which allow viewers to provide comments and interact with content creators, not only attract millions of viewers but also play an important role in information, especially in the most common aspects of people's daily lives.

When Jiang Xuan, 41, also known as Jiang Laodao online, started to create food videos in 2013, the short-video streaming and sharing sector was in its infancy.

The short-video platform Douyin had not even been established and Bilibili was barely known. The major video-sharing platform was Tudou, where Jiang launched the first episode of *Cat's Kitchen*, a series of food video clips specializing in Chinese cuisine and traditional delicacies, which had more than 54 million subscribers across all platforms by the end of last year.

"Everyone is the director of their life" was the slogan of Tudou, as it aimed to stimulate the creative enthusiasm of individuals and startups, Jiang said. "Cat's Kitchen has been established to deliver our thoughts about food to young people."

It was not until 2015 that he began to promote videos of *Cat's Kitchen* on Bilibili, because Jiang used to regard the platform as a service provider that catered for a much younger audience that had little interest in cooking. However, once on the platform, the video series was very well received and became even more popular.

"I started to think that our positioning had been inaccurate when our videos turned out to be very popular on Bilibili," said Jiang, who initially set his target demographic as college graduates just starting to live independently and getting married.

"However, while many college students may not have fully entered society, they have very clear preferences and attitudes toward life, and cooking is an important element of that."

The team was one of the top 100 Bilibili content creators in 2018. By early last month the official account for *Cat's Kitchen* on the platform had uploaded 459 video episodes, and now boasts more than 6.29 million followers.

Since 2015 Jiang has also posted videos on YouTube.

"Although we don't think YouTube will bring us many business prospects, we are very keen for people in other countries to see our content and what we are trying to express and convey," Jiang said.

He receives emails from many users in other countries about the dishes featured, he said. Some even have invited him to visit in person and cook with them.



Steamed Chinese cabbage in supreme soup, a traditional Chinese dish in *Cat's Kitchen*. PROVIDED TO CHINA DAILY



View of Longyou county in Quzhou, Zhejiang province. PROVIDED TO CHINA DAILY

A fine marriage brings city and country together

Zhong Feijun, 34, used to work for a furniture company, with daily commutes from his village to the city adding to the long hours.

"Things are much better now with my current job, and I've bought a place near my hometown," he said.

Zhong is now a supervisor at the Dollor sewing machine factory in Lishui, a city in Zhejiang province.

He is also one of a rising number of Lishui's rural residents who have benefitted from novel measures bringing together the latest development policies and private enterprise to help fuel advanced and innovative economic and industrial practices ensuring more inclusive growth.

"I manage about 40 people in my team and receive skills training myself at least four hours a month. I also have shares in the company, so we can all grow together."

In his three years with the company, his annual income has doubled to at least 150,000 yuan (\$23,500), he said.

The 40,000-square-meter production facility in Lishui has an annual output of more than 200,000 units, and 70 percent of its 350 employees are local hires such as Zhong.

Wang Mingjian, Dollor's general manager, said that one of the ways that the company stays at the forefront of the sector is by giving its employees an important stake in its growth.

The company taps and builds on strong links with the neighboring coastal city of Taizhou, an industrial and private enterprise hub hosting leading companies, he said.

"We want to help take local industry to the highest level, lifting everybody up by using the right policies and incentives," Wang said.

Lishui's urban-rural collaboration exemplifies Zhejiang's major Shanghai Xiezuo projects, a kind of cooperation between mountainous and coastal areas, harnessing the expertise, skills and resources of cities to help underdeveloped areas plug development gaps and promote coordinated progress within the province.

Links in province demonstrate benefits of inclusive growth. Alexis Hooi, Wang Linyan and Ma Zhenhuan report



From left: Six-month-old calves are among the livestock at a dairy farm, one of the local demonstration projects, in Jiaxing, Zhejiang province. XU YU / XINHUA A woman operates a sewing machine at the Dollor production facility in Lishui, Zhejiang province. KANG HAIJING / CHINA DAILY

The move is in line with a national effort to achieve common prosperity.

Zhejiang, one of China's most highly developed provinces, has been designated as a demonstration zone of inclusive growth for the next major stages in the country's development.

The province aims to achieve common prosperity by 2035, with its per capita gross domestic product and the income of urban and rural residents reaching developed countries' standards.

In August a meeting of the Central Committee for Financial and Economic Affairs, chaired by President Xi Jinping, who is also general secretary of the Communist Party of China Central Committee, outlined steps to promote common prosperity through high-quality growth, calling for a phased approach to reach the target.

With the drive for common prosperity expected to be long-term and comprehensive, the country is set to pursue it in a gradual and progressive manner, with suitable areas offering replicable practices and models.

Zhejiang has a population of about 65 million and boasts very successful private companies. The latest plan allows it to show how the country can tackle unbalanced



and inadequate development.

As a key indicator of balanced development, the income ratio between urban and rural residents in Zhejiang fell to 1.96:1 last year, significantly lower than the national level, provincial authorities say.

Technology has also helped in terms of reducing poverty, improving public services and grassroots governance, playing a vital role in improving people's lives, with Zhejiang nurturing a market-oriented, law-based and internationalized business environment by tapping advances such as digitalization, its officials said.

In Liandu district of Lishui, major Shanghai projects are being initiated to allow the industrial prowess, logistics networks and entrepreneurial know-how of provincial economic hubs such as Yiwu and Ningbo to fuel infrastructure and other development work.

Liandu-Yiwu Shanghai Cooperation Industrial Park covers more than 4 square kilometers. It hosts more than 200 companies, including more than 30 national and provincial-level high-tech companies and research and development facilities. The area has attracted infrastructure and corporate investment in excess of

8.5 billion yuan, and contractual investment of more than 18 billion yuan.

In Liandu, a new livestock and poultry industry chain intelligent project of the meat and agricultural group Huatong, touted as the largest of its kind in Lishui, with total investment of 750 million yuan, boasts automated and computerized production and environmental control facilities such as intelligent feeding, fermentation and sewage treatment systems.

The Huatong project is a leading example of Shanghai collaboration in Lishui's pillar agricultural industries, with its results and expertise being applied to other areas, said Wang Haitao, head of the local livestock and health section of the agricultural-rural animal husbandry and veterinary development center.

"From feeding to breeding and fresh meat to processed products, we've been able to put in place a complete production chain here to supply markets and fully realize the potential of the industry."

Yiwu, known as a global small commodities trading center, is also lending its strengths in manufacturing and logistics to fuel the development of Liandu's arts, crafts, cultural and creative products industries. The partnerships, involving stationary, toys, sporting goods, textiles, souvenirs and artwork, cover more than 2,500 product categories, more than 300 major enterprises and a sales volume of 150 million units in a single year, with exports to over 30 countries and regions.

Zhao Guifeng, manager of the Yiwu-Liandu Shanghai Collaborative Art Exchange Center, which showcases the area's projects and products, said the partnerships help promote Lishui's cultural and scenic attractions at home and abroad, such as its local ethnic and artistic communities located amid pristine mountains and clear waterways.

"We effectively match Yiwu's manufacturing strengths with our artists' work on creative and cultural products. Yiwu's global platforms, such as its involvement in commodity fairs, help to showcase local products, artists and artisans."

Four feats of technology ranked with the finest

By ZHANG ZHIHUA

China has four major feats listed among this year's Global Top Ten Engineering Achievements, according to the journal *Engineering*, one of China's most prestigious scientific publications.

Experts said China will continue to be a contributor to global engineering frontiers and make more breakthroughs in solving major engineering obstacles that are key for the sustainability and wellbeing of mankind.

The four projects spearheaded by Chinese engineers are the Five-hundred-meter Aperture Spherical Telescope, hybrid rice, the Three Gorges Hydroelectric Power Station and the ultra-high voltage transmission project.

The telescope, in southwestern China, became operational last year and is the world's largest and most sensitive single dish radio telescope. The entire Three Gorges project was completed last year after more than 20 years of construction. It is the world's largest multipurpose hydraulic complex.

The third generation of hybrid rice created by Chinese scientists set a new annual yield record of 22.9 metric tons per hectare last year. In 2019, China opened the world's first 1,100-kilovolt ultra-high voltage direct current transmission network, making efficient, large-scale allocation of electricity across China possible.

The other achievements included AlphaGo and AlphaFold, which are artificial intelligence programs designed for specific tasks such as playing chess and predicting protein structure, and the development and use of the CRISPR/Cas9 gene-editing technique.

Extreme ultraviolet lithography systems for high-end chipmaking, 5G mobile communication technology, NASA's InSight Mars Lander, public health epidemic prevention and the battle against COVID-19 also made the list.

The achievements on the list are major engineering projects or breakthroughs with global influence that have been completed in the past five years, the journal said. They represent the highest level of engineering science and technology in their fields.

The journal *Engineering* is a publication of the Chinese Academy of Engineering. The list's creation involved nominations and recommendations by engineers and technicians worldwide, numerous public surveys and final screening by the selection committee.

On Dec 14 the academy's Center for Strategic Studies and global analytical firm Clarivate published their *Engineering Frontiers 2021* report. For the document, published annually since 2017, 186 research and development frontier topics for nine broad engineering categories were selected, ranging from agriculture to engineering management.

Zhong Zhihua, vice-president of the center, said engineering and technology is a major support for socioeconomic growth and mankind's pursuit of sustainable development.

"As our country enters a new developmental phase, we urgently need to accelerate our pace of innovation in engineering and technology and improve the quality of our innovation," he said, adding this will require scientific insight on new emerging engineering frontiers to guide future development.



China's Five-hundred-meter Aperture Spherical Telescope in Guizhou province. YANG XIAOBO / FOR CHINA DAILY

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A glance at imported products on the shelves of even an average-size supermarket in Beijing invariably shows that shoppers have plenty of options.

From food and beverages such as fruit, meat, baby formula and wine, to other daily necessities, including clothing, products from around the world have become commonplace for countless Chinese shoppers.

Online, they are even more readily available.

The variety of global goods flooding into China is not only testimony to the country's burgeoning domestic market, but also shows, in particular, how deeply the country has become interwoven with worldwide trade.

Gao Feng, spokesman for the Ministry of Commerce, said at an online media briefing on Dec 9, "China will unwaveringly further high-level opening-up to share market opportunities with the rest of the world."

The country would continue to reduce items on the negative list for foreign investment, and strengthen services and protection for foreign enterprises and related projects, Gao said.

With a constantly improving business environment governed by law that is up to international standards and market oriented, China hopes foreign investors will benefit from the country's growth dividends, he added.

Since joining the World Trade Organization in 2001 China has greatly increased its exports.

Analysts said the country provides global consumers with quality and inexpensive goods. At the same time, it is continuing to expand and open up its domestic market to fuel growth in imports and provide more business opportunities for foreign companies with or without a presence in China.

With China's promise to continue reforms and opening-up, it will continue to make a great contribution to global economic growth, they said, especially as industrial and supply chains worldwide are experiencing difficulties because of the pandemic.

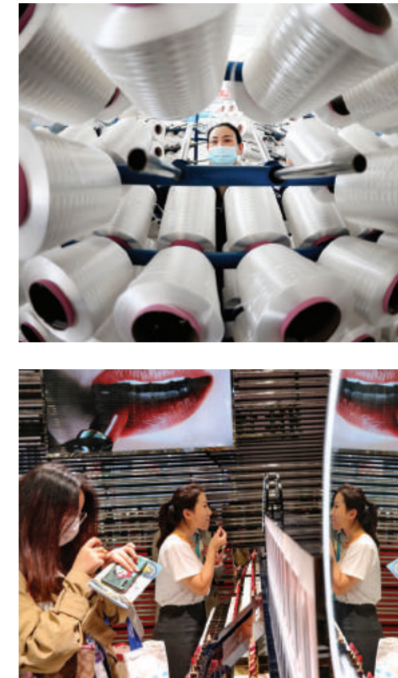
Tu Xinqian, dean of the China Institute for WTO Studies at the University of International Business

How trade door opened ever wider to the world

Global consumers have benefited and domestic market has fueled imports growth over 20 years of WTO membership. **Liu Zhihua** reports



Clockwise from left: Cargo is unloaded at Qingdao Port, Shandong province. YU FANGPING / FOR CHINA DAILY. An employee produces goods for export at a plant in Lianyungang, Jiangsu province. WANG CHUN / FOR CHINA DAILY. Visitors check out cosmetics at the fourth China International Import Expo in Shanghai in November. XU CONGJUN / FOR CHINA DAILY



and Economics in Beijing, said: "China has benefited from its accession to the WTO, but more important, by joining the multilateral trading system, it has enhanced the operational efficiency of the world economy and improved the use of global resources, making a huge contribution to international economic growth."

China's accession to the WTO enabled the country to incorporate its own resources, including labor, land and natural assets, in the global economy at a much deeper level and on a much larger scale, accelerating the country's economic growth, Tu said.

Thanks to China's joining the WTO,

developed economies could reallocate and match their capital resources with labor and China's other resources to reduce product costs and enhance productivity, he said.

Ngozi Okonjo-Iweala, director-general of the WTO, said China has positioned itself at the core of numerous global value chains. These production and trade networks have not only provided a lifeline for many countries during the pandemic, they have also increased the quantity, quality and variety of goods available worldwide, she added.

Okonjo-Iweala made the remarks via video link during a high-level session marking the 20th anniversary

of China's accession to the WTO, held on the sidelines of the fourth China International Import Expo and Hongqiao International Economic Forum in Shanghai last month.

China officially joined the WTO on Dec 11, 2001, becoming the 143rd member of the trade body.

Over the past 20 years China has endeavored to align itself with WTO rules, abide by them and open its market.

It cut its overall tariff rate from 15.3 percent to 7.4 percent during this period; its accession commitment was 9.8 percent. The current tariff level is lower than those of all developing members of the WTO and close to

those of developed members of the organization, according to China's Ministry of Commerce.

China, the world's sixth-largest economy when it joined the WTO, has risen to become the second-largest. It is also a major trade partner for more than 120 countries and regions, with total trade in goods soaring to \$4.65 trillion last year, up from \$509.8 billion in 2001, official customs data show.

The country has opened some 120 subsectors in the services industry, compared with its accession promise to open 100, according to the Ministry of Commerce.

Yi Xiaozhun, the WTO's former

Medicine companies take cue from China

By ZHOU WENTING

The German pharmaceuticals company Boehringer Ingelheim signed agreements with three major domestic hospitals during the fourth China International Import Expo held in Shanghai in early November to include them in the company's early-stage clinical research of innovative compounds it developed globally.

The collaboration with Shanghai Huashan Hospital, Shanghai Cancer Center and Shanghai Mental Health Center brought the total of Chinese medical institutions that have reached such agreements with the company to 19. This follows the company's China Key initiative to include Chinese patients' needs in its global research and development strategy, which started in 2019.

Such collaboration allows Chinese patients to find out about the latest results of new drug R&D at the same time as patients elsewhere. More importantly, diseases that are more prevalent in China will get more attention, industry insiders said.

"Periodic results have been achieved in the tumor, immunity, central nervous system, metabolism and cardiovascular fields from existing collaboration with Chinese hospitals," said Zhang Wei, head of medicine at Boehringer Ingelheim.

Also, based on the clinical needs of local patients, some clinical trial projects, including innovative therapies for treating solid tumors as well as obesity and fatty liver disease, were already in the pipeline, he said.

While Chinese institutions are increasingly taking part in the R&D network of multinational pharmaceutical companies, and



The Boehringer Ingelheim booth is seen at the fourth China International Import Expo in Shanghai in November. PROVIDED TO CHINA DAILY

clinical research programs in China are more synchronized with the world, the particular needs of Chinese patients are more visible and better represented today than ever before, experts said.

Wang Bin, general manager of Boehringer Ingelheim Biopharma China, said one obvious change in the domestic bio-pharmaceuticals industry over the past decade is that the R&D focus has shifted toward disease categories that afflict Chinese more often.

The change has become evident in the number of company clients included in the contract development manufacturing organization model, which allows research-oriented companies to focus on R&D while outsourcing drug development and manufacturing to Boehringer Ingelheim, Wang said.

"A decade ago the most common practice in the domestic biopharma field was to produce generic drugs, and therefore most drugs were for the treatment of diseases with a high incidence in the West — but not necessarily high in China.

"However, drug development is tailor-made for China and Asia is becoming more common. More drug R&D programs are focused on lung cancer, intestinal cancer and some other diseases that severely affect Chinese people's health."

Draeger Medical Equipment of Germany has about 100 Chinese scientists and engineers working in its China R&D center, accounting for 10 percent of the company's global

R&D effort, said Gabor Polivka, chief executive of the company's division in China.

"Chinese researchers played a big role in incorporating 4G technologies and network connections in our medical devices for doctors to monitor the condition of patients, the application of which was remarkable when treating COVID-19 cases in quarantine wards."

Another example was masks, he said. When the company started producing masks in China last year the China team made changes in the design to make them better fit Asian faces.

"Today masks made in China are sold not only in China but also in some other regions of Asia," Polivka said.

For the Swiss pharmaceuticals company Novartis, the new arrangement ensures that teams in China provide input to its global development programs much earlier.

"We now consider feedback from our local China team as well as Chinese regulators," said Vas Narasimhan, chief executive of Novartis. "At the same time we consider feedback from other major global regulators in designing our phase 3 studies."

Johan Kahlstrom, head of the cardiovascular, renal and metabolism business unit at Novartis Pharma (China), said 100 percent of its clinical trials in relevant disease areas in China take place simultaneously with global trials today.

Suddenly, the metaverse is the place to be

By MA SI

A metaverse frenzy is gripping China with technology heavyweights and startups already portraying it as the next trillion-dollar business opportunity. But in the background ordinary people are probably wondering what the fuss is all about, even as some experts ring the alarm bell over potential pitfalls and implications to society of overindulgence in virtual worlds, especially by young people.

For the uninitiated, metaverse is basically a digital space created by technologies such as virtual reality and augmented reality. As a concept, it is still nascent.

Yu Jianing, executive director of the metaverse industry committee at the China Mobile Communications Association, an industry association in Beijing, said metaverse is not just about creating a virtual world.

"It promises a future where the virtual world and the physical world are inextricably interconnected, which will give rise to new businesses and inject a fresh impetus into the integration of digital and real economies," Yu said.

"Metaverse is becoming the new battlefield for innovation competition among companies."

Big Chinese technology companies and startups are all moving fast into the metaverse realm. For instance, ByteDance, owner of the popular short video app TikTok, made its first foray into VR in August by acquiring Pico, a Chinese VR headset maker.

WeChat, the social networking platform of Tencent Holdings Ltd, held its first 360-degree virtual reality livestreaming last month. The online search company Baidu Inc, which has evolved into a technology specialist focusing on artificial intelligence, said it would hold a metaverse AI developer conference on Dec 27.

By Dec 19 more than 1,368 companies had filed trademark applications involving metaverse in their names in China. There had been 130 such companies three

months earlier, said Tianyancha, a business information provider.

Metaverse-related online learning programs are also overwhelmed by people eager to learn more about the buzzword in China. For instance, more than 54,000 people had subscribed to one online metaverse learning program by Nov 26, bringing total sales to more than 1.6 million yuan (\$250,000).

That might seem like a slow and steady evolution from 1992, when the term metaverse was coined by the science fiction writer Neal Stephenson of the United States in his novel *Snow Crash*.

But interest in metaverse snowballed after the US gaming company Roblox included the word in its IPO prospectus in March and ended its first trading session with market capitalization of \$38 billion. But since then Roblox's shares have been on a roller-coaster ride, casting a long shadow on the hype surrounding metaverse.

However, in October Mark Zuckerberg, chief executive officer of the company that owns digital assets such as Facebook, WhatsApp and Instagram, rebranding the parent entity Meta. That helped put metaverse under intense global spotlight instantly.

Jiao Juan, an analyst at Essence Securities, a Chinese securities company, said the metaverse frenzy

deputy director-general, praised China's contribution to the global economy by expanding imports.

Over the past 20 years, China has risen from sixth place in the world to first for its trade in goods, and from 11th place to second for its trade in services. It has also become the world's largest exporter and second-largest importer.

Yi, who is also a former vice-minister of commerce, said: "Imports of merchandise to China leaped to \$2.06 trillion last year, up from \$244 billion in 2001. This is a significant contribution to the world economy, and one that is too often overlooked.

"China is one of the very few major developing countries that has committed to granting duty-free treatment for up to 97 percent of products made by least developed countries."

Li Xingqian, director-general of the Department of Foreign Trade at the Ministry of Commerce, said: "China was the world's second-largest importer for 12 successive years. China accounted for 11.5 percent of global imports last year, and the figure rose to 12 percent during the first half of this year.

"During the 14th Five-Year Plan (2021-25), China will further emphasize expanding imports to benefit our trading partners, and also share development opportunities with the rest of the world."

The country's expanding imports have created more business opportunities for the rest of the world, and the China International Import Expo, held in Shanghai each year since 2018, is testimony to this.

Total exhibition area reached 366,000 square meters this year, with the value of tentative deals totaling \$70.7 billion.

Allan Gabor, president of Merck China and managing director of Merck Electronics China, said foreign businesses have profited greatly from the country's economic rise, and about 98 percent of the top 500 companies in the world have invested in the nation.

"China is a strategic market for us, both in terms of its size and growth. Merck has been growing at double-digit rates in China for a couple of years now," Gabor said.



An attendee experiences VR motorcycling at the 2021 World Conference on VR Industry in Nanchang, Jiangxi province, on Oct 19. SHI GANGZE / FOR CHINA DAILY

Wetlands protection reaps rich rewards

Birds benefit from vastly improved environment in Yellow River Delta.
Zhao Ruixue and Ma Jingna report



Black-necked cranes gather in the Yellow River First Curve National Nature Reserve in Maqu county, Gannan Tibetan autonomous prefecture, Gansu province.
PROVIDED TO CHINA DAILY

Deep into autumn, flocks of migratory birds arrive in quick succession to the Yellow River Delta in Dongying, Shandong province.

Late last month, many birds were seen resting on ponds beside a road more than 10 kilometers from the Yellow River Delta National Nature Reserve, which has been dubbed an "international airport for avian species".

At the reserve, flocks of birds flew across the sky, whooper swans glided slowly over the surface of lakes, and other birds chirped in the woods.

Zhao Yajie, who has monitored birds' conditions for the reserve's management committee for seven years, said the Yellow River Delta, one of the largest in China, has a temperate, semi-humid continental monsoon climate. It is a place for millions of birds to breed, and is a winter stopover for them.

"Last year about 6 million birds stopped over at the reserve, including rare species such as the red-crowned crane and the Saunders's Gull," Zhao said, adding that flamingos and white pelicans were observed there for the first time last year.

In Gansu province, Wang Jiayang, who works for a management and protection center station at the Yellow River First Curve National Nature Reserve in Maqu county, Gannan Tibetan autonomous prefecture, said that in November last year about 30,000 birds stopped over at the reserve's wetlands. It was the first time that so many birds had been seen at the venue, on the upper reaches of the waterway.

Gou Hongshui, director of the Yellow River Delta National Nature Reserve's management committee from 2019 to May this year, said: "Birds know whether an environment is good or not. Increasing numbers of migratory species are stopping over at the reserve. Some make it their home all year — good evidence that the delta's ecological system is constantly improving."

Rising in the Bayan Har Mountains



An oriental stork flies to its nest on a pole at the Yellow River Delta National Nature Reserve. YANG BIN / FOR CHINA DAILY



Zhao Yajie (right) and her teammates conduct research on vegetation at the reserve. WANG LIDONG / FOR CHINA DAILY

in Qinghai province, the Yellow River, China's second-longest, flows through a plateau blanketed with fine, windblown soil. Millions of tons of soil are carried east by the river every year, with some of it reaching the estuary, where the waterway flows into Bohai Bay in Dongying, forming a large expanse of wetlands.

In the 1980s and '90s coastal erosion, seawater encroachment and droughts caused the wetlands to shrink.

The delta's rich wetland ecosystems were also seriously threatened by rapid urbanization, oil and industrial waste pollution, and land reclamation, the reserve's management committee says.

To protect the wetlands, the reserve was established in 1992. It covers about 153,000 hectares, the wetlands comprising 70 percent of the total.

President Xi Jinping, who is also general secretary of the Communist Party of China Central Committee, inspected the Yellow River estuary,

including the reserve, on Oct 20.

He checked the river's tributaries, the wetlands' environment and learned about ecological protection and high-quality development in the Yellow River Basin.

An outline for the Basin's protection and development until 2030, published by the central government in early October, calls for the protection and restoration of wetlands on the lower reaches of the delta.

Local governments have given priority to protecting the reserve, with such efforts strengthened in the past three years. This work followed a symposium on ecological conservation and high-quality development in the Yellow River Basin chaired by Xi in Henan province in 2019.

Gou said, "As water is crucial to maintaining the healthy ecological system in the wetlands, we have been replenishing the water there."

Water projects have made replenishment possible. For example, local governments use the Xiaolangdi Hydroelectric Power Plant on the middle reaches of the river in Henan to regulate the waterway's flow by storing floodwater to be released when needed.

Dikes have been built in the wetlands to conserve water, helping restore surface runoff and supplement groundwater supplies.

To date, 160 million cubic meters of water has been replenished in the delta this year, the Department of

Natural Resources in Shandong says.

The abundance of water in the wetlands has significantly contained destruction of the ecosystem caused by seawater encroachment, and has also slowed soil salinization, Gou said.

In 2006 the reserve teamed up with the Chinese Academy of Sciences to tackle *Spartina alterniflora*, a smooth type of marsh cordgrass spreading widely on the estuary coastline and seriously threatening species' habitats.

This cordgrass can have serious ecological consequences by changing the terrain of the intertidal area, hindering the flow of tidal ditches and water channels, replacing indigenous plants, and reducing key habitats for water birds wintering and breeding.

Liu Jing, director of the environmental monitoring center at the nature reserve, said: "The soil where this cordgrass grows was turning black. It not only causes biodiversity changes and ecosystem imbalances, but also has an important impact on the natural wetland landscape."

A large expanse of *Spartina alterniflora* was eliminated last year, she said.

Such efforts have resulted in more than 18,800 hectares of the wetlands being restored since 2017, the nature reserve says.

To advance ecological conservation and high-quality development at the mouth of the river, local governments are working on building a Yellow River estuary national park, which will cover 2,152 square kilometers of marine area and 1,371 sq km of land, officials say.

For the past five years, the central government and the authorities in Gansu have launched 70 projects to restore the wetlands and monitor their environment.

Wang, of the management and protection center station, said, the increasing number of birds breeding at the Maqu wetlands shows that the ecological systems there are improving.

Feeding the wonder of our origins

By WANG KAIHAO

Recent studies of the world's oldest known large-scale rice paddies, uncovered in Yuyao, Zhejiang province, may throw light upon the dawn of civilization in the Yangtze River Delta, experts say.

The discovery of the Shi'ao site was announced by the Zhejiang Provincial Institute of Cultural Relics and Archaeology in December last year, following the unearthing of a site that hosted a group of rice paddies dating back 6,700 to 4,500 years.

Follow-up research continued this year, and four sections of the paddies, each covering an area of between 700 square meters and 1,900 sq m, have been examined, said Wang Yonglei, a researcher at the Zhejiang institute who leads the excavation.

"We not only unearthed a road network, which was composed of field ridges," he told an online conference with the National Cultural Heritage Administration recently. "More importantly, evidence of an irrigation system, including waterways, was found."

Archaeologists have found 22 field ridges and excavated many pottery items and stone tools believed to have been used in farming.

The paddies belong to three periods: 4700-4500 BC, 3700-3300 BC, and 2900-2500 BC. They span more than two key archaeological cultures in the region: Hemudu Culture, dating back about 7,000 to 5,300 years, and Liangzhu Culture, which existed between 5,300 and 4,300 years ago.

"Archaeological findings show the development of rice paddies was continuous throughout that time," Wang said. "Rice-growing agriculture is thus the crucial foundation to feeding people and supporting the economy of both cultures. It is also key for nurturing civilization."

Research of the area around the Shi'ao site has also begun to reveal its extraordinary status, Wang said.

The area was once planned for infrastructure construction, but the plan has been dropped to preserve the ancient paddies.

While older grains of rice have been discovered in China — in Shangshan Culture dating back 10,000 years, also in what is today Zhejiang province, carbonized rice was found — this is the first discovery of a complete, ancient rice-growing system, including paddies and irrigation channels.

"Our previous studies mainly focused on the grains, such as the evolution of their varieties, to reflect how people cultivated them," Chen Xingcan, director of the Institute of Archaeology, Chinese Academy of Social Sciences, said. "But the Shi'ao site offers a rare chance to directly study human farming activities."

The discovery of the Shi'ao site may also greatly contribute to



From top: Part of the Shi'ao site that includes a group of rice paddies dating back 6,700 to 4,500 years in Yuyao, Zhejiang province.
DONG XIAOFEI / FOR CHINA DAILY

Pottery pieces excavated from the paddy fields. PROVIDED TO CHINA DAILY

studies of a bigger picture relating to Liangzhu Culture.

The Archaeological Ruins of Liangzhu City in Hangzhou, Zhejiang, were listed as a UNESCO World Heritage Site in 2019. It indicates a jade-worshipping civilization and the capital city of a regional state, covering a significant area around Taihu Lake.

A developed water conservation system was found around the city ruins. An estimated 200,000 kilograms of carbonized rice was unearthed in a core area of the city, but no ancient rice paddies have been found within the city ruins.

At the Maoshan site, near the Liangzhu ruins, a group of small-scale rice paddies was discovered, once thought to be a "state-owned farm", and these new findings at the Shi'ao site offer more clues to the social structure of that regional state from an agricultural perspective.

"The discovery of rice in Liangzhu means there must have been a national-level system for rice production," Li Xinwei, a researcher with the Institute of Archaeology, said. "The Shi'ao site was thought to be on a marginal area of Liangzhu Culture, but the new findings may give us a new perspective."

Song Xinchao, deputy director of the National Cultural Heritage Administration, expects research at the Shi'ao site to unveil specific rice-growing technology of the time.

"We can also see how farmlands were managed. However, it's only a start, and it's too early to draw firm conclusions."

Thread of creativity

By HE QI

Tangxindan defines itself as "a Chinese art luxury brand in the new era". The clothing brand was established in 2018 and makes products with cultural elements while using traditional handicrafts such as embroidery.

Xie Yige, the co-founder of Tangxindan, grew up in a family that is devoted to it. Her mother runs a museum of gold-and-silver color embroidery in Ningbo, Zhejiang province.

"If handicrafts stay in museums they will not become cultural products nor be accepted by young people," said Xie, who is also the deputy curator of the museum.

"Meanwhile, the craftsmen who work at the museum are aging, and there are few young people who want to inherit the craft."

While being troubled by such issues, she found a way out when she

went to study in the United Kingdom.

She met Wu Jiayin and Jin Junhong, who also studied there and were interested in innovating traditional handicrafts, and together they launched the brand.

Xie said the pronunciation of the brand name is similar to that of Chinese words for a soft-boiled egg. It is traditional in some parts of China for couples getting married to partake of soft-boiled eggs, ostensibly helping to ensure they will be happy.

Xie said the brand targets well-educated women aged 25 to 45 who have cultural confidence and are not shy about spending money.

"We name our customers the new generation of *daxiaojie*," Xie said.

The term *daxiaojie* is used to refer to wealthy young women, implying that they were spoiled. Xie would rather the term be taken to refer to young women who are refined and well-educated. The brand aims to provide them with clothing featuring



From left: A Tangxindan bucket bag. Craftswomen work on a gold-and-silver embroidery piece for Tangxindan. A gold-and-silver embroidered piece for the "newborn-gift" collection. PHOTOS PROVIDED TO CHINA DAILY



traditional motifs which meet their needs in various scenarios.

The gold-and-silver embroidery, national intangible cultural heritage adopted in their production, distinguishes the brand from the rest, Xie said.

The handicraft dates back 1,400 years and was only used by royals and dignitaries.

"Its value lies in the distance between each silk thread, fixed gold and silver threads and great work maintaining the same distance," Xie said. "It's also more vivid than the

one embroidered by machine, and people can feel the thoughts behind it."

In addition to changing patterns, the brand's owners have also innovated with various materials to improve quality.

Its design team is inspired by Chinese culture and extracts meaningful elements from poems, festivals and customs to set a theme for each year's products.

To become more competitive in the global market, the brand is focusing on using Chinese handicrafts for

expression and is open to cultures from other countries, Xie said.

The brand now has five product categories: accessories, handbags, women's wear, lifestyle and gifts. To reach more customers depending on how much they have to spend, there are two series for women's wear: Ready-to-wear and haute couture.

The products are sold in the brand's showrooms, multi-brand boutiques and online stores.

The brand is created by a young design team said to have an "international vision" and dozens of

experienced craftspeople from the museum or inheritors of intangible cultural heritage. Wu, one of the co-founders, graduated from the University of the Arts London.

Xie said Wu's work, which benefits greatly from her expertise in textiles, is artistic and expressive, something vital in innovating with traditional handicrafts.

"There is no making without breaking," Xie said.

Wang Jingyi contributed to this story.