

China's Digital Economy Forging Ahead

Voice of the World

By Staff Reporters

The proportion of the digital economy in China's GDP rose from 21.6 percent to 39.8 percent in the past decade, with its scale increasing from 11 trillion RMB in 2012 to more than 45 trillion RMB in 2021, according to the Ministry of Industry and Information Technology.

As digital technology continues to assist industrial transformation and upgrading, the digital economy has become a highlight of China's economic development and international collaboration.

Building digital China

China has made the digital economy a part of national strategy since 2012. The digital economy development is highlighted in its 14th Five-Year Plan (2021-2025), which aims to build China a digital country and to raise the added value proportion of core digital economy industries in its GDP to 10 percent by 2025.

The digital village plan is an important step toward China's rural modernization and sustainable development goals. Russian news agency RIA Novosti reported e-commerce in China's rural areas has helped boost urban and rural consumption and inject new impetus into local economic development.

Smart farming is seen as the highlight of China's modern agriculture, according to Brazil's Notícias Agrícolas, adding that the Internet companies with technical advantages in the fields of big data, cloud computing and digital payment have become major force in promoting agricultural transformation.

The digital economy also offered thousands of employments. From video recording to live streaming e-commerce on platforms, new online professions



A customer uses e-CNY at a coffee shop in Xicheng district, Beijing. (PHOTO: VCG)

are emerging in China and creating more than 100 million job opportunities, said Spain's EL PAS.

Booming amid pandemic

The COVID-19 pandemic has granted an increase in digital payments amid the global financial services, according to the World Bank.

Over the past ten years, paying by mobile phone has become a global trend. In China, 82 percent of adults choose to make digital merchant payments, according to the Global Findex database.

Bloomberg reported more money has been poured into digital infrastructure to roll out new laws, and build data centers to "position China as a leader in the digital economy."

China's digital fiat currency, or e-CNY, has been tested in more than 10 locations nationwide, with various scenarios such as retail and government services. Data from the country's central bank

showed e-CNY transactions hit nearly 87.57 billion RMB at the end of 2021.

Reuters said China is using the digital yuan to stimulate consumption in its pandemic-hit economy, with more e-CNY applications expected in future to boost transparency and effectiveness of government policies.

Promoting international cooperation

China will continue to advance its accession to the *Digital Economy Partnership Agreement (DEPA)*, an international agreement that establishes approaches and collaboration in digital trade, according to China's Ministry of Commerce.

Reuters said China believed that applying to join DEPA will help strengthen cooperation with other countries in digital economy, innovation and sustainable development.

At the 14th BRICS Summit held in June, BRICS countries reached an agree-

ment on *BRICS Digital Economy Partnership Framework*, specifying the direction and key areas of cooperation as well as measures for digital economy cooperation.

South Africa's *The Star* described China's proposals for *China-Africa Partnership Plan on Digital Innovation* as one of that will explore broader cooperation to help Africa strengthen digital infrastructure and promote the building of a community of shared future in cyberspace.

According to Russia's *Tass*, China will build an underwater cable system called *SEA-H2X* in the south of the country by 2024 to improve internet connection between China's regions and Southeast Asia countries. The implementation of this project will significantly increase the pace of digitalization in the Asian region, and increase the speed of information transmission via Internet channels.

Opinion

Don't Worry About Disposal of COVID Related Medical Waste

By QI Liming

In order to block the spread of the pandemic as soon as possible, villages, towns, cities and even provinces in China will carry out regular nucleic acid screening when COVID-19 cases occur.

As the screening will produce a certain amount of nucleic acid testing waste, disposing of the medical waste (MW) is of concern to many.

Some Western media report that China's pandemic prevention policy is producing "a deluge of waste." However, China is well prepared for proper disposal of MW generated from regular nucleic acid testing.

Enough MW disposal capacity

According to data released by the Ministry of Ecology and Environment, by the end of 2021, China had 540 MW centralized disposal facilities, with an approved capacity of 2.15 million tons per year, a 39 percent increase from the pre-COVID-19 period at the end of 2019.

It is estimated that the current approved conventional disposal capacity has reached 1.54 times the amount of MW generated; If necessary, it can be increased by 1.87 times by extending the working hours of the facilities and activating standby facilities.

Ways to deal with two categories of nucleic acid testing waste

The concept of MW and other solid waste generated from nucleic acid tests should not be confused.

It is known that solid waste generated by nucleic acid testing can be classified and managed according to the

source and attributes of nucleic acid testing waste.

The first category is nucleic acid testing waste generated by nucleic acid testing institutions. The waste generated by these nucleic acid testing institutions (including in-home testing) can be generally managed in the same way as MW.

The second category is antigen testing waste, generated by medical and health institutions, those quarantined for observation and residents. Such waste does not belong to nucleic acid testing waste.

The antigen testing waste with positive test results shall be referred to MW management, while waste generated by residents with negative test results will be managed as general household garbage.

Emergency ways to deal with MW

There are three types of routine nucleic acid testing points, including fixed testing sites, convenient testing sites and flowing testing sites. According to statistics of nucleic acid testing waste from typical nucleic acid testing institutions in cities of different sizes, about five tons of nucleic acid testing waste are generated for every one million people.

In addition, if there is a surge of MW due to sudden outbreaks of COVID-19, and the centralized collection and disposal capacity of MW is insufficient, the nucleic acid testing waste could be sorted and diverted to emergency disposal facilities such as domestic waste incineration facilities, hazardous waste incineration facilities, and industrial furnaces for disposal.

Commercialization of Sci-tech Achievements Matures

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Universities and research institutes also adopted other methods to achieve commercialization, such as establishing research institutes, technology transfer centers, and commercialization service platforms with enterprises.

In the contracts, the sum of royalties given to sci-tech personnel comprised

over 50 percent of total cash and equity income, and the award given to major contributors in R&D and commercialization made up more than 90 percent of total royalties to sci-tech personnel.

The report also suggested improving the commercialization system and promoting the implementation of coordinated policies.

Hi! Tech

Fish-shaped Robot Cleans up Microplastic Pollutants

By Staff Reporters

Fish-shaped robots, which can swim around and collect microplastics

from the oceans' floor, have been developed by Chinese scientists.

The research team created a kind of composite nanostructure by using nacre

as its core component. Found on the inner shell layer, nacre is a layered, strong and resilient material of which pearls are composed.

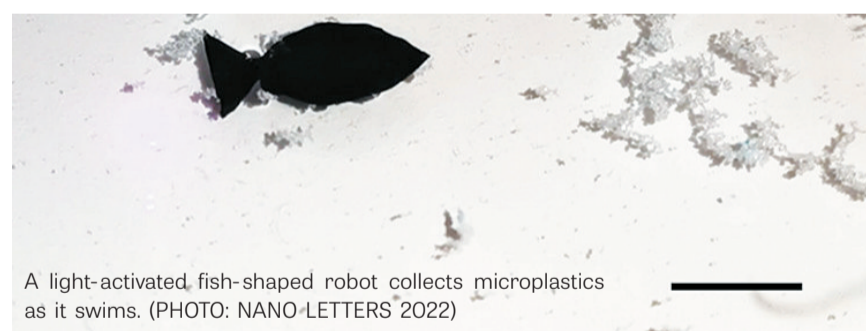
The team developed a fish-shaped robot that is 15 millimeters long and able to swim into tight spaces in the water to absorb polystyrene microplastics and transport them elsewhere.

Its design structure allows it to swim in all directions using sunlight and other clean energy as its power. When a beam of light is shone on the fish's tail, the light deforms the material and causes it to bend. By making

the tail flap side to side, the robot fish can swim up to 2.67 times its own body length per second.

The robot fish contains molecules that are slightly negatively charged and will attract the positively charged microplastics' parts, meaning it does not need to get too close to collect pollutants.

Researchers also showed that the robot is able to heal itself after being damaged and maintain its ability to continually absorb pollutants, adding that it could be used to monitor pollution levels in harsh marine environment.



A light-activated, fish-shaped robot collects microplastics as it swims. (PHOTO: NANO-LETTERS 2022)

Technology Keeping Workplace Safe

By LIU Xia & QI Liming

Technology makes it easier for people to communicate and trade with each other, helping to improve work efficiency and ensuring safety in the process of production.

Some cutting edge technologies also assist with safety in the workplace and training of personnel.

Wearable devices

Wearable devices are bringing huge benefits for industrial manufacturing. Made in different shapes and sizes, they can be small devices like watches, safety hats or safety vests that keep employees protected via tracking their temperature, heart rate and air quality in the workplace.

In warehouses or on construction sites, firstly they can act as protective

devices to prevent workers from getting closer to dangerous equipment or vehicles. Secondly, they are able to help prevent accidents caused by fatigue, stress or unsafe working environments.

For example, a kind of wearable robot based on the theory of exoskeleton ergonomics provides support when lifting heavy objects. This function reduces stress on workers' backs to a large degree and helps them maintain a healthy posture in the long term. (see picture one)

The unmanned aerial vehicle (UAV)

More and more companies and enterprises are using drones in the manufacturing process to help eliminate risks, and to ensure the safety of employees by spotting problems more quickly and even remotely in some cases.

The purpose of using UAVs in petrochemical and refining companies fall in-

to two broad categories: safety and protection. In terms of safety, drones can maintain corporate safety standards, such as conducting visual inspections in the exterior and interior of torch exhaust cylinders or storage tanks, and can also perform the work that could be dangerous to people.

In terms of protection, many companies place signposts around equipment so that drones can follow a predetermined route around it. Drones are equipped with cameras to make sure there are no bugs in the perimeter fence.

In addition to safety and protection, drones can also be used to collect pivotal data. In some fields of oil and gas, where it used to take about three weeks to collect and analyze data provided by robots, operators can now make immediate analysis based on data reported by

drones in real time. (see picture two)

Virtual reality safety training

One of the most widely used areas of virtual reality technology is safety education and training.

Through the establishment of virtual scenes to simulate the process of emergent events, virtual reality technology can replicate situations which impact all kinds of events from the visual, auditory and tactile perspectives.

Studies have shown that people training with virtual reality technology can retain 80 percent of the knowledge after a week, compared with about 20 percent with traditional methods.

In addition, virtual reality technology can significantly reduce training costs for companies. Trainees can repeatedly simulate certain catastrophic scenarios at no additional cost. (see picture three)



1. Wearable robot provides support when lifting heavy objects. (PHOTO: SCREENSHOT)



2. A drone is working for pest control in wheat fields in Shanxi province. (PHOTO: VCG)



3. Construction workers experience safety scenarios in virtual scene. (PHOTO: VCG)