

Strengthening Patent Use in Key Industries

Policy

By ZHONG Jianli

A new set of measures that capitalize on the importance of creating high-quality intellectual property (IP) to boost the efficiency and competitiveness of key industries, was released recently in a collaborative move by China National Intellectual Property Administration, the Ministry of Education, the Ministry of Science and Technology, and other relevant departments.

The move is designed to expedite the commercialization of scientific and technological achievements, while fostering new momentum and advantages in developing new quality productive forces.

The measures call for leveraging various innovation entities and platforms to cultivate a portfolio of foundational and high-value patents, utilizing diverse examination methods to reinforce IP creation in core technology areas.

The measures also recommend the formulation of policies to align standards with patents, urging enterprises along critical industrial chains to engage actively in international technical standard-setting processes.

As part of the strategy to accelerate the commercialization of patents, the



China's independently-developed AS700 civil manned airship "Xiangyun" completes its first demonstration flight for low-altitude tourism scenarios, on August 1, in Jingmen city, Hubei province, which marks that the airship has entered a new stage of commercial use. (PHOTO: VCG)

plans highlight the importance of using already existing patents held by universities and research institutions. A thorough analysis and precise matching of convertible patent resources will be conducted to facilitate their swift transformation into key industries, through a combination of online and offline platforms.

For the enhancement of an integrated industrial IP ecosystem, the measures recommend guiding enterprises and in-

dustrial parks to take the lead in establishing IP operation centers. These centers will offer services in areas such as patent information analysis, patent navigation, technology transfer, as well as investment and financing.

Furthermore, the measures address the need for coordinated international cooperation and competition in the IP sector.

This includes encouraging industry participation in global IP governance in

emerging fields such as digital economy and AI. It also involves conducting impact assessments of international rules on industries, improving overseas IP information service platforms, and regularly updating foreign IP-related information pertinent to key industries.

In addition, enterprises should enhance their IP systems and compliance management capabilities, establishing a monitoring and early warning mechanism for overseas IP risks.

Blueprint for Machinery Renewal, Trade-in Appliances

By YU Haoyuan

A 300 billion RMB ultra-long-term special national debt fund was recently announced to support China's equipment renewal and the trade-in of old consumer goods. This was done via a guideline issued by the National Development and Reform Commission and Ministry of Finance.

Enhancing equipment renewal

According to the guideline, in addition to the existing areas receiving special funding support for equipment renewal, such as industry, environmental infrastructure, transportation, logistics, education, culture and tourism, and healthcare, new areas have been added. These include energy and electricity, old elevators, as well as energy-saving, carbon reduction, and safety renovations in key industries.

Specifically, small and medium-

sized enterprises have been given preferential policies. Taking into account the differences in their fields, the threshold for applying for ultra-long-term special national debt funds has been lowered, removing the requirement that, "The total investment of a project must not be less than 100 million RMB."

Carriers such as ships and trucks are also encouraged to renew with different level subsidies offered to owners. This is to encourage the elimination of high-polluting vehicles and promote the use of low-emission alternatives. The goal is to phase out high-polluting vehicles and promote the use of low-emission alternatives.

China also improved the subsidy standard for agricultural machinery and new energy buses. Each region can add up to six kinds of agricultural machinery to its fleet depending on its individual requirements, while subsidy limits

for scrapping new energy buses and their battery replacement have reached 60,000 RMB.

Promoting trade-in of old consumer goods

Regarding the trade-in of old consumer goods, the two ministries will allocate support funds based on factors such as the resident population and regional GDP. The focus will be on supporting automobile scrapping, the renewal of household appliances and electric bicycles, as well as the renovation of old houses, smart home sales, and other related areas, says the guideline.

Specific measures include providing subsidies to individual consumers for scrapping old cars and purchasing new ones that meet current standards. This includes a subsidy of 20,000 RMB for the purchase of new energy passenger cars and 15,000 RMB for the purchase of fuel passenger cars with a dis-

placement of 2.0 liters or less. Additionally, the government encourages the replacement of home appliances, offering subsidies of up to 2,000 RMB to consumers who purchase high-efficiency home appliances.

Meanwhile, China will continue to support the recycling and treatment of waste electrical and electronic products. The central government will allocate 7.5 billion RMB in 2024 to promote the healthy development of related industries through a "replacing compensation with awards" approach.

The purpose of implementing this guideline is to foster high-quality economic growth, enhance citizens' well-being, and accelerate the transition toward a green and low-carbon economy. The nation aims to bolster domestic consumption and ensure the robustness and sustainability of the domestic market through these concerted efforts.

SMEs to Expand Fine Chemicals Industry

By CHEN Chunyou

People may not be familiar with the fine chemicals industry, but they undoubtedly encounter its products in their daily lives.

Fine chemicals encompass a wide range of products, including cosmetics, detergents, agricultural fertilizers, pharmaceuticals, and high-performance materials in the electronics sector.

China aims to guide the fine chemicals industry towards high-end, green, and intelligent development, according to a recent implementation plan for innovation and development of the fine chemicals industry during the 2024-2027 period, jointly released by the Ministry of Industry and Information Technology (MIIT), along with eight other departments including the National Development and Reform Commission.

The plan has a clear goal of fostering over 500 specialized and innovative "little giant" enterprises by 2027, which refer to small and medium-sized enterprises (SMEs) specializing in a particular market segment, possessing key core technologies, demonstrating strong innovation capabilities, and delivering excellent quality and economic benefits.

Fine chemicals and new chemical materials, which differ from traditional large-scale chemical production, emphasize high performance, specialization, and added value.

Driven by the rapid growth of industries, such as electronics and new energy, China's fine chemicals industry has flourished. According to MIIT, in 2023, the industry's revenue reached approximately 3.9 trillion RMB, accounting for nearly half of the global market share. The industry also produces over 30,000 types of products, with global outputs leading in pesticides, dyes, coatings, pigments, and food and feed additives.

Traditional fine chemical enterprises often face some challenges such as small scale, insufficient R&D investment, low levels of automation, and inadequate collaboration within the upstream and downstream chains, all of

which hinder the industry's high-quality development.

On the other hand, China's fine chemical products are currently primarily concentrated on raw materials and general-purpose products. There is an increased demand for high-end products such as advanced research reagents, high-performance catalysts, specialty surfactants, and high-performance resins, whose deficiency now impacts the stability of the supply chain and industrial chain.

The implementation plan focuses on three key aspects, including key products, key process technologies, and the development of specialized industrial parks. It lays out six major actions aimed at improving supply efficiency, upgrading safety and environmental protection technologies, enhancing the innovation system, cultivating advanced enterprises, and improving the development environment.

In addition, to optimize the industrial layout, the implementation plan prioritizes cultivating more than five world-class fine chemicals enterprises, and over 20 chemical parks that are dominated by the fine chemical industry and have strong market competitiveness.

Tech+Culture

Digital Revival of Longmen Grottoes

By YU Haoyuan

The Longmen Grottoes in Luoyang, Henan province in central China, are a series of cave temples carved into the rocks of the Longmen Mountain. They are renowned for their collection of exquisite Buddhist art. The Wanfo Cave, part of the grottoes, is famous for its 15,000 Buddha statues.

In an alcove in the cave stands the statue of the graceful Guanyin, or Avalokiteshvara Bodhisattva, a Buddhist deity who embodies compassion and mercy. The goddess wears an earth-colored flowing robe with pleats and a gauze-like scarf in pale blue-green is draped around her shoulders, gently falling to the ground. Her hair is piled high on her head with a golden ornament in it. While she holds an oblong vessel in her lowered left hand, her right hand is raised to her shoulder in a gesture of benevolence.

Such details are available today thanks to technology. The original statue fell into ruins with the passage of time and the upper half of Guanyin's face disintegrated. Many art experts thought it would be impossible to restore the splendor of the original statue. However, today's high technology, such as 3D digital

modeling, augmented reality, color detection and analysis, combined with AI and traditional sculpture techniques, has given a new lease of life to the statue.

The virtual restoration was based on extensive research. Luckily, about 100 years ago when the statue was still intact, some explorers and scholars had taken photographs of it. These photos provided an important basis for virtual restoration.

Today, visitors can even see what the statue looked like in different historical periods by scanning the barcode and AR versions of Guanyin emerge, showing the damage and the restoration.

The grottoes now have a digital database detailing the statues, murals and other objects of art inside the grottoes, museum collections, rubbings, and artifacts that were stolen from the caves.

Digital archives are the new way to preserve cultural relics. Since 2021, experts have been utilizing the technology to virtually repatriate the many artifacts taken abroad as well as show the damaged statues in their original form.

Researchers have also collaborated with the Palace Museum in Beijing to digitally restore nine lost cultural artifacts. In the future, the full digital reconstruction of the Longmen Grottoes is expected.



A staff member places 3D-printed Buddha's head at the Longmen Grottoes in Luoyang, Henan province. (PHOTO: XINHUA)

Waxberries Go Global Thanks to Sci-tech

Case Study

By CEN Yingjie

Waxberries, a sweet-sour fruit native to China, is finding its way beyond the country's borders to tempt the palates of a global market. In Qingtian county, one of the largest waxberry producing areas in Zhejiang province, hundreds of kilograms of waxberries have been exported to Singapore, the United Arab Emirates (UAE) and Canada within a week. In the UAE's Dubai, the average price in recent days even exceeds 30 RMB, putting them on the high end of the fruit market.

Despite their unique flavor, waxberries are susceptible to climate change, water loss and microbial decay, making preservation and transportation for export extremely challenging. What then drives China's remarkable waxberry production operation?

Sci-tech key to preservation

According to Qingtian Customs, in 2023 Qingtian exported more than 20 tonnes of waxberries, and this year the number is expected to be over 40 tonnes. The fruit's impressive sales can be attributed to the use of new techniques. First, advanced digital greenhouses are employed to create an optimal environment for the growth of waxberries. Sun Laida, head of a Waxberry planting base in Ningbo, said, "Not only can we see the growth of waxberries in the shed through remote monitoring, but also get real-time data on temperature, humidity and soil moisture, which greatly improves the production efficiency."

Second, during the pickup period, a

set of standardized technologies, including cold-blast air drying, cold storage refrigeration and ice pack sealing, effectively shield waxberries from temperature fluctuations, extending their shelf life to nearly 30 days. During transportation, each waxberry is individually preserved and wrapped with an air bubble film to reduce mechanical damage caused by friction and vibration.

In addition, customs at Hangzhou Xiaoshan International Airport, the port of exit for Zhejiang, play a crucial role in supporting waxberry exports. To streamline operations and reduce costs, Hangzhou customs has opened a "green channel" for advance declaration and round-the-clock protection, ensuring efficient transportation of waxberries to overseas markets.

Innovative marketing strategies

With the emergence of e-commerce in recent years, farmers and exporters are developing a "waxberry plus" model. In Lanxi, a major Chinese waxberry-producing area in Zhejiang, artisans create earrings, rings and other fashionable ornaments using simulated waxberries and leaves, while in Qingtian, a complete metaverse of waxberry ecosystem has been built, allowing users to immerse themselves in VR experiences that simulate interactions of waxberry planting and cultivation.

Through the efficient deployment of resources and innovative marketing strategies, Chinese growers have successfully met the demand for the export of waxberries. This has brought about not only greater development opportunities for Zhejiang, but also serves as an example to other countries that industrial revitalization through science and technology is a reality today.



A worker operates in the hand cream filling workshop of a cosmetics manufacturing company in Huzhou city, Zhejiang province. (PHOTO: XINHUA)