

POLICY REVIEW

‘Bounty system’ to boost tech innovations

Research teams encouraged to apply to work on projects to clear the obstacles faced by industries

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China has adopted a new “bounty system” to give young and capable scientists more opportunities, facilitate the commercialization of their research results, and help them clear technological obstacles to meet the country’s socioeconomic needs, experts said.

According to the system called *jie bang gua shuai* (“accepting the bounty and taking charge”), the government will unveil a list of specific research obstacles submitted either by public institutions or private companies, and all capable research teams can apply to clear those obstacles irrespective of their age, educational qualifications, or the job positions of their leading scientists.

The selected research teams will receive government funding and policy support, but they must complete the project on time and pass the rigorous appraisal.

The new system was proposed by President Xi Jinping in 2016. Since then pilot programs at local government levels have seen varying degrees of success in supporting scientists to quickly overcome technological hurdles, and promote innovation-driven socioeconomic growth. The program, highlighted in the 14th Five-Year Plan (2021-25), will now be rolled out across the country.

List of categories

On May 10, the Ministry of Science and Technology published a list of eight key research categories to be promoted in the next five years. They are: mathematics, stem-cell research, nanoscience, biology, condensed matter physics, catalyst chemistry, engineering sciences, and frontier research using major scientific instruments.

Zheng Jianjian, an official from the ministry’s Department of Resource Allocation and Management, told Science and Technology Daily that the government will also include in the system fields such as material sciences for core equipment, etiology of diseases, clean energy, agricultural sciences, clinical instruments and biomedical material, as well as other subjects crucial for the country’s strategic needs.

The new system is designed to explore new ways of organizing and managing scientific projects, and allowing them to quickly produce practical applications that can benefit both users and the economy, Zheng said. “We want to focus our efforts to make breakthroughs in these fields, and hope to achieve major scientific achievements within two years.

While the threshold for applying for the “bounty system” is low, after a research team is given a research topic, it has to sign an agreement taking full responsibility of seeing the project through.

The performance of the research teams will be evaluated by third-party agencies based on their results and to what extent their work can meet the demands of the end-users, Zheng said. These measures are aimed at encouraging young and capable scientists to try innovative methods to overcome challenges, and motivating local governments to collaborate with other parties to jointly apply for the projects and conduct research for the benefit of the world.

Working out details

Scientists and officials are still working out the details of the new system, such as the criteria for different technological fields, the responsibilities of the parties involved, and what happens to the research team, the funder and the bounty system when a project fails to meet the expectations.

Ji Yongqiang, a member of the Chinese People’s Political Consultative Conference National Committee, said the new system can help resolve some of the biggest issues in

scientific research such as the cumbersome paperwork and the centralization of research resources. Chinese scientists typically seek funding for research by listing their experiments through applications, and often have to spend a considerable amount of energy and time to complete the paperwork and convince funding agencies that their work is worthwhile, he said.

Since established scientists and institutions have great influence and resources in their respective fields, innovation-oriented young talents may not get the chance to lead key projects for lack of recognition or personal connections.

But as the new system will make the research topic public in advance, scientists only need to conduct research to solve the problem, for which, they need not go through unnecessary paperwork. In particular, young scientists can get more resources and opportunities to lead key projects, Ji said.

Liang Zheng, a professor at the School of Public Policy and Management at Tsinghua University, said the new system encourages open and fair competition among research entities, and will allow truly groundbreaking innovations and solutions to shine.

Liu Zhongfan, noted nanotechnology expert and an academican at the Chinese Academy of Sciences, said the new system focuses on the efforts of the most capable talents and allows them to work as a team to overcome tangible technological obstacles. But it may be less effective in promoting basic research because exploring the scientific frontiers may not produce tangible results or practical applications within the required time limit, Liu said.

Long Haibo, a senior researcher at the Development Research Center of the State Council, China’s Cabinet, said the success of

the new system depends on creating realistic bounties and selecting the best candidates for the job.

Local success

Yongkang, a county-level city in Jinhua, Zhejiang province, produces about 44 million metal doors a year, or about 75 percent of the country’s total. But in recent years, this 18-billion yuan (\$2.8 billion) local door-making industry is facing severe challenges due to the outdated production system, the China Central Television reported.

According to the Simto Group, one of the leading door manufacturers in Yongkang, door-making is a physically and mentally demanding job involving at least a dozen steps. Workers not only have to carefully craft the details on the door, they also have to manually transfer these metal doors, each weighting 25-30 kilograms, from one production point to another. Owing to these factors, along with the heat, noise and long working hours at the factory, young workers have shunned the sector, which is threatening the long-term prosperity of the industry and the local economy.

The obvious solution is automation, but Simto discovered that the robots available in the market are too slow and clunky to be used in the door-making industry. Also, one automated production line can produce only one type of door, with no options for extensive customization, which is a major feature of the industry.

So Simto decided to try the new bounty system by announcing a reward of 10 million yuan (\$1.56 million) for a solution. Simto reported its difficulties and requirements to the Jinhua city government, which compiled a total of 100 “bounties” from 66 companies, and held a convention to publicize these

commissions in May last year.

Shortly after, Wu Chuanyu, a professor from the Zhejiang Sci-Tech University, approached Simto. Wu is an expert in agricultural machinery and industrial automation and holds more than 200 patents, and although most of his work is experimental, he had been eager to apply his research in the real world.

Without the bounty system, Simto would not have got the help of such an expert, and Wu wouldn’t have known his research could help the door-making industry. Within six months, Wu and his team designed a smart, automated production line for Simto which reduced the number of workers per factory from 100 to just four. The production line is also highly versatile, capable of making about 80 percent of the company’s customized products.

And with new data and practical experience under their belt, Wu’s team published three scientific papers and received nine patents for their inventions. Early this year, Simto paid Wu 10 million yuan, and their partnership was so mutually beneficial that the media described it as “catching a golden phoenix.”

Similar stories have been reported from other provinces including Guangdong, Anhui, Shaanxi and Hunan. And as of May 14, Hubei province had issued 312 bounties, with research teams taking up 154 of the challenges.

Li Jun, president of supercomputer manufacturer company Sugon, said the bounty system has been used by private companies for some time. But when applied at the national level, it can overcome key technical obstacles and foster a generation of highly skilled and motivated talents.

Xinhua contributed to this story.



More support for science projects and young scientists

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China plans to widen the scope of, and give more support to, science projects led by young scientists.

Earlier this month, the Ministry of Science and Technology released the 2021 guideline for applications for national key R&D programs, covering a wide range of areas, from new strategic electronic materials and rare earth new materials to high-end smart materials, and Earth observation and navigation.

Zheng Jianjian, an official from the ministry’s Department of Resource Allocation and Management, said the aim is to dedicate about 80 percent of the initiative to setting up special projects for young scientists, and supporting more than 230 teams of young scientists this year.

According to the ministry’s data, the government allocated 874 million yuan (\$136.15 million) for 235 projects for young scientists during the 13th Five-Year Plan (2016-20)

period, and under the national key R&D programs, projects in eight key areas were established for young scientists, including nanotechnology, synthetic biology and digital diagnosis equipment development.

“The plan aims to establish more projects, with a wider scope, for young scientists to further expand the fields of study for young researchers and to train more outstanding talents through a national-level platform,” Zheng said.

Young researchers can participate in different fields of studies by choosing different research topics under separate projects, or in independent projects with no subordinate research topics, and without any budget evaluation, according to Zheng.

Unlike basic research projects funded by the National Natural Science Foundation, the key national R&D programs for young scientists will focus on major strategic tasks of the country and will be more demand-driven and goal-oriented, he said.

However, there is an age limit for the

applicants. For frontier research areas, male applicants should be below 35 years of age and females below 38. For other fields, the age limit is below 38 for men and below 40 for women.

Addressing a news briefing while introducing China’s next plan for innovation-driven development in February, Xie Xin, head of the ministry’s Department of Resource Allocation and Management, said: “Young people will be the main force advancing science and technology during the 14th Five-Year Plan (2021-25) period. We should give them a higher and bigger platform, let them undertake independent tasks, take the lead in organizing national projects, and be bold and innovative in the process.”

The guideline was issued as part of the 14th Five-Year Plan, which was adopted in March at the annual session of the National People’s Congress. It is aimed at building a high-level talent pool of young scientists with international competitiveness.

Some academic institutions have already started inviting young talents to apply for

the programs. For example, East China Normal University held a meeting in April, asking young researchers at the university to make full use of the preferential policy and build strong teams to apply and contribute to the country’s scientific and technological development.

Some local governments, too, have issued policies to encourage youths to engage in innovation-oriented research. In April, Chongqing issued 17 concrete measures to attract and cultivate talents aged below 40. The Chongqing local government plans to select at least 100 young talents each year and give them incentives and funds of up to 400,000 yuan for research. As for young entrepreneurs, they can apply for interest-free loans of up to 2 million yuan loans, and high-quality entrepreneur projects can get an extra 500,000 yuan.

The other advantages include allowances, housing, vocational training and entrepreneurial guidance, which are aimed creating a more favorable environment for young talents to engage in research and innovation.

Policy Digest

Transport hubs to get more first aid facilities

The Ministry of Transport and seven more central government ministries have issued a guideline to set up more first aid facilities at transportation hubs and provide first aid training for personnel working in the sector.

The work will be completed in phases during the 14th Five-Year Plan (2021-25) period, according to the guideline published on May 19. During phase one, which will last until the end of this year, the authorities will study and set unified standards for the equipment at the first aid facilities.

The first aid facilities at urban railway stations will be equipped with the necessary medicines and kits during phase two, which will last until the end of 2022. And during phase three, the authorities will promote the good practices developed during the pilot projects of the previous phases in other cities.

According to the guideline, people with first aid knowledge and skills will also be encouraged to use the equipment during emergencies to attend to passengers who suddenly fall ill. And the government will continuously improve relevant policies, laws and regulations to protect the rights and interests of the voluntary relief providers.

E-commerce penetration in rural areas to be increased



The central government will allocate more funds for rural areas to promote the high-quality development of e-commerce, boost consumption and cultivate a group of pilot counties with distinctive features.

According to a notice jointly published by the Ministry of Finance, Ministry of Commerce and the National Administration for Rural Revitalization on May 19, measures will be taken in pilot areas to reduce logistics costs, ensure the average annual increase in online sales is above the national average, and facilitate the smooth transportation of agricultural products to cities and industrial products to rural areas.

The funds will also be used to cultivate entrepreneurs engaged in e-commerce in rural areas, the guideline said. And more efforts will be made to offer special courses on product packaging, photography, sales through live-streaming and the operation of online stores, to returned migrant workers, college students and ex-servicemen.

Government to promote TCM overseas

China has unveiled a series of policies and measures to support national export bases to promote traditional Chinese medicine services and help TCM “to go global”, according to a notice jointly issued by the National Administration of Traditional Chinese Medicine and six other departments.

Public organizations recognized as TCM export bases will be encouraged to provide TCM services for foreigners as special medical services, the notice said. So far, a total of 17 public organizations including the Guang’anmen Hospital of the China Academy of Chinese Medical Sciences have been identified as national export bases for TCM services.

The national export bases will also be encouraged to use their superior resources in terms of brand, techniques, talents and management to establish cooperation with social capital and jointly set up institutions that provide both medical and nursing services for foreigners.

According to the notice, special funds earmarked for foreign trade development and innovation in service trade should be used to boost support for the development of TCM service trade. The notice also said efforts will be made to support the export bases to promote TCM services among patients overseas by using various kinds of internet platforms at home and abroad.

And cross-border delivery companies will be encouraged to undertake international delivery services of TCM.