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Introduction

The story of the month covers boosting science spending is one of the major elements of China's 13th Five-year Plan. Chinese search giant and leading carmaker push Beijing for laws on self-piloted cars. China sets up laboratory to research building solar power station in space. China to establish first commercial rocket launch company: Scientist. President pushes PLA to innovate. China's first national NPO in cyber security founded innovation. China rolls out new policies to encourage innovation. China's innovators to gain from new judicial interpretation. China plays increasing role in global innovation: WIPO.

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Story of the Month

Science is a major plank in China's new spending plan

(By Kathleen McLaughlin, 07-03-2016)

China will invest heavily in S&T over the next 5 years and cut red tape hampering science spending with the hope that innovation will help the country weather its economic slowdown.

In a speech to open the National People's Congress on 5 March, Chinese Premier Li Keqiang—the country's top economic official—gave a broad-brush overview of the central government's draft plan for economic development during the 13th 5-year plan, which runs from 2016 to 2020. Major elements include boosting science spending, which will rise 9.1% this year to 271 billion yuans ($41 billion), reducing bureaucratic barriers for scientists, and improving environmental protection while curbing carbon emissions and other pollutants.

"Innovation is the primary driving force for development and must occupy a central place in China's development strategy," Li told delegates on the first day of the 2-week congress. Li's speech, considered a guidepost for the specific policies that will be fleshed out in the next year or two, used the word "innovation" 61 times—nearly double the mentions it received in his work report last year, the state-run Xinhua News Agency pointed out.

The 5-year plan, which serves as a framework for the Chinese Communist Party's long-term development goals, contains few concrete details on exactly how such measures will be implemented or funded. Instead, it contains a long list of priorities, from building national science centers and space programs to expansion of major infrastructure with thousands of kilometers of new high-speed rail and roadways. China's new plan promises that by 2020, R&D investment will account for 2.5% of gross domestic product, compared with 2.05% in 2014.

Chinese scientists welcome the budget boost for science, but note that the real impact remains in the as-yet unknown details. "The government always has big plans, but it's an uncertain time for the economy so we have to watch what happens next. Implementation is crucial," says Wang Tao, an energy and climate analyst with the Carnegie-Tsinghua Center for Global Policy in Beijing.

China's economic growth slowed to 6.9% in 2015, and the government has set a 5-year GDP growth target of 6.5% to 7%. In Li's outline, technology and infrastructure investments figure prominently in what officials clearly hope is a new growth strategy less reliant on manufacturing and heavy industry.

Themes in the new 5-year plan include the domestic production of gas-turbine engines and planes, and increased focus on neuroscience and genetic research, national cyberspace security, and deep space exploration. Chinese aerospace officials told state media last week they hope to launch a Mars probe by 2020. Big data, high-tech medical devices, and cloud computing also earned mention as priority projects. Li spoke of tax breaks for companies that invest in high-priority endeavors and promised a reduction of bureaucratic hurdles to promote R&D.

"We will implement the strategy of innovation-driven development, see that science and technology become more deeply embedded in the economy, and improve the overall quality and competitiveness of the real economy," Li said.

The plan spells out some measures for China's environmental protection and energy production, but it's unclear how much the measures will differ from what is already underway. By 2020, the government wants to reduce energy consumption by 15% and carbon emissions by 18%. In a news conference yesterday, Xu Shaoshi, the head of the National Development and Reform Commission in Beijing, said China will remove 500 million tons of coal production capacity in the next 3 to 5 years. Meanwhile, nuclear power capacity is slated to double to 58 gigawatts installed by 2020.

China is reorganizing its environment ministry to create separate departments focused on water, air, and soil. Scientists applaud what they view as a concerted government effort to tackle soil pollution. "After so many years of rapid industrialization and urbanization in China, soil pollution is clearly now evident and needs due attention," says Yong-Guan Zhu, director general of the Institute of Urban Environment in Xiamen. He says that measures should include creation of a national soil surveillance system.

With reporting by Christina Larson.

(*http://www.sciencemag.org/news/2016/03/science-major-plank-china-s-new-spending-plan*)

News

1. Chinese search giant and leading carmaker push Beijing for laws on self-piloted cars

(SCMP, 03-3-2016)

The chairmen of Chinese internet search provider Baidu and carmaker Zhejiang Geely Holding Group have urged Beijing to speed up the drafting of a legal framework for autonomous driving technology.

Baidu chief executive Robin Li and Li Shufu, founder of Volvo owner Geely, wrote in separate proposals to the political advisory body, which is meeting in Beijing, that early establishment of a legal system governing autonomous driving would boost development of the technology and attract investment.

Mainland carmakers and tech companies are competing in the area with the likes of Google in the United States, Daimler in Germany and Nissan in Japan.

“Autonomous driving technology brings along new challenges and opportunity to China’s automobile industry,” Geely’s Li said in his proposal to the Chinese People’s Political Consultative Conference.

“It is an urgent task to start preparing for the establishment of our legal framework.”

The race to bring to market self-piloting cars will depend in part on how receptive regulators are to the technology.

In the United States, the National Highway Traffic Safety Administration in February told Google it would interpret the company’s software as a “driver” – a step toward compliance with safety standards.

The agency is also planning a US$4- billion grant programme over 10 years to fund automated vehicle pilot projects.

In Hong Kong, Tesla was forced to remove autopilot features after the city’s Transport Department said they had not been approved.

The department has allowed some autopilot features like automatic parking, side collision warning and brake holding -functions.

However, other autopilot features such as auto lane changing and auto steering remain -disabled.

Nissan, Japan’s second-largest carmaker, plans to make autonomous-drive features available in its domestic market this year. Japan and Germany propose international standards throughout the United Nations Economic Commission for Europe.

(*http://www.scmp.com/tech/china-tech/article/1920420/chinese-search-giant-and-leading-carmaker-push-beijing-laws-self*)

2. China sets up laboratory to research building solar power station in space

(SCMP, 08-3-2016)

China has started laboratory research to develop a solar power station in high orbit to beam potentially huge amounts of energy back to earth.

Tests to develop technology for the station are underway at a ground laboratory in Beijing, the Space and Technology Daily reported, a newspaper run by the Ministry of Science and Technology.

The article quoted Zhang Bonan, the chief designer of manned space vehicles at the China Aerospace Science and Technology Corporation, as saying that work had begun on the lab project.

The plan envisages putting a space station with a huge solar array in orbit about 35,000 km from earth.

A solar power station would potentially be able to produce huge amounts of energy as it directly receives sunlight without filtering from the earth's atmosphere and it could operate 24 hours a day.

The laboratory leading the project at the China Academy of Space Technology in Beijing was named after Qian Xuesen, the father of China's missile and space technology programme, Zhang was quoted as saying.

China's solar power project in space has been largely confined to designs on paper, according to previous reports, but the latest remarks by the senior space official suggest it has moved into a higher phase of development.

The technology could potentially have military applications as a weapon if high sources of energy could be beamed at earth.

No timeline was given in the newspaper report on when China might start building the orbiting solar power plant, but previous media reports have suggested it might be launched between 2030 and 2050.

Researchers in other countries such as the United States and Japan had proposed similar designs since the 1970s, but no project has come to fruition due to the enormous costs and technical challenges involved.

These include finding a method to beam the high amount of energy back to earth.

The longest distance for the wireless transmission of energy was reported by researchers in Japan in 2015. They only managed to beam 1.8 kilowatts of energy to a small receiver 50 metres away.

Zhang told state media at the meeting of China's legislature in Beijing this month that one breakthrough had been made through the design of "multiple rotary joints", but he did not elaborate on the nature of the technology.

(*http://www.scmp.com/news/china/policies-politics/article/1922390/china-sets-laboratory-research-building-solar-power*)

3. China to establish first commercial rocket launch company: Scientist

(China Daily, 15-3-2016)

China will establish a commercial rocket development and launch company, a scientist with a state-owned space technology enterprise said on 12 March.

Hu Shengyun, chief model designer of China Sanjiang Space Group (CSSG), said that Kuaizhou-11, the company's latest carrier rocket, is scheduled to conduct a commercial launch in 2017.

Hu, also a national legislator, told Xinhua on the sidelines of the annual legislature session that the company has been planning to set up a dedicated company as part of the commercialization of the Kuaizhou series carrier rockets. The undertaking has attracted the attention of certain Internet giants.

CSSG, which is located in central China's Hubei province, launched Kuaizhou-1 and Kuaizhou-2 solid-fuelled carrier rockets in 2013 and 2014. Kuaizhou means speedy vessel in Chinese.

Commercial use in space industry is a huge market. In the United States, commercial satellites account for more than a half of the satellites in orbit. China, however, has yet to secure a sizable space for itself in the market.

"Commercialization can help us make our mark in the market,as it will reduce the cost in satellite development and launch services," added Hu.

(*http://www.chinadaily.com.cn/china/2016-03/15/content_23884974.htm*)

4. President pushes PLA to innovate

(China Daily, 14-3-2016)

The People's Liberation Army must build itself by innovating in every respect, President Xi Jinping said on 11 March.

Xi, also chairman of the Central Military Commission, told national lawmakers from the PLA during a panel discussion that the capability to innovate is one of the key factors that will determine the Chinese military's future.

He urged top PLA officers to "emancipate their minds" and to embrace new ideas and methods.

The president said the next five years will be crucial for the development of national defense and for the PLA in building its overall ability through innovation. He did not elaborate.

He also urged the PLA to improve its military theories to ensure that they better guide the military's growth.

Xi stressed that cutting-edge military technologies have strategic significance, ordering the military to select key fields for research and development.

He asked the PLA to achieve superiority in important scientific and technological fields and to better transform research results into practical use.

Xi told top military officers to upgrade their managerial abilities to make the PLA more professional and efficient.

A military expert in Beijing, who declined to be named, said, "The ongoing reform of the PLA has entered a stage where many existing policies can no longer match reality, while some old training methods have even begun to hinder the PLA's development.

"Every major military power in the world is overhauling its military theories, upgrading equipment and rearranging ... each of its services.

"Therefore, only by reform and innovation can the PLA keep pace with them and surpass them in the future."

Hua Ming, deputy commander of a submarine flotilla, said the PLA Navy now asks for all exercises to match real combat situations and also focuses on improving combat capability.

He said the drills he took part in during the past year had been more sophisticated than those conducted previously.

(*http://www.chinadaily.com.cn/china/2016twosession/2016-03/14/content_23848773.htm*)

5. China's first national NPO in cyber security founded innovation

(People.cn, 25-3-2016)

China's first national non-profit organization (NPO) for cyber security was founded Friday, to pool resources that will support the safety and development of the Internet.

The Cyber Security Association of China comprises 257 founding members, including major Internet firms, cyber security enterprises, scientific research institutions and individuals.

The association will play a guiding role in cyber security governance, and pursue international exchanges and cooperation in this regard, Wang Xiujun, deputy director of the National Internet Information Office, said at the founding ceremony.

The association will be a cooperation platform for anyone who is interested in engaging with cyber space safety, said director of the association Fang Binxing, who is also an academic with the Chinese Academy of Engineering.

(*http://en.people.cn/business/n3/2016/0325/c90778-9035817.html*)

6. China rolls out new policies to encourage innovation

(China Daily, 30-3-2016)

China's State Council on 27 March announced a string of new policies to encourage innovation as the country seeks to foster new engines for growth.

China will set up three new "national innovation demonstration zones" in the provinces of Henan, Shandong and Liaoning, bringing the number of such areas to 14, according to a statement issued after a State Council meeting chaired by Premier Li Keqiang.

The zones, including Beijing's Zhongguancun, known as "China's Silicon Valley," and Shanghai's Zhangjiang high tech zone, have been created to pilot new ideas and development models for use nationwide.

Expansion of the program is aimed at fostering trailblazers for China's economic restructuring and transformation, according to the statement.

The State Council will test innovative reforms in China's financial hub of Shanghai over three years, including exploring new financial service models and simplifying foreign investment rules.

Government intervention will be further reduced to create an amicable environment for business start-ups and innovation, the State Council pledged.

To boost employment and sustain growth, the Chinese government has stressed the role of innovation and entrepreneurship in its 13th five-year plan. A wide range of measures has been unveiled, including financial support, facility construction and administrative assistance, for start-ups.

At 27 March 's meeting, the council also decided to foster city clusters centered around Chengdu and Chongqing to stimulate economic potential in western regions.

(*http://www.chinadaily.com.cn/china/2016-03/30/content_24194930.htm*)

7. China's innovators to gain from new judicial interpretation

(China Daily, 22-3-2016)

A new judicial interpretation on patent disputes was published on 19 March, aimed at providing better protection for innovators and improving technological developments in China, officials of the national top court said.

Effective from April 1, the interpretation is an updated and revised version of one also issued by the Supreme People's Court in 2009, Song Xiaoming, chief judge of the No 3 Civil Tribunal under the top court, told a news conference.

The top court decided to update the interpretation due to the increasing number of patent disputes over the past five years and the pace of technological development, according to Song.

Wang Chuang, deputy chief judge of the tribunal, said that the new interpretation will provide more legal protection for innovators.

It will also address a major complaint in previous patent disputes, that it was hard to collect evidence and lower compensation, Wang added.

(*http://www.chinadaily.com.cn/china/2016-03/22/content_24024216.htm*)

8. China plays increasing role in global innovation: WIPO

(China Daily 18-3-2016)

China has continued to perform strongly in international patent and trademark filing against the backdrop of a moderate worldwide intellectual property (IP) filing growth, according to the latest figures released by the World Intellectual Property Organization (WIPO).

The WIPO issued a report analyzing the amount and sources of global IP applications in 2015, including patents, trademarks and industrial designs, in Geneva on 13 March.

"Global IP applications provide a good indication of the incidence and location of innovation," said Francis Gurry, Director General of WIPO at the press conference in Geneva.

"We see through this indicator that, while the United States of America maintains its premier position, the geography of innovation continues to shift and to evolve, with Asia, and in particular Japan, China and the Republic of Korea, forming the predominant geographical cluster," Gurry added.

International patent applications filed under WIPO's Patent Cooperation Treaty (PCT) were up by 1.7 percent to 218,000 in 2015, the slowest growth in five years, with the United States extending its long-standing position as the top source.

China's PCT applications exceeded 29,800 in 2015, an increase of 16.8 percent, ranking third for the third year behind the United States and Japan.

The three top filing companies were China's Huawei Technologies, followed by based Qualcomm and China's ZTE Corp. Huawei topped the list since 2013.

"China has played an increasing role in global innovation with its improved innovation ability and awareness of IP," Chen Hongbing, Director of WIPO Office in China, told Xinhua.

The report revealed that, with over 2,400 applications in 2015, China made the most filings for international trademark applications under the Madrid System since it became a member of the system in 1989. The country was in seventh place among all filers.

"We can see that Chinese enterprises are picking up their pace in doing business overseas. They are building international brands to improve competitive standing in the global market," said Chen.

Chen attributed the achievements to pursuit of an innovation-driven economy. "Reform of scientific and technological systems, increasing investment in research and development and strengthened IP protection have driven progress."

The WIPO expects China's technology, products and services to benefit the world through the Belt and Road and international production capacity cooperation, and is willing to use their innovation resources to better serve China's economic growth, Chen said.

Chen suggested China speed up the process of becoming a member of Hague System that governs the international registration of industrial design.

"China, as a major manufacturing nation, should better use industrial design as an IP tool to help its manufacturers winning competitive advantages in the global market," Chen said.

(*http://www.chinadaily.com.cn/china/2016-03/18/content_23929579.htm*)