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State Council Determined to Reform Scientific Research Project and Funding Administration

At an executive conference of the State Council on January 22nd chaired by Premier Li Keqiang, it was decided that the administrative rules on the scientific research project and funding were to be reformed.

During the conference, it was noted that in order to implement the innovation-driven development strategy and highlight the leading role of scientific and technological innovations in socio-economic progress, the administrative rules on research projects and funding must be reformed. By doing so, the financial resources will be directed to the teams with strong capacities for innovation in R&D, as well as to the projects which address the major demands of the society, thus optimizing allocation of the government financial resources. To meet the policy objectives, three principles must be followed.

First, integrate government support with the innovation initiative of businesses. Financial resources will be channeled into key scientific research projects which focus on basic and advanced studies, strategic high-technologies, social services, and generic technologies. A mechanism combining central fiscal funding and social funding is to be set up to leverage limited public resources for substantial results. For

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market-oriented projects, the enterprises will be allowed to play a leading role in deciding the research direction and resource allocation. The business sector is also encouraged to collaborate with universities and research institutes for both basic research and applied studies, so as to facilitate the translation of science into technologies and then into industrial productivity.

Second, streamline administration, delegate power to lower levels and simplify approval processes. An open and transparent system governing the application, initiation, review and approval processes will be established, and performance evaluation, dynamic adjustment, and termination of projects will be improved. In addition, more strict supervision will be applied to project funds, and a blacklisting system for research integrity will be put in place to avoid the multiple application of one project and the overlapping subsidizing. The approach on which administrative methods are used to approve research projects and allocate funds will be abolished to ensure that the funds are well spent.

Third, motivate researchers. The policies regarding the income distribution of research staff will be improved to include incentives based on position responsibilities, performance and tangible contributions. The evaluation and incentive system will be reformed, and the flow of personnel between research and educational institutions and the business community is encouraged. Policies on distributing revenues generated from the commercialization of research outcomes will be improved and implemented; tax credit favoring innovation will be concretized so that innovative intellectual inputs can be properly rewarded.

(Source: Science & Technology Daily, Jan. 23, 2014)

Science Financing Services Enhanced by Six Government Departments

Recently, the People's Bank of China, jointly with the Ministry of Science and Technology (MOST), China Banking Regulatory Commission, China Securities Regulatory Commission, China Insurance Regulatory Commission and the State Intellectual Property Office, issued the *guideline on Advancing Institutional Innovation and Providing Better Science Financing Services*. The guideline provides that the funding channels that conform to the S&T innovation pattern need to be diversified. Tech-based companies will be supported in their efforts to be listed, re-financed and reorganized; the financial requirements of the IPOs of such companies will be loosened and the process simplified. The qualified companies are also encouraged to be listed overseas.

According to the guideline, financial institutions and system that contribute to S&T innovation will be supported and developed. Banking financial institutions are encouraged to establish or reorganize branches (and sub-branches) to specialize in providing financial services to small and medium-sized technology companies. Micro-credit companies, financial leasing companies and finance companies that serve tech-based enterprises will be developed. Financial intermediary platforms, e.g. science and technology financial service centers, will be set up to increase the supply of financial services to innovation activities.

As required by the guideline, banking financial institutions will accelerate the innovation of credit product offerings for the scientific and technological industry. The rates pricing, credit approval, credit risk management and internal incentives will be improved to leverage the differentiated risk tolerance as a basis in conducting credit business with tech-based companies. Credit products will be diversified and services created to enable banking

financial institutions, on the premise that risk prevention requirements are effectively met, to collaborate with venture capitals, securities firms, insurance companies and trust companies to explore cross-sector financial products to develop intellectual property rights pledged financing and innovative debt services.

The guideline also encourages and supports related departments to optimize work process and improve the efficiency of issuance, in an effort to support the tech-based enterprises to raise funds in the bond market. Venture capitals will be developed and angel investment encouraged; regional technology equity markets will be established; policy environment and exit system for venture capital will be improved; venture capital institutions will be directed to invest in tech-based enterprises. The technology companies are also encouraged to conduct share transfer and private placements via the National Equities Exchange and Quotations (NEEQ) system.

The guideline also states that multiple financial policy instruments will be employed to direct the banking financial institutions to expand their credit support to tech-based enterprises, especially micro and small-sized enterprises. The pilot program of integrating S&T with finance will be taken further and its second phase will be rolled out to include more regions.

(Source: China High Tech Industry Herald, January 20, 2014)

Integrating Science and Technology with Finance and Establish Innovative Service System

Since the document "*Opinion on Advancing Institutional Innovation and Providing Better Science Financing Services*" issued to the public, it has triggered heated discussion nationwide. Hi-tech industrial development zones across the nation are actively building the local science financing service systems, improving financial policy frameworks that cover the life cycle of the tech-based enterprises, setting up effective mechanisms for financial services with distinctive task at different levels, and promoting innovation in financing products and fund channels. In so doing, they are exploring measures and ways to integrate S&T activities with finance in depth according to the local conditions.

Policy Tool of Integration of S&T with Finance

In order to promote the integration of S&T activities with financial support, MOST, together with the People's Bank of China, China Banking Regulatory Commission, China Securities Regulatory Commission, and China Insurance Regulatory Commission, released in 2010 the *Notice on Issuing the Implementation Plan for the Pilot Program of Integrating S&T with Finance*. In 2011, the pilot program was officially launched and 16 regions, such as Zhongguancun Science Park of Beijing, Tianjin and Shanghai, were proposed to be the first batch of pilot areas. Over the past two years, initial tangible results have been delivered in the first phase of the pilot program. In 2013, the 16 pilot regions mapped out 342 regulations on science financing, and 11 of these regions, including Shanghai and Zhejiang, set up special funds with a total value of 3.2 billion yuan.

Apart from these pilot regions, other localities across the country proposed new measures to further promote the integration of S&T with finance. For example, in Shandong province, the *Provincial Administrative Methods on Funds Compensating Financial Institutions' Risks Associated with Loans to Strategic Emerging Industry and S&T Projects* was issued and, together with other policies, formed initially

the policy framework favorable to the integration.

By optimizing the policy framework and exploring the integration approaches, Heilongjiang Province began improving policy measures to facilitate technological innovations of the enterprises, to create a sound policy environment promoting the development of tech-based enterprises.

In Guangdong province, the *Implementation Opinion on Advancing the Integration of S&T with Finance* was released, which stated the objectives and requirements of the integration and concretized the efforts from the perspectives of venture capital, science and technology credit, capital market and financial service system and institutional set-up.

In 2013, Zhongshan Torch Hi-tech Industrial Development Zone (THIDZ) issued a series of policies with regard to the life cycles of tech-based SMEs, providing differentiated support to enterprises at different development stages and forming a comprehensive financial support and services covering the whole life cycle of tech-based enterprises. For example, for the enterprises in the seed stage, incubation polices have been put in place, including regulations on pioneer park for overseas students, administrative methods on tech-based enterprises in the incubation center within the park, methods on building hi-tech park incubators, administrative methods on science and technological innovation and development funds. For start-ups, there is a set of policy measures to support their growth in early and middle stage by providing venture capital, IPR-pledged loans, innovation funds for tech-based SMEs, and special subsidies and rewards. For growing enterprises, favorable measures are put in place to enhance their further development, which help the enterprises get listed on the National Equities Exchange and Quotation system, encourage the development of private equity funds and facilitate fund-raising of the enterprises. For mature enterprises, policies for their business optimization and technology upgrading are proposed, including policies encouraging the headquarters development, supporting and rewarding 100 outstanding enterprises, special programs for health care industry, and special funds for energy conservation and emission reduction.

What Zhongshan THIDZ have done served as an example of various regions' efforts to formulate local financial policy measures for tech-based enterprises, which covered stages in their life cycle from incubation, start-up, growing to maturity and upgrading. By the tailored policy measures according to requirements of the stages, they have provided continuous support for enterprises to met their needs over a long period.

Improve Science Financing Service System

In August 2012, the National Development and Reform Commission, the Ministry of Science and Technology, the Ministry of Finance and six other government departments, together with Beijing Municipal government, released the *Opinion on Establishing the National Science Financing Innovation Center in Zhongguancun Science Park*, which is the first national guiding document on science financing. The Opinion stated the main objective of the national innovation center in nine priority areas such as enterprise credit system, IPR investing and financing system. Over the past one year, Zhongguancun Science Park has achieved tangible outcomes in credit system, venture capital, S&T credit, and financial service platform for tech-based enterprises. Recently, the operating company Zhongguancun Development Group established a platform with comprehensive product offerings and professional operation and management, providing customer-tailored, differentiated financial service to SMEs. This has promoted integrated development of the capital chain, innovation chain and industrial chain.

In 2013, Zhongshan THIDZ multiplied their efforts in improving the science financing service system for tech-based companies. The Zone introduced the first batch of micro credit companies, financing guarantee companies, the first financial leasing company in the city of Zhongshan and the first filed municipal-level private equity in Guangdong. In doing so, a market-based financial service system has been taken shape.

This system consists of 38 sub-branches and outlet of 11 banks, 11 insurance companies, 16 private equity funds, five fund management companies, three guarantee companies, two micro-credit companies, one financial leasing company, four branding consultancy firms and more than 10 securities brokers, accounting firms and law firms. A financial service district has been set up at downtown Zhongshan, which has attracted nearly 30 companies in service industry and promoted the synergies between financial institutions.

Attempts were also made in Hunan province. A special S&T fund has been set up at the provincial level. The funds, invested through the hi-tech zones in Changsha, Xiangtan and Zhuzhou, has reached a total of 400 million yuan. A web portal for the fund (hnstf.gov.cn) has been set up, and a provincial equities exchange platform and science financing service center established respectively. Seven banks, including China Development Bank, have been brought in to conduct strategic cooperation for combination of S&T activities and financial support. Banks were encouraged to set up branches there to serve tech-based SMEs exclusively.

According to the statistics from MOST, there are 1183 venture capital organizations in China with assets under management totaling 300 billion yuan. In the 16 regions where the pilot programs of integrating S&T with finance were carried out, over 60 financing companies have granted an outstanding credit balance of about 30 billion.

With joint support of the Torch High Technology Industry Development Center of MOST and the Science and Technology Financial Promotion Association of China (STFPAC), the Venture Capital Professional Commission was established in 2000. In recent years, the commission has gradually set up various work stations across China, through which it engaged with different segments of the capital market to keep broadening the financial channels for tech-based SMEs.

(Source: China High Tech Industry Herald, January 27, 2014)

SME Technological Innovation Underpinned by Central Government

In order to underpin the technological innovation of SMEs and promote the commercialization of the research achievements, the central government has earmarked a total of 26.8 billion yuan in an innovation fund from 1999 to 2013. In recent years, the central government has continuously increased financial support to the innovation fund and implemented policies with following objectives:

Firstly, support the SMEs in their innovation initiatives. According to the national strategy of enhancing the innovation capacities of enterprises and foster strategic emerging industries, the initiatives for innovation of tech-based SMEs will be supported, especially in the fields of electronics and information, bio-medicine, new materials, optical-mechanical-electro integration, resources and environment, new energy and energy efficiency, and high-tech services.

Secondly, support the improvement of the environment for innovation and entrepreneurship. Since 2006, the central government has allocated special funds in the innovation fund to improve SME public services and support the public service institutions to share resources for innovation and offer professional and technical services and technology transfer services to tech-based SMEs, thus pooling resources towards enterprises and optimizing the environment for innovation and entrepreneurship of SMEs.

Thirdly, channel public capital towards tech-based business start-ups. In 2007, the Ministry of Finance and MOST set up the venture capital guiding fund for tech-

based SMEs, aiming to channel venture capital towards technology start-ups through temporary equity holding, risk subsidy and investment guarantee.

According to statistics, from 2008 to 2012, a total of 21,182 enterprises supported by the innovation fund invested over 10.78% of their revenue into R&D, much higher than the average of the companies listed on the ChiNext board (5%) and SME board (2.5%). By the end of 2012, 41,196 patents had been granted to them, among which 10,357 were invention patents, 10,908 software copyrights and 5,177 software product registrations. Statistics show that the innovation fund successfully facilitated innovation initiatives of SMEs.

The innovation fund has also promoted SMEs' growth, improved profitability and enhanced comprehensive capabilities. By the end of 2012, 12,624, or 59.6% of financed enterprises, have started mass production, and about 85% of financed products have started generating revenue. The yearly growth rate of their business revenue surpassed 70%, with the average growth amount being 11.91 million yuan for each.

By the end of 2012, the venture capital guiding fund have invested 2.059 billion yuan. Of which, 850 million yuan were allocated to 249 venture capital companies through a way of risk subsidy and investment guarantee, and a total of 6.994 billion yuan invested in tech-based start-ups. Direct assistance was provided to 545 start-ups – the focuses of venture capitals. Total 1.209 billion yuan were allocated through temporary equity holding to set up, together with private capital, 46 venture capital organizations which focused upon tech-based start-ups. The registered capital of these venture capitals totaled 8.38 billion yuan. In 2013, the annual budget for the guiding fund was increased substantially to 1 billion yuan, doubling that of the previous year, with an aim to attract more private capital towards tech-based SMEs in the initial stage.

(Source: China High Tech Industry Herald, October 28, 2013)

Top 10 of both Domestic and International Science Stories Unveiled by CAS and CAE

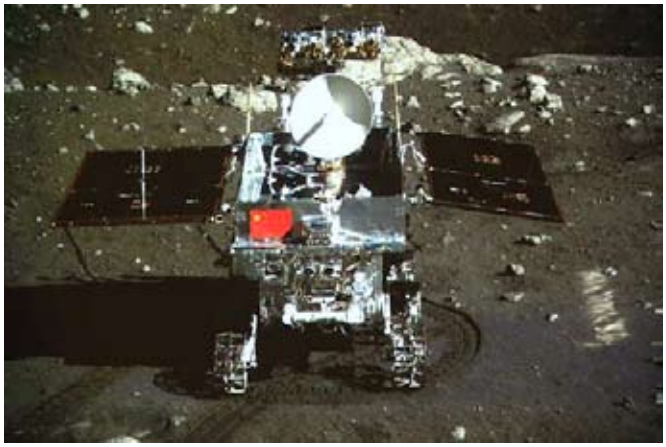
On January 24, at the "Night of Sciences" ceremony in Beijing, the Chinese Academy of Sciences and the Chinese Academy of Engineering unveiled their selection of the top 10 domestic and international science stories of 2013.

The top 10 domestic stories are: 1) soft landing of Chang'e-3 on the moon; 2) successful launch of the Shenzhou-10 spacecraft; 3) discovery of quantum anomalous Hall effect for the first time; 4) breakthroughs made in the studies of avian flu with both H5N1 and H7N9 types; 5) Tianhe-2 remains the world's top supercomputer; 6) development of the world's lightest material; 7) development of the world's only practical deep-ultraviolet diode-pumped solid-state laser; 8) ultra-high resolution Raman imaging of a single molecule; 9) development of a nuclear power generator with the world's largest unit capacity; and 10) birth of the world's first mimicry computer.

The international top 10 are: 1) a man-made spacecraft leaves the solar system for the first time; 2) the first living tissue printed from a 3D printer; 3) development of the world's first carbon nanotube computer; 4) discovery of the four-stranded structures of human DNA; 5) capture of high-energy neutrinos from outside the solar system for the first time; 6) successful cultivation of human embryonic stem cells; 7) the world's biggest astronomy project put into operation; 8) the first ultra-high definition 3D map of the human brain; 9) the first human brain-to-brain interface allows remote control over the internet; 10) Russian rocket

sends 32 satellites into space in one launch.

(Source: Science and Technology Daily, January 24, 2014)



On December 15, 2013, China's lunar probe Chang'e 3 lander and rover started taking photos of each other, proving Chang'e 3 mission a great success. This is an image of the Yutu rover taken by the Chang'e 3 lander, which was displayed on the screen of Beijing Aerospace Control Center.

(photo by Wang Jianmin, Xinhua News Agency)

On April 16, 2013, H7N9 reagent was shown at Xinxiang Center for Disease Control in Henan. The reagent can be used in detecting human infection of H7N9 virus.

(photo by Li Bo, Xinhua News Agency)

On March 19, 2013, Professor Gao Chao from the Department of Polymer Science and Engineering of Zhejiang University displayed carbon aerogel. This matgerial has a density of merely 0.16 milligram per cubic centimeters, which makes it the world's lightest material ever.

(photo by Ju Huanzong, Xinhua News Agency)

On September 4, 2013, a researcher at CAS was examining the light attenuation of the deep ultraviolet non-linear optical crystal. On September 6, the "deep ultraviolet solid-state laser R&D project", a National Key Project for Scientific Instruments by CAS passed tests, making China the only country in possession of practical, sophisticated deep ultraviolet solid-state laser.

(photo by Ma Ning, Xinhua News Agency)

(Editor's Note: All news in the issue are translated from Chinese texts for your reference. They are subject to checks and changes against official release of original Chinese or English texts.)