



China through the Telescope

A Southwestern perspective on Contemporary China

5th Seminar, 6 July 2016

China's Science and Technology Cooperation Strategy Best practices from Chongqing

Experts Roundtable

"Innovation is the primary driving force for development and must occupy a central place in China's development strategy," this was the opening statement of China's Premier Li Keqiang at the National People's Congress this year. The 13th Five-Year Plan – the central government's plan for economic development running from 2016 to 2020 – identified innovation as the main driving force for future growth, with improvements coming from Science and Technology (S&T) to produce the 60 percent of the national economic growth by 2020.

Thus, the national strategy for S&T cooperation is an important and timely issue in today's China. Specific attention is paid to the role universities and research centres could play, and on how to engage them in order to maximise synergies and encourage the creation of spin-off and start-up companies, as well as other forms of spill-overs generating from the cooperation of research institutions and private sector. The Municipality of Chongqing is making steps forward moving within the national framework.

The Galileo Galilei Italian Institute was pleased to welcome Mr Sunshine Dong, Chairman of the Committee of International Innovation Cities and Executive Director of the Finance Committee of International Technology Transfer Network (ITTN). Taking part to the 5th China Through The Telescope seminar Ms Niki Huang, Director of West China Office of ITTN, Mr Luca Borsano, Engineering Director of Saic Iveco Hongyan (SHI), Mr Xie Kaiji, Director of Chongqing Green and Intelligent Technology Centre, Mr Yang Shaobo, Vice Director R&D Unit of Chang'An Motors, Prof Li Zhengguo, Dean of Life Science Institute of Chongqing University, Mr Gavin Chen, School of Automation of Chongqing University, representatives from the China-Italy Chamber of Commerce, from consultancy firms, and other Schools of Chongqing University. The seminar was chaired by Mr Francesco Silvestri, Acting Director of the Galileo Galilei Italian Institute.

Mr Dong started his presentation with an overview of Chinese economy. From a macro-economic perspective, while the country's GDP has been steadily growing, the GDP growth rate has registered a decline since the year 2007. Against this background, the central government has been trying to keep the economy growing as fast as possible through the introduction of different policies.

A remarkable event, was the recent decision of the International Monetary Fund (IMF) to include the Renminbi (RMB) in the basket of currencies which make up the IMF's Special Drawing Right, which has been seen as a positive achievement. Moreover, the RMB has registered a serious increase as an international payment method.



Finally, Mr Dong pointed out the phenomenon of shadows banking: shadow economy in China is huge, and it affects the economy as a whole.

Although fixed-asset investment has declined, it still represents the main driver for China's Gross Domestic Product (GDP). Foreign Direct Investments (FDI) dropped as well.

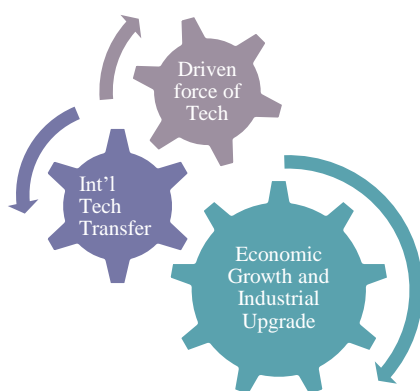
More seriously, growth rate of private investment has decreased to 3.9% in the first quarter of 2016, from over 25 percent in 2012. The central government has been trying not only to maintain the economic growth, but also to make the growth model healthy and sustainable.

To face these problems, China has launched a new strategy for Science and Technology (S&T) cooperation. As Mr Dong underlined – besides FDIs – technology transfer, royalty, mergers and acquisitions (M&A) become more attractive when companies want to acquire technology or know-how. China is not performing well when considering the number of patents produced by national enterprises. Despite large investments, the developed projects have not brought equivalent technological advancements.

Looking at China's outbound M&As in the last ten years, data shows they have been raising and the volume has been increasing. For example, in 2015, China National Chemical Corporation has topped the equivalent of €8 billion invested in M&As from other countries. A characteristic of Chongqing, is that the number of M&As have increased, but in terms of volume the rate has slowed down. With regards with patents, the trend is following a positive increase. Data shows that the number of patents issued in Chongqing has grown from less than 48.000 in 2013, to almost 82.000 in 2015, therefore jumping up by 75 percent. Specific institutions are involved in patent issuance and technology transfer in the Municipality, almost all of them being State Owned Enterprises (SOEs) administered by the local government, while private companies are completely excluded from the process. Among them the Chongqing Technology Assessment and Transfer Centre, the Chinese Academy of Science and the Chongqing Agriculture Science Academy.

The Chinese government has been trying to find a new way to upgrade national growth and industry. In the last 20 years, this topic has been at the centre of talks among the central leadership, but no clear solution has been found. A turning point was last year, when the Mass Entrepreneurship and Innovation Strategy was launched by Premier Li Keqiang in September 2015, with the aim of getting more and more actors involved in innovation and entrepreneurship. In the same year the government revised the Law of Promoting the Transformation of Scientific and Technological Achievements related to high institutions and universities, to push them to commercialize their new technologies and bring them on the market.

The Government Report issued by the State Council in March 2016 pointed out that a driver for national economy needs to be technological innovation. Such statement highlights once more the importance attached by the Chinese government to S&T cooperation as a major driver for economic development. Mr Dong commented that appropriate ecosystems and a relative culture are needed to support such innovation and technology transfer.



With regards to the ecosystem, from its opening up, China has introduced many laws and regulations related to patents, intellectual property rights (IPR) and more specifically about technology transfer. Many bilateral treaties and conventions have been signed. The ambition One Belt One Road strategy is also coherent with the aim of going abroad and introducing new technologies to China.

President Xi Jinping, on the occasion of the 9th National Conference of Science and Technology in May, called for greater confidence and perseverance from science and technology practitioners to make China the vanguard of innovation-driven development.

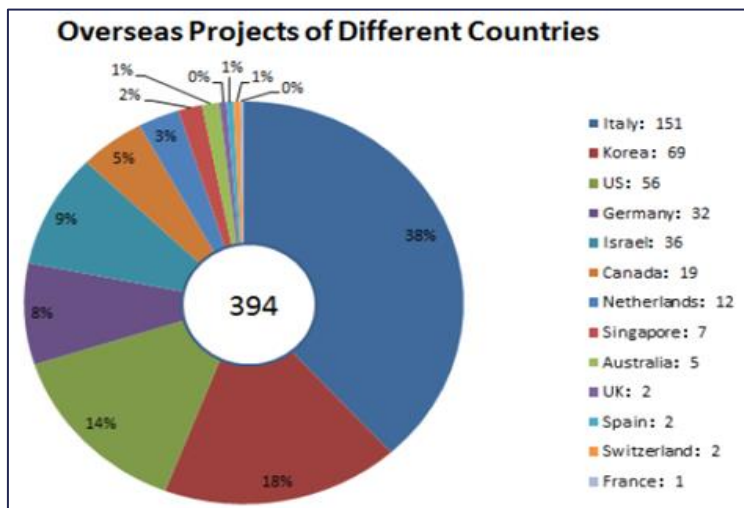
International Technology Transfer Network 国际技术转移协作网络

International Technology Transfer Network (ITTN), founded in 2010, is an international organisation for international technology transfer and cooperation. It has established long term cooperation with more than 400 institutions from over 40 countries.

Its aims are the following: establish a platform for international communications of Research and Development (R&D) firms, businesses and governments; improve international technology transfer and innovation cooperation; landing of projects of innovation; perform technology commercialization for win-win cooperation. As for the commercialisation of technology in China, ITTN has been working with more than 100 Chinese universities to teach how to commercialise patents and new technological achievements.

ITTN focuses on the industries also stated in the 13th Five Year Plan: Information Technology and its applications, Energy and Environment Protection, Bio-medicine, High-end Equipment, Motorway and Innovation, Modern Agriculture, New Materials, Modern Tech Service, Smart Cities. ITTN's cooperation system involves institutions from Europe, North America and other Asian countries. New set up branches in China are in Chongqing, Fuzhou, Shanghai, Henan, and Guiyang.

By the end of 2015, ITTN has had organized more than 9000 events and helped reach cooperation intentions of over 1600 projects, among which around 160 projects landed in China. ITTN has also established centres cooperating with the central government, such as the China Italy Technology Transfer Centre, which is administered in cooperation with China's Minister of Science and Technology, and is now opening a sub-centre in Western China. ITTN offers both online and offline services. Online B2B achievements: more than 8800 docking activities, more than 1540 cooperation intentions, more than 160 large projects, economic benefit of \$10.4 billion.



The Western Centre of ITTN, set up in April 2015 in Chongqing, aims to develop ITTN's business and improve technology transfer and innovation in such regions as Chongqing, Sichuan, Yunnan, Guizhou, Qinghai, Xinjiang and Tibet. It is also in line with the One Belt One Road strategy, for which Chongqing is of crucial importance.

To strengthen technologic innovation and cooperation in Western China, ITTN organises numerous events such as forums, seminars, exhibitions; it also establishes

on-line platforms to accumulate resources, develops off-line centre for technology transfer and innovation, organises trainings for International Technology Transfer managers, establishes database for projects and experts in western China, organises bilateral exchanges of science and technology, helps local governments improve technology cooperation, helps concrete projects land, joint-venture companies.

Q&A session

The economic context underpinning the realisation of technology transfer is a determinant factor for success. Technology transfer and the relative cooperation do not take place in a vacuum, but originate in a specific economic environment supported by definite policies. Currently China is trying to develop its own innovation system, but it has still quite a long way ahead before succeeding. The central governments is bolstering the work conducted by organizations such as ITTN in shaping coherent policies. At present the national strategy to bring forth scientific and technology advancements hinges on transfer of knowledge from other countries, until China will eventually be able to rely exclusively on domestic capabilities and create innovation from local resources.

During the debate, Mr Dong stated that China does not currently possess "DNA for innovation." Will this situation possibly change in the future? Will China become able to innovate on its own? Mr Dong commented that two of three thousand years ago China had that ability; at present it does not anymore, but young generations have the chance to learn and modify the situation. The Chinese "DNA" could change in 20 or 30 years, then China will be able to produce innovation by itself.

Another issue touched during the Q&A session was related to the role that universities and private enterprises should play in helping and supporting China's national innovation system. Now many companies use to give their employees a target number of patents to create by the end of the year; in case they do not reach the goal, a negative feedback may impact their remuneration. Such approach is considered positive in the way it encourages employees to reach higher targets, but it has a negative side as it forces them to produce patents at all costs, even when exhausted in ideas. The consequence is that the produced patents often have no significant differences from the existing ones and introduce no decisive innovation.

A similar dynamic can be observed in the academic world concerning publications. Career advancements for researchers and professors are too often conditional to the number of published papers, with quality of research not being considered a specific parameter. A consensus should be reached on how to evaluate the quality of work and enhance constructive outcomes.



R&D expenditure in the Middle Kingdom has been increasing exponentially and the wall between China and the West is vanishing. Attention needs to be paid to some changing factors in Asia. For example, China used to have high advantages in terms of cheap labour cost, but recently the trend has shifted to other Asian countries. The Chinese government has noticed the change and is reacting by trying to attract more patent intensive industries, rather than labour intensive ones, and attract FDIs in the field of S&T. Moreover local companies are

encouraged to go abroad for acquisitions. Policies to further encourage technology transfer from abroad are expected soon.

During the discussion, technology transfer being basically unidirectional, from the West to China, was taken as implicit assumption. Even if this reflects the majority of situations, technology also takes place in the opposite direction. The world is seeking to import some technology from China, in most cases because of its cheap price; this happened for example with Huawei and Xiaomi, both in the sector of information and communications technology.

In Italy high technology is developed mostly by small and medium-sized enterprises. Such situation can represent a chance for win-win cooperation with China, but it is often inhibited by a general lack of trust from the Italian side, especially when thinking about IPR. Protection of IPR in engaging with European companies is a hot topic for China. China's national legal system was extremely backward 20 years ago, but China has made impressive improvements from that time. Also, young entrepreneurs now are paying much more attention to legal aspects in international cooperation than before.

Mr Borsano shared his experience, comparing the level of technology of the companies he had worked for in Europe and China. He highlighted the tremendous and fast improvements made by China in the last three years. He witnessed a shift from obsolete technology to the completion of new vehicles with advanced technology. The main driving force for such an achievement is coming from a request of the government to comply with European rules, demanding lower emissions and standards for which high level of technology is needed. To reach high standards, the first step of the Chinese company was to import technology from abroad; now the majority of European suppliers SHI relies on have branches based in China. In 2015 China's President Xi called for giving more attention to quality instead of quantity, and it seems that level of trust from European partners has increased and more confidence is granted to Chinese companies.



A second aspect related to technological improvements is linked with the profitability of vehicles. To gain profit technology is required: through technology advanced components are produced to assemble the vehicle, this brings profitability. Technology is therefore key to run the business.

The government is an important actor in upgrading manufacturing system in a top-down fashion. In fact, a specificity of China is that central decisions have much more weight than the ones of European countries' governments. From this point of view, working in China is much easier, as in Europe years-long negotiations are needed before reaching an agreement. Generally, the support of the government grants a higher degree of certainty for companies in the market. On the contrary, in Europe the regulation framework is extremely fragmented, and a sense of uncertainty affects companies and their medium term strategies.

What about technology sharing with the Chinese counterpart when working in a Joint Venture (JV)? When working in team, in constant contact with the other side, it is extremely difficult to protect technology. Even if the contract sealed by the different parties, to a certain degree, involves the protection of technology, working side by side every day protection is not easy. When teaching to the counterparts you transfer technology.

As already mentioned, traditionally the setting up of research centres happens in Western countries, while manufacturing is dislocated in China. But this trend is slowly transforming, and Chinese companies started to set up their own research centre both in China and abroad. An example is Chang'An, which established an R&D centre in Turin, in so doing starting in Italy its innovation process. More and more Chinese companies working in the automotive sector are moving abroad and experiencing a new innovative trend. The phenomenon is in line with the "Made in China 2025," a very ambition initiative whose main guiding principles are innovation-driven manufacturing and emphasis on quality over quantity.