China's Regional Innovation and China-EU Cooperation

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1. Background

Innovation has been placed at the center of China's development strategy in the 21st century, featured by the slogan of 'building China into an innovative country'. The pathway to realizing this goal include upgrading the industrial structure, transforming the 'growth engine' (from low-tech and low-add value to innovative and high-add value), as well as nurturing an innovation eco-system with enterprises as central players.

Since 2010, the central government has issued a number of policies and plans on this aim, including

- Opinions on Deepening the Reform of Science and Technology System and Accelerating the Development of National Innovation System, 2012
- Opinions on Strengthening the Dominant Position of Enterprises in Technological Innovation and Comprehensively Improving the Innovation Capabilities of Enterprises, 2013
- Implementation Plan for Deepening the Reform in the Science and Technology System, 2016
- Opinions on Several Measures to Push Forward Widespread Entrepreneurship and Innovation, 2015
- Opinions on Strengthening the Implementation of Innovation-driven Development Strategy, 2017
- Further Deepening the Development of Widespread Entrepreneurship and Innovation, 2017
- Opinions on Promoting High Quality Development of Innovation and Entrepreneurship and Creating an Upgraded Version of "Mass Entrepreneurship and Innovation", 2018.

These central government-level policies are further detailed by the policies of lower-level governments (provincial, municipal) and suited to various local contexts. Now, after ten years of efforts in promoting innovation, China has made significant progress in her innovation capacity, featured by the number of industrial enterprises with R&D activities increased from 17,075 in 2004 to 102,218 in 2017 as well as similar magnitude of increase of patents held by enterprises.

2. Challenges of the regional innovation in China

Despite of the progress, regional innovation in China is also faced with obvious challenges.
First, the capacity of innovation varies substantially across regions, which is a consequence the

long-existing regional disparity in China. The three most developed urban clusters at the eastern coast are also the plateau of innovation in China, which are the Beijing-Tianjin-Hebei cluster, the Yangtze River Delta cluster and the Pearl River Delta cluster, producing 43% of the nation's high-tech enterprises and 38% of all patents. In contrast, the innovation capacity and outputs in other parts of China, especially the vast western regions, are much lower. Nonetheless, positive new trends are emerging—certain provinces and cities in the middle and west China are attracting more innovative enterprises and personnel than before.

The second challenge lies in the organization of stakeholders of innovation. A large proportion of innovative activities are conducted under the guidance of the government, while more ideally, enterprises should play a larger role. Some more recent policies are aiming at empowering enterprises and encouraging entrepreneurship, and more specifically, building more channels for enterprises in policy and strategy making in relevant areas.

3. Strategies: China´s regional innovation capacity in transition

The strategies for promoting regional innovation are composed of identifying the priorities and more specific policy instruments. The process of identifying and deciding on the priorities of innovation for a region is a mix of top-down and bottom-up process. Aware of the different endowments of regions, both the central government and regional governments acknowledge the importance of tailoring strategies to contexts, which bears resemblance to EU's smart specialization strategy. From the side of the central government, region-specific policies are issued besides the overarching policies mentioned before. For instance, in the Catalogue of Encouraged Industries for Foreign Investment published by the National Development and Reform Committee and the Ministry of Commerce, there is a dedicated list for each of the 23 provinces (or equivalent) in west and middle China besides the list of general applicability. The National Development and Reform Committee also publishes a Catalogue of Encouraged Industries in West China, which names 30-40 niche industries for each of the 12 provinces (or equivalent) in west China. From the side of regional and local governments, they have much room to further tailor their innovation strategies based on their distinctive features despite of the strong leadership of the central government. The priorities set out in the provincial or municipal policies are usually a mixture of the priorities in national strategies (e.g. Made in China 2025) and those based on their own industrial base.

More specific policy instruments are summarized as below.

- Stakeholder engagement. Since deep field knowledge is needed in innovation policy-making, both the central and regional governments use several channels to consult the stakeholders and experts, including holding expert committees for consultancy both as regular basis and

on-demand, organizing field visits to relevant stakeholders, commission research on innovation strategy, etc.

- The cultivation of growth pole refers to the long-existing approach of building science and hi-tech parks, which accommodate and attract innovation activities within a designated area.
- Spatial planning policies are mainly composed of the master plans of provinces and sub-provincial cities, as well as the spatial plans of key regions, which usually involve spatial arrangements for regional innovation activities.
- Human resource support. Making long-term and comprehensive plans for the training and recruitement of professional personnel according to demands of industrial development, as well as providing training programs on starting-up for young entrepreneurs.
- Technology development support. Providing technical support and consultation to assist enterprises in technological innovation or directly funding technology diffusion.
- Funding. Providing direct financial support for the innovation activities of enterprises.
- Financial support. Providing subsidies, special permissions, loan guarantee, export credit, tax exemption, etc.
- Extended services. Providing extended public services for innovation activities, including launching associations and discussion platforms, organizing exhibitions, building science parks or incubator, etc.

4. Suggestions for EU-China city and regional cooperation

- Selection of proper partners. Given the large variety in the innovation contexts among regions in both EU and China, a fruitful city-to-city or region-to-region cooperation is likely between cities and regions that share sufficient similarities. The selection process should seek to provide as much information as possible to allow a kind of ex ante evaluation. Information to gather may include priority industry, innovation capacity, best practice, case studies, policy and project templates to support, etc.
- Identification of subsectors for cooperation. When the cooperating cities and regions share overlapping priority sectors, there could be higher chance of producing more concrete cooperation. The overlap may relate to product or process innovation, or possibly both. Further, more specific subsectoral cooperation is likely to involve participants more closely given the high relevance. For example, regions may elect to cooperate on the automotive sector, but the cooperation needs to be defined more specifically, for example, longer-life batteries for electric cars.

- Exchange on the entrepreneur discovery process. Entrepreneur discovery is at the core of both EU's smart specialization strategy and China's recent policies. On the Chinese side, there appears to be interest on how the stakeholders, notably business, can play a leading role in the innovative process, on which EU regions have a lot experience in the smart specialization process. On the EU side, they may learn from Chinese counterparts on the transformation of new ideas into market opportunities.

- Involvement of university partners. Previous experience suggests that when university partners are present, there is more likely to be fruition in cooperation. University scholars have the advantage of a balanced understanding on the contexts and discourse in both EU and Chinese cities and regions, and therefore could help facilitate the dialogue between the two sides.