Chapter 13

Open Innovation and Improvement of China's Competitiveness

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Abstract

The past fifty years have witnessed the rise of China to become one of the world's largest economies. China's achievements rest in its unique path of socialist development, which emphasizes the dual role of the visible hand of government (fairness) and the invisible hand of the market (efficiency). It has also demonstrated the flexible adoption of open innovation not only in crossing the firm's boundary but also spanning over national borders. Through the historical depiction of China's economic development and strategic analysis of China's macro policy and micro operational features, we find that a triangle governance mode can be used to represent China's remarkable performance, behind which it conforms to the same logic of the ABCD model.

Keywords: Competitiveness, open innovation, triangle governance mode, ABCD model, development strategy

Introduction

The past few decades have witnessed China's emergence as the largest developing economy in the world (China has now gained many first positions in

the world: imports and exports, foreign reserves, and output in more than 70 branches of industries). This has not only reshaped global governance but also provided a new example for many developing countries. When the People's Republic of China was established in 1949, the country's economy was in a poor state and was closed off from the outside world. After more than half a century, great changes have taken place following the reforms launched by Deng Xiaoping. In 2018, when China's GDP approached 60 percent of the US, Trump administration announced a number of protectionist measures seeking to discourage China's economic growth; but in 2020, despite the sanctions against hi-tech firms by the US and the threat of COVID-19 global pandemic, China's GDP continued to improve and reached 75 percent of US GDP. During the same time, China announced its progress in overall poverty reduction. With the formulation of the new 14th Five-Year Plan by the Communist Party of China (CPC), the country is now striding toward the fulfillment of the two Centennial Goals (celebrating the 100th anniversary of CPC in 2021 and the 100th anniversary of the People's Republic of China in 2049). These indicate as well that under the leadership of the CPC, China will soon realize its goal of bringing the Chinese people's living standard to a level similar to that of middle-income developed countries by the mid-point of the twenty-first century. Considering the future promise of the common prosperity goal for China's 1.4 billion population, it is a unique achievement as no other country has ever experienced such a tremendous change (or a rapid development) with such a large population over a short period of time. Hereinafter we will review and explain how the above achievements were attained and what good hints other countries can take away from China's success.

Open Innovation and China's Arduous Exploration of Socialist Construction

Open innovation (OI) has become widely adopted as a new business strategy by firms across many industries (Gassmann *et al.*, 2010). OI is introduced as the opposite to closed innovation and requires firms to integrate internal and external sources by undertaking extensive cooperation with external

organizations to improve both their innovative and financial performance (Chesbrough, 2003, 2006). Since Chesbrough developed this term, the analysis of OI has extended from the individual firm to the networks between organizations, from bilateral to multi-layer relationships, and even to the national innovation system, which constitutes the context and background for the firms' innovation nowadays. If we refine Chesbrough's idea of OI and apply it to the national level, it means a country should combine internal and external resources into architectures and systems with a national openness mode. This is precisely what China has done over the past half century, and China's successful exploration of socialist development really amplifies the scope of OI theories and practices. The following are the characteristics of the historical development of China's socialist development based on the OI principle, demonstrating the flexibility in the absorption and leveraging of external resources and opportunities, which is also referred to as the inbound/coupled openness and innovation.

Period 1 (1950s–1960s): Planned economy with certain autonomy

When the People's Republic of China was established in 1949, the Cold War emerged between the Eastern camp and the Western one. As part of the Eastern camp, China used the Soviet Union as a benchmark and adopted its planned economy, which led to some recovery under the First Five-Year Plan. Despite setbacks, the CPC remained committed to the planned economy. Similar to the later shrewd and decisive measures adopted by Deng Xiaoping, a hybrid model was then created for the Chinese economy which would stick to state planning as the core, but also permit limited freedom to the outside as the peripheral.[1] In so doing, China could then activate limited mobility of resources in the planned economy system. This "core-peripheral" economic development idea later proved to be timely and effective.

For example, during the difficult period in the 1960s, China imported some yellow beans from abroad to cure the outbreak of edema disease. Similarly, after the Cultural Revolution, faced with an extreme lack of

[1]At that time, even the planned economy was dominant, there still existed different understanding about the planned economy for the central government officials, which brought some flexibility in application. The peripheral implicates limited flexibility.

grain, oil, and cotton. China tried to import these items to effectively deal with their shortages. The initial limited "inbound openness" in a planned economy system has in fact brought the market mechanism to simply allocate the resources in China; such primitive reform shows the gene of openness embedded in China's development.

Period 2 (1970s–1990s): China's openness with the steady evolution of a dual economic system

Today, when we summarize China's success in economic development, one of the unique features is its incremental reform with a dual economic system since the end of the 1970s, which averted the type of radical transformation witnessed among former communist regimes who suffered economic difficulties as a result. The secret of China's step-by-step transformation lies in a balanced arrangement between the restrictions of the planned economy and the openness of a new market economy (Lin, 2014). As these two actions go on simultaneously (while planned economic activity is weakening and releases the resources, the market economic activity benefits and strengthens itself), economic transformation was able to occur smoothly.

Let us consider some examples. On one hand, in order to expand the market economy, the Chinese government has reduced and later aborted the national purchase of agricultural and sideline products at a lower fixed price; meanwhile, a more efficient "inbound openness" measure was adopted where China continued to import main foods after the 3rd Session of the 11th CPC Meeting in 1978. Such action not only solved the food supply issue for city residents but also provided room for peasants to bring their grains to the free market for a transaction. This allowed the flexibility to market price adjustment and greater autonomy for household production, which immediately activated China's rural land reform and ensured the successive agricultural harvest. In addition, with the development of township enterprises, individual economy, and private firms, as well as the joint ventures, the part of the market economy was thus developed from nothing, to small, and to a large one.

On the other hand, for the planned economy, the ratio of direct planning has been diminished and the ratio of indirect planning has been enlarged. At that time, as the productive materials were entirely controlled by state-owned firms, it was critical to relax the control of some of the

productive materials. This process involved the reform of the planned economic system and the reform of state-owned firms' mechanism. During this period, the Chinese government's efforts to push the steady transformation from planned economy to market economy proved to be valuable and successful.

The inbound knowledge of comparative advantages for the agriculture and manufacturing industries was another driver for economic development. Before 1978, China pursued policies to maintain the independence of its domestic economy and ensured a closed internal cycle, which proved to be inefficient. For example, China emphasized the essentials of self-reliance in producing grains. Hence, the traditional method to produce grain was to plant corn, wheat, or any grains regardless of the local endowments. When the local environmental conditions were not suitable for farming, the government simply constructed water conservancy facilities to improve and adapted the production of crops. In so doing, China found itself trapped in an unproductive recycle system: the greater the investment spent on the production, the fewer the output, which impacted negatively upon the people.

Like more grains were planted, the same outmoded thought also prevailed in the manufacturing field. The Chinese government used to encourage building the whole value chains at home when they were developing new industries. But after a visit to Europe, Chinese government officials realized that most developed countries were open to the outside world and operated through international trade or Foreign Direct Investment (FDI), thus they maximized their output by making full use of their comparative advantages. This approach proved to be very illuminating for China. As a result, Chinese firms began to establish the value chains from the downstream as it could quickly get the feedback from customers. Then with the accumulated profits or assets, the firms could enlarge their upstream investment. This learning, obtained from the outside by participating in the global market through trade or FDI, greatly amplified China's prospects and benefited its socialist development.

Period 3 (since 2001): China's coupled innovation with a cluster of FDI and rapid outward FDI

The year 2001 was a special time as China joined the World Trade Organization (WTO). With this membership, more opportunities were

available for the multilateral exchange of products and factors between China and other countries and deeper involvement in the global economy (Li, 2014). As a result of greater economic integration, in less than twenty years, the average GDP per capita for China has improved from US$1,053 (2001) to US$10,000 (2019), which is an increase of nearly ten times. China is now striding toward its goal of US$12,000 GDP per capita — the minimal threshold for a high-income developed country.

Another trend that appeared since China joined the WTO was that many Multinational Corporations (MNCs) have upgraded their resource allocation in the Chinese market. An increasing number of MNCs' regional or even global R&D centers have moved to China. Alongside this, two-thirds of the Fortune 500 companies have established branches in China. As MNCs first entered China in the 1990s, their value chains that were developed from sale agencies to manufacturing factories, have now extended to R&D centers. The integration of value chains in China does not only indicate the optimization of MNCs' resource allocation, it is a new kind of competition mode of industry cluster or the innovation cluster, which is featured with the typical phenomenon of "onshore reverse R&D outsourcing" in China (Zheng and Chang, 2016), where foreign MNCs act as the vendor firms and local firms are contract clients. It is found that during these R&D outsourcing activities, MNCs entered the Chinese market with multiple capabilities (Zheng *et al.*, 2019); they not only exploited their mature technology to serve the local clients (exploitation) but also added more inputs to explore their unused technology (Zheng *et al.*, 2018) to meet the local clients' sophisticated demands (Exploration). While in so doing, it demonstrated another new solution for technology scattering in host countries (host countries' firms can benefit from both exploitation and exploration behavior by MNCs), which is the new feature and effect of "onshore reverse outsourcing" under the context of open innovation in China over the past few decades. It has demonstrated that China has become the largest market by attracting an increasingly large number of global MNCs.

Based on the above circumstances, we can summarize two new features about China's rapid development: one is that with more inbound innovation, China's absorptive capabilities have improved and rising cluster innovation in China has thus supported the global competitiveness among Chinese firms (from 1995 to 2020, Chinese firms listed in Fortune 500 have increased from 2 to 133, China is now ranked in first place in terms of the number of listed firms). Another one is that many Chinese firms have gone abroad to compete in the global market by coupling

inbound innovation and its own unique endowments, which increases Chinese firms' adaptation to the dynamic changes and velocity in an external environment.

A Macro Perspective for the Drivers behind Improvement of China's Competitiveness

When China's opening and reform policies are mentioned in discussion, people are often impressed by the Chinese government's decisive leadership. But such views are also challenged by the suitability of government interference. By using a different perspective, we hereby depict some typical cases from the macro dimension to address the essentials behind China's improvement in competitiveness.

China's success in land reform: A metaphor of triangle governance

At the end of the 1970s, reforms in the countryside, especially with the practice of household production, helped to reduce the perennial problem of grain shortages. This achievement was generally unexpected among most people. When we review this process, we find that it is featured by three distinctive characteristics, each of which is interconnected.

The first two features are the central regulation guidance but with an incremental and flexible degree of autonomy. Although China issued its "sixty regulations"[2] to guide rural economic development and prohibited the break-up of land and working it alone (typical of collectivized farming), some exemptions were made for some special occasions, such as single families in a remote areas. In fact, the practice of household production was not completely prohibited, it was just slightly frowned upon. This subtle change that did not outright ban household production left certain freedom and precious room for poorer areas to become more innovative. The third feature is the timely communication and reflective behavior between central and local governments. At that time, the central government was concerned about the possible emergence of unbalanced development amongst its rural areas: from the strong collectivized economy to a more independent middle-level area, to

[2]"Sixty regulations" is also called "work regulations of People's commune", it's revised and passed in the 3rd Session of the 11th CPC Meeting in 1978.

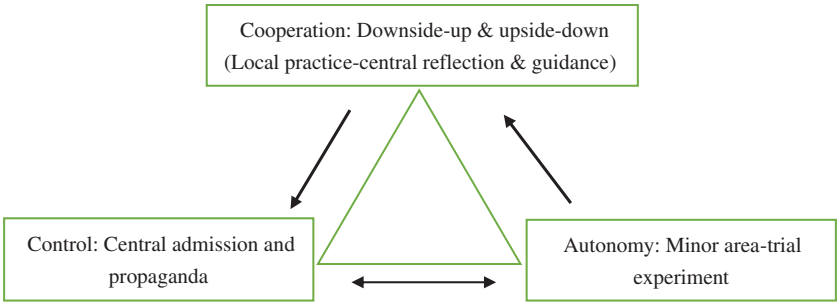

Figure 1. Triangle governance of land reform.

some of the poorest areas with resource shortages. For the poorest areas, the most effective way of promoting economic development was to allow household production for the local people. Therefore, the central government finally allowed local government to make their own choices; which surely permitted local people to pursue household production. Meanwhile, the central government paid ~~of poorest areas~~ close attention to the development of local practices and made a timely summary and guidance.

The above methods proved to be flexible and effective; they didn't impede the speed of this change (land reform). As a matter of fact, it gave the local organization (leader and officials) flexibility of time, thus led this change on the voluntary base and greatly reduced unnecessary negative effects. This is why the land reform trend evolved from the poorest areas to the middle-level areas, then to the wealthy areas, during which the new practice of household production was in the transition from imperfection to gradual improvement.

Using a model of triangle governance (Keidel, 2010), the above experience can be demonstrated as follows. We use a triangle to depict the different meanings of vertex: control, cooperation, and autonomy (Figure 1); usually, the natural relationship of any complicated phenomenon can be demonstrated from these three dimensions.

China's coast city strategy and FTZ practices: A model of triangle governance

China's development of its coastal areas was one of the key strategies for the government during the 1980s. Previously under the country's planned economy, the coastal areas had strong processing capacity but a lack of resources, which made it reliant on the central government's transfer of

resources from the western areas. But this kind of mode was unsustainable because there was a growing scarcity of resources, which resulted in sharp conflicts between different regions. Hence, the coastal areas had to transform their economic development strategy to an export-oriented one, which produced both economic and political values. On the economic side, such transformation conforms to international opportunities. As industrial value chains shifted from advanced countries to countries in East Asia, China happened to gain a pioneer advantage because of its timely opening policy practiced in the coastal areas. Plus its natural advantages of convenient transport and good infrastructure, the coastal cities are growing fast with an abundance of labor and adjacent convenience. Therefore, it is expected that as the coastal areas develop further, they will also play the role of a growth engine for the development of the interior areas. On the political side, since China has long maintained a planned economy, all economic opportunities were distributed equally around the country so that there was no chance for the coastal areas to utilize their comparative advantages. This thought produced a significant economic gap between Mainland China and Hong Kong, Taiwan, and other regions, raising the question about the socialist economy's international advantage. Therefore, a quick transformation to the export-oriented economy would encourage people to sustain a better life standard and increase their confidence obviously in the economy that was now featured by "socialism with Chinese characteristics."

The process of this transformation followed a reasonable logic: first, the province of Guangdong as a bridgehead with Hong Kong was suitable for processing and manufacturing industries. This experience then spread to other coastal areas. During this period, there was nationwide debate about the effect of pursuing such a transformation. Despite this debate, this strategy was formally adopted at the meeting of the Political Bureau of the CPC, which laid the foundation for the coastal area's development.[3] Using a metaphor of triangle governance, we describe the above experience as follows (Figure 2).

Over the past ten years, in order to open up further to the outside world, China not only put forward the Belt and Road Initiative but also accelerated Pilot Free Trade Zone (Pilot FTZ) construction. When we review China's

[3]Despite the different worries about the coastal area's development, the central government finally issued a series of policies promoting the development of the special economic zone and coastal opening cities by formulating the opening order from the east to the hinterland, from coastal to the riverside, etc.

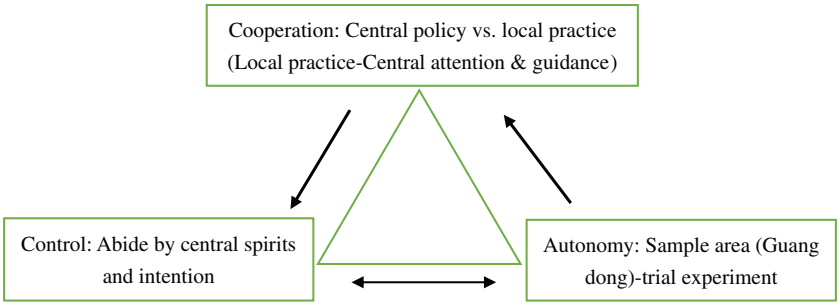

Figure 2. Triangle governance of coastal city reform.

Pilot FTZ development, we find it follows the similar triangle logic: first, establishing a high-level FTZ domestically was one of the visions of the Chinese central government, and Shanghai was chosen to trial this process. Then based upon its experiences, the Ministry of Commerce encouraged other areas to apply for FTZ, which accelerated its growth from the coastal areas to the interior. Throughout this process, the central and local governments paid close attention and provided the necessary support.

Why did so many of China's innovations and development modes share these common triangle features? Are there any robust theories to support its logic? Hereinafter we will use the ABCD model by Hwy-chang Moon (2016) to make a comparison between the development strategy adopted by coastal and interior areas.

China's success in the macro reform: The comparison between ABCD model and triangle governance

The ABCD model, which was put forward by Korean economist Hwy-chang Moon (2016), serves as a strategic framework not only with successful growth for emerging economies but also for advanced countries that are losing their competitiveness. This model emphasizes four dimensions as key to developing a successful economy: agility-efficient management of time and accuracy; benchmarking incremental innovation through learning best practices; convergence-dominant diversification for maximizing synergies; and dedication-strengthened commitment toward an optimal goal. Table 1 summarizes the ABCD model and its relation to the dimensions and subfactors; we further list some of China's macro-management cases on the right to make a comparison.

Table 1. Distinction and comprehensiveness of the ABCD model vs. triangle governance.

ABCD model and features	Application for land reform	Application for coastal development strategy
Agility (speed)	Initial quick trial of household production in the poorest area (**Autonomy**)	Initial quick trial of processing trade in Guangdong (sample city) (**Autonomy**)
Agility (precision)	Discrimination to the different areas' practices by files (**Control**)	Using abundant labors to establish processing manufacturing for the international capital (**Control**)
Benchmarking (learning)	Factor endowments of the area; activate the potentials (**Cooperation:** exploitation and exploration)	Transportation facility and labor resource, absorptive capacity (**Cooperation:** exploitation and exploration)
Benchmarking (best practice)	Trial experiment's practices summarized for propaganda (**Control**)	"Three-plus-one" trading mixes was the initial focuses (**Control**)
Convergence (mixing)	The upside-down guidance (central files) mixed with downside-up experience (local practices) (**Cooperation**)	The coastal market chances mixed with the hinterland's labor transfer (**Cooperation**)
Convergence (synergy creation)	The sequent propaganda of experiences from the poorest area to the middle level and wealthy area with new improvement (**Cooperation**)	The sequent propaganda of experiences from the coastal area to the riverside area and hinterland with new improvement (**Cooperation**)
Dedication (diligence)	Inherited perspiration (**Autonomy**)	Inspiration of undertaking the opportunity of international industry transfer, inherited perspiration (**Autonomy**)
Dedication (goal orientation)	Improvement of agricultural production efficiency and better Chinese people's living standard (**Control**)	Highlight the unique advantage of coastal area, and set up the bright star of socialism construction (**Control**)

A Micro-Perspective on the Drivers behind the Improvement of China's Competitiveness

Since the 1990s, China has been accelerating its opening to the outside world by adopting its "going out" strategy. At that time, most Chinese firms were labeled as the "enterprise of nothing in three items," which meant they lacked brand, channel, and technology in the international market. How then could Chinese firms succeed in the international market? The following summarizes the case of a Chinese state-owned firm called Zhenhua Port Machine in the 1990s. We use the LLL model[4] (Mathews, 2006) and ABCD model to depict its comprehensive competitiveness capability (Table 2).

Based on our findings, Zhenhua's internationalization is more suited for the ABCD model than the LLL model. The LLL model usually emphasizes that MNCs from the Newly Industrializing Countries (NICs) should try to link themselves to the international market, especially by embedding themselves to Global Value Chains. The next step after making this linkage is to move and combine the resources internally and externally in order to strengthen its own position through the leveraged vehicle. Here, maintaining trust and balance are key points while trying to cooperate with other partners. In the end, based on the continuous linkage and leverage, MNCs can accumulate their advantages to a critical point and get its endogenous advantages. But Zhenhua case has revealed complicated circumstances. Once Zhenhua established its linkages with the international market. At the end of 1992, despite competition with many international port brands for Vancouver Port's tender offer, Zhenhua won the contract with 30 percent discount of its bidding price and assuming millions of US dollars for the freight, which meant through the low-cost strategy, Zhenhua successfully linked itself to the international port market. We can also find Zhenhua's Agility speed here, as low-cost strategy can usually bring the first-mover advantages for firms.)

At that time, the American buyer's strict demand (no component but the whole port machine to be transferred) and the Dutch shipping company's firm shipping contract constituted great challenges for Zhenhua. We also found no leverage resources for Zhenhua to exploit although Zhenhua immediately bought an old and super big transport vehicle, and

[4]LLL model indicates that international expansion is driven by resource linkage, leverage, and learning.

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Table 2. Distinction and comprehensiveness of the ABCD model and LLL model: Zhenhua case.

	Zhenhua case	LLL model
Agility (speed)	Low-cost strategy for the first bidding in Vancouver (30 percent discount, burdened with millions of US$ of freight)	**Linkage** (low cost strategy made Zhenhua squeeze into international port machine market)
Agility (precision)	Improve the quality of peasants employee (build the welding training school, implement the strict regulations)	Zhenhua's hints behind Linkage: Educating the employee, transferring the peasants into the industrial workers.
Benchmarking (learning)	Internally, Zhenhua's workers are fond of learning with high rewards; externally, their workers mimic and overrun the competitors	**Leverage** (decompose other ship and mimic Holland's transport vehicles and form its own special carrier)
Benchmarking (best practice)	The independent R&D and innovation build Zhenhua's practice as the world standard	Zhenhua's uniqueness: innovate with world first rate technology, involving the carrier and Port machine
Convergence (MIXING)	Zhenhua combine its superior location advantages with its own special carrier	**Learning** (improving and accumulating the advantages to reach the qualitative change, thus forming the endogenous advantages
Convergence (synergy creation)	Zhenhua get both the low cost and differentiation advantages (its own special carrier+ port machine products + convenient port transportation)	N.
Dedication (diligence)	Strict regulation to ensure and encourage Inherited perspiration;	N.
Dedication (goal orientation)	Innovation oriented culture and policy (high reward for the contribution, no retirement based on age)	N.

repacked it according to the Dutch special carrier (Benchmarking learning). Despite the difficulties, Zhenhua finally succeeded by making massive investment in the R&D sector. In fact, as part of Zhenhua's growth, it paid much attention to the R&D input (its yearly R&D input approached 2% of its output value and formed a 2,000-researcher team). Their vision was to get "at least one world no. 1 invention each year." (Benchmarking best practice) That is how Zhenhua finally got to the global summit of port machine technology. Here the ABCD model accurately depicts Zhenhua's growth and its competitiveness improvement as shown in Table 2.

Another successful case in the 2000s is with the emergence of China's high-speed rail network (Lu, 2013). Not only was there a six times increase in rail speed (from 120 kilometers in 1997 to over 200 kilometers in 2007), but also it witnessed a great extension of rail operating mileages (from 1035 kilometers in 2008 to 30,000 kilometers till 2018) and a big reduction of travel time (on average, 2/3 travel time was economized). That is why within 20 years, the high-speed rail network has become a part of people's daily life who enjoy a fast and convenient service. Furthermore, ~~Chinese~~ the high-speed rail industry's intellectual property rights have been distributed and recognized internationally. How was China able to achieve such a rapid transformation of its rail network? If we use the triangle governance model (Figure 3), we can discover a clear and comprehensive logic behind this remarkable achievement.

For the autonomy vertex, since the 1950s, China began to develop its own diesel locomotives; since 1978, China paid more attention to high-speed rail technology, but was limited by its economic level and engineering capability. China was at last able to begin construction of its first high-speed rail line in 1999. Up until 2005, the *Star of China* train ran for 536,000 kilometers and had achieved a satisfactory operating level, which established a strong foundation for China's independent R&D in the rail industry. When the Beijing–Tianjin high-speed railroad (2008), Zhengzhou-Xi'an railroad (2010), Wuhan–Guangzhou railroad (2009), and Beijing–Shanghai railroad (2011) were all completed, the government was satisfied with the development of this autonomous innovation by the rail industry to the extent that it would expand it further.

For the cooperation vertex, encouraged by the rail industry's excellent performance, the Ministry of Railways then implemented a strategy by opening the industry to the international joint ventures who could bid for future railroad construction contracts. Through such a mechanism,

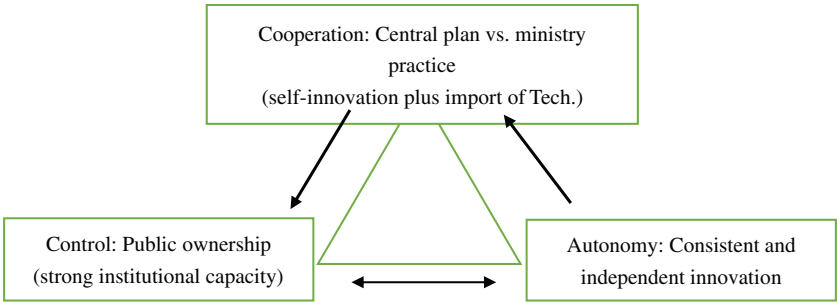

Figure 3. Triangle governance of high-speed rail industry.

Chinese firms attending the ventures could learn much from their international partners. This implementation of open innovation proved to be effective.

Of course, during this rapid development process, there were many uncertainties lingering in China's rail industry — such as the Yongwen rail accident in July 2011, and the arrest of the Minister of Railways in the same year, which challenged the ministry and China's high-speed industry. At this critical moment, the central government played an important role: the State Council first disbanded the Ministry of Railways, and organized a new state-owned enterprise called China Railway to take up responsibility for the entire high-speed rail network and its expansion. In this respect, China Railway did not only submit a convincing report for the accident but also addressed the problems identified which helped it to regain the trust of the public and the government. In addition, this is the vivid description of the strong institutional capacity in China's socialist economic system where the vertex of control is the demonstration of the effects of public ownership.

Conclusion

In summary, we can use the famous Confucius approach to describe the drivers behind China's competitiveness. Confucius put forward the three classical questions in "Learning" which is part of the *Analects* (Nan, 2018). First, the idea of "learning and then practicing at every moment" highlights learning applied efficiently in daily life, a concept of

self-control, and continuous improvements. Second, the notion that "the friend appreciating you may come from somewhere far away," urges you to be open-minded and patiently sticking to what you trust until it finally deserves you even if it may cost you a long time of waiting. Here, devotion and confirmation are the virtue. Third, the principle "do not get angry even when others don't understand you," urges you to just do the right thing, and do what you think is right, caring little for the remarks or disturbances around you. If we review the process of China's socialist development, its competitiveness conforms to the above wisdom from Confucius. We briefly summarize them as follows:

Period 1(1950s–1970s): The transformation from a closed economy to an open one

In 1949, when the People's Republic of China was founded, it was part of the Soviet camp. Despite such an environment, we can still identify China's unique development features: while the whole economic system was a planned economy, a degree of autonomy was permitted in certain fields; while China was modeling itself on the Soviet Union's planned economic system (Learning), it further sought to approach the international market to mitigate scarcity of certain products (Practicing). Here, the mixing governance of dominant control and limited autonomy was a key feature. China also used the Soviet Union's advanced experience as a benchmark and sought to mimic its best practice, which brought some recovery into the first Five-Year Plan. In fact, the most precious legacy of this decade's development was the establishment of China's independent and comprehensive manufacturing system, which laid the foundation for China's future global manufacturing center.

Period 2 (1970s–2000s): The transformation from the planned economy to a market economy

The 3rd Session of the 11th CPC Meeting in 1978 was a historical turning point in China's modernization development. Since then, opening and reform have become the theme of China's economic strategy as its involvement in the global economy (cooperation with Western countries) has been the priority and key objective. Here, we can witness the simultaneous changes in the triangle governance mode: while China has relaxed strict macro-control of central government policy and micro-control of state-owned firms, more autonomy has been delegated or transferred to local governments and township enterprises or private firms. If we make an

evaluation using the ABCD model, Agility can be found widely in micro organizations, rural households, or city firms, given the incremental autonomy. These organizations quickly set the targets to benchmark at home and abroad and mimic best practice as soon as possible. At the same time, they have dived into the market to leverage the resources and try to lead toward synergy creation. The famous "three-plus-one" trading mix was the creation of that time. This period also witnessed the summit of China's demographic dividend. The inherited perspiration from China's culture, combined with more opportunities for openness and the positive high reward for the contribution all promoted the rapid development of China's economy. To some degree, China's dedication to its market economy transformation in this period was appreciated and welcomed by the WTO.

Period 3 (2001–): The integration into the world economy and China's unique revival road

At the end of 2001, the WTO welcomed China as the largest developing country in the world. In joining the WTO, it not only opened the door for Chinese firms/products to the global market but also brought the world product/service to the Chinese market. This marked the real beginning of open innovation in China. China's development since its reentry into the WTO produced three big effects on the world: first, China, as the biggest developing country, has successfully strode into the threshold of a middle-income developed country, which brings important hints for developing countries to consider. China's mixed experience may even contribute to other countries' development, which is the popular driver behind China's Belt and Road Initiative. Second, with China's rise, it has exerted more positive actions in dealing with its population growth, economic development, climate, and environmental protection. Moreover, the international governance system is being reshaped to be a more comprehensive and fairer one, in which developing countries will have their own independent voices and receive fair treatment. Third, China's economic development path was neither the former Soviet Union's mode nor a Western one. Its vision is beyond the narrow competition to surpass other developed countries; the original aspiration of China's socialist development is to strengthen its economic growth for a more sustainable future and make China better year by year. The political scientist Samuel Huntington stated in his book *Conflicts of Civilization* that China is a civilization disguised as a country, which really grasp the nature and driver of the legacy of China's long-term development (Huntington, 1996).

References

Chesbrough, H. 2003. *Open Innovation: The New Imperative for Creating and Profiting from Technology.* Boston: Harvard Business School Press.

Chesbrough, H. 2006. *Open Business Models: How to Thrive in the New Innovation Landscape*. Boston: Harvard Business School Press.

Gassmann, O., E. Enkel., and H. Chesbrough. 2010. The future of open innovation. *R&D Management* 40(3): 213–221.

Huntington, S. P. 1996. *The Clash of Civilizations and the Remaking of the World Order*. New York: Simon & Schuster.

Keidel, R. W. 2010. *The Geometry of Strategy: Concepts for Strategic Management*. New York: Routledge.

Li, C. 2014. Will market openness bring foreign technology? Path analysis on the advancement in science and technology. *Comparative Economic & Social Systems* 5:12–19.

Lin, Y. 2014. *New Structural Economics — A Framework for Rethinking Development and Policy*. Beijing: Peking University Press.

Lu, F. 2013. High-speed rail miracle beyond policy expectations. *Outlook Weekly* 12: 30–47.

Mathews, J. A. 2006. Dragon multinationals: New players in 21st century globalization. *Asia Pacific Journal of Management* 23(1): 5–27.

Moon, H. C. 2016. *The Strategy for Korea's Economic Success*. UK: Oxford University Press.

Nan, H. 2018. *A Selection of the Analects of Confucius*. Beijing: The East Publishing Press.

Zheng, F. and L. Chang. 2016. MNCs' innovation outsourcing research: empirical analysis and new discovery in China, *Nankai Economic Studies* 4: 99–114.

Zheng, F., H. Cai., and X. Zhong. 2019. Open innovation and new mechanism of 'technology marketization' by MNCs. *Nankai Economic Studies* 5: 180–197.

Zheng, F., H. Jiao., and H. Cai. 2018. Reappraisal of outbound open innovation under the policy of China's market for technology. *Technology Analysis & Strategic Management* 30(1): 1–14.