



# Integrated Development of Industrial Chain and Innovation Chain of Advanced Manufacturing Industry in Yangtze River Delta Region Driven by Value System of “Three Circulations”

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## ABSTRACT

The trade friction combined with the COVID-19 epidemic has made a great impact on the stability of the global industrial chain. Great importance has been attached to the safety and controllability of the industrial chain by all countries. With a relatively strong industrial base and national leading competitiveness of high-tech industries, the Yangtze River Delta region is one of the regions with the most dynamic economic development in China, as well as the intersection of the Yangtze River Economic Belt and important national strategies such as the construction of the Belt and Road Initiative (BRI), which plays an important role in supporting the high-quality economic development of China. Momentum can be added to regional economic development by the construction of a value system of “three circulations” under the new dual-cycle development pattern to drive the integrated development of the industrial chain and innovation chain of the advanced manufacturing industry in the Yangtze River Delta region, which is also an important measure for China to build an independent and controllable industrial chain. Concerted efforts should be made in terms of government policies, enterprise innovation and innovative talent cultivation, etc. to fully stimulate the “innovation element dividend” and “open policy dividend” of the Yangtze River Delta region in the new era, thus stimulating the high-quality innovative development of the advanced manufacturing industry.

**Keywords:** Value System of “Three Circulations”; Yangtze River Delta Region; Advanced Manufacturing Industry; Integration of Industrial Chain and Innovation Chain; Independent Innovation

## 1. INTRODUCTION

The manufacturing industry is an important pillar of the economic development of China and the main battlefield of the scientific and technological innovation of a country. Since the reform and opening-up, China has

been embedded into the global value chain (GVC) system dominated by developed countries by virtue of the low-cost advantage of resource elements and has improved its production and export capacities rapidly. It has become the world's largest manufacturing country, which has developed an industrial system covering all categories and at a high technical level. Nevertheless,

China's manufacturing industry is "large but not strong" and remains at the middle and low ends of the global industrial chain in comparison with manufacturing powers.<sup>[1]</sup> The fourth reconstruction of the global industrial chain is being accelerated with the vigorous development of a new round of scientific and technological revolution and industrial transformation, which is featured politicized and de-globalized competition among great powers under the impact of the COVID-19 epidemic and their intensified competition. Countries will attach greater importance to the safety, stability, independence and controllability of the industrial chain. The global industrial chain will further show limited globalization trends such as localization, diversification, proximity, decentralization and politicization.

As a new carrier of the division and cooperation of labor in transnational innovation activities, the global innovation chain serves as the main battlefield of competition among industries and enterprises in various countries. It is the core objective to climb the global innovation chain and occupy a high position of innovation in the industry competition in China and even the world. The dynamic deconstruction and remodeling of the global innovation system centered on the innovation chain indicate an inevitable trend under the influence of the fourth remodeling of the global industrial chain, which will inevitably make a profound impact on the security and dominant position of the current supply chain of China and create opportunities for China's advanced manufacturing enterprises to be deeply embedded into the global innovation system and chain and occupy the dominant position. In the report of the 19<sup>th</sup> National Congress of the Communist Party of China, General Secretary Xi Jinping emphasized that "It is necessary to speed up the construction of manufacturing power and the development of the advanced manufacturing industry, advance the deep integration of big data, artificial intelligence, the Internet and the real economy, and cultivate new growth points in green and low carbon, innovation orientation, modern supply chain, human capital service, sharing economy and other fields, thus forming new power. The Yangtze River Delta region is one of the regions with the most dynamic economic development in China, as well as the intersection of the Yangtze River Economic Belt and important national strategies such as the construction of the Belt and Road Initiative (BRI), which plays an important role in supporting the high-quality economic development of China. The industrial economic development in the region has been accelerated after its integrated development was considered a national strategy. In particular, great importance has been attached to the development of the advanced manufacturing industry. The Yangtze River Delta region has been strategically defined as "an important advanced manufacturing base in the world." The advanced

manufacturing industry is an industry that many developed countries focus on during the new round of industrial revolution as well as the key development target of "Made in China 2025" and China's strategic emerging industries. Giving priority to the industry, accelerating the deep integration of its industrial chain and innovation chain, and improving the position of enterprises in the global innovation chain are the new dynamic sources of China in the construction of manufacturing power and development towards the high end of the GVC.

## **2. DEVELOPMENT STATUS AND DIFFICULTIES OF ADVANCED MANUFACTURING INDUSTRY IN THE YANGTZE RIVER DELTA REGION**

Driving the high-quality development of the manufacturing industry, the subject of the real economy, is an important foundation for improving the modernization of China's supply chain and industrial chain. The advanced manufacturing industry reflects the competitiveness of the manufacturing industry and even the whole industry of a country, which, compared with the traditional manufacturing industry, is far more difficult in technology accumulation than in capital accumulation. Long-term research and development (R&D) investment and gradual accumulation are required in order to achieve the desired state. As one of the regions with the most dynamic economic development, the strongest innovation ability, the greatest demonstration and leading role and the highest degree of openness in China, the Yangtze River Delta region has an economic aggregate and industrial value-added accounting for about a quarter of the national level and a strong manufacturing industry base, which serves as the main battlefield for the stable development, transformation and upgrading of the manufacturing industry in China. According to statistics, the production in the manufacturing industry in the Yangtze River Delta region includes Shanghai, Zhejiang, Jiangsu and Anhui, with 27 cities such as Shanghai, Hangzhou and Suzhou as centers, making steady progress with continuously rising output from 2003 to 2019. The proportion of its overall scale in China increased first and then decreased, with the highest being 33% in 2005 and the lowest being 26.8% in 2019, for the reason that the industrial structure in the region began to enter an adjustment period, and the manufacturing industry began to shift out of the region gradually under the impact of the international financial crisis in 2008.<sup>[2]</sup> The industrial transfer and division of labor have continuously enhanced the dominant position of the technology-intensive industry in the region, optimized and upgraded the industrial structure and improved the industrial competitiveness. The proportions of the technology-intensive industry and the capital-intensive industry in the region have increased continuously on the whole, while that of the labor-

intensive industry has gradually decreased.

The advanced manufacturing industry in the Yangtze River Delta region has shown a cluster development trend in recent years. The advanced manufacturing clusters developed mainly include additive manufacturing equipment, rail transit equipment, robots, aerospace equipment and so on. However, there is still a big gap between manufacturing powers in terms of the overall development of the advanced manufacturing industry in the Yangtze River Delta region and even in China which is faced with problems such as low innovation ability, weak competitiveness of advanced manufacturing enterprises and low R&D ability of core technologies and parts. Most advanced manufacturing enterprises in China generally import core components and key technologies from abroad and then complete assembly production, resulting in a very low level of independent intellectual property rights of Chinese products. Chinese advanced manufacturing enterprises are highly dependent on imported core components and materials, which makes their competitiveness in the global market like castles in the air and easily restricted by foreign enterprises and governments. The "cutthroat" dilemma fully highlights the serious consequences of Chinese manufacturing enterprises' lack of independent intellectual property rights and excessive dependence on imports, making us aware that China's advanced manufacturing industry still has a long way to go from "large" to "strong". With the continuous development of information technology, China's advanced manufacturing industry is expanding with increasing enterprises, and advanced manufacturing clusters are developing rapidly. However, advanced manufacturing enterprises are still weak in the core competitiveness on the whole, most of which keep a low level of mass production and need to improve their independent innovation ability. China has fewer transnational giants in the advanced manufacturing industry with weak market competitiveness in comparison with western developed countries in the international market competition. At present, world-class urban agglomerations pay more attention to the construction of the global innovation network and industrial chain and value chain systems and the improvement of the competitiveness of the real economy. The focus of competition has also changed from "share" to "hierarchy". The leading industries are all high-end modern service and advanced manufacturing industries. However, the Yangtze River Delta urban agglomerations still have a great gap from other developed urban agglomerations in the scientific and technological innovation capability, the industrial structure of which is mainly located at the middle and low ends of the global value chain. Studies have further shown that manufacturing enterprises in the region are mostly at the low end of the industrial chain and value chain of strategic emerging industries and that there are few

enterprises with original R&D and innovation capabilities.<sup>[3]</sup>

### **3. INTEGRATED DEVELOPMENT OF INDUSTRIAL CHAIN AND INNOVATION CHAIN OF ADVANCED MANUFACTURING INDUSTRY IN THE YANGTZE RIVER DELTA REGION COLLABORATIVELY DRIVEN BY THE VALUE SYSTEM OF "THREE CIRCULATIONS"**

The export-oriented "away economic globalization" that China has been pursuing for a long time leads to the structural imbalance in the economic development, the formation of supply-side blocking points and the sluggish economic cycle in China. Chinese enterprises are highly dependent on the international market and neglect the development and cultivation of the local market. Moreover, they are positioned in the low-end international original equipment manufacturing (OEM) with the static comparative advantage of cheap elements while ignoring the cultivation of their independent innovation consciousness and ability, resulting in a serious surplus of low-end production capacity. The globalization of the value chain has been hindered by the spread of the COVID-19 epidemic and the emergence of "de-globalization" thoughts in western society. It is urgent for developing countries represented by China to change from being embedded into a single global value chain to building and integrating into a diversified global and regional production network so as to establish a more inclusive and open global and regional value chain and boost the healthy and orderly development of bilateral and multilateral trade. With significant advantages as a big country with great domestic market potential, China can better attract global high-quality resource elements, transform "away economic globalization" into "home economic globalization", and then develop new advantages in participating in international economic cooperation and competition by driving the formation of a smooth domestic economic cycle. An effective way to expand the industrial development space and improve the industrial competitiveness of China in the construction and integration of a self-dominated diversified global and regional value network based on the opportunity for the optimization and reconstruction of the global industrial chain.<sup>[4]</sup> The proposal of the BRI has defined the direction for China to build a diversified global and regional value chain system. The population along the BRI is about 4.4 billion, accounting for 63% of the global population, and the economic aggregate accounts for about 29% of the global total.<sup>[5]</sup> The implementation of the BRI can not only facilitate a new round of prosperity and development of the global economy and trade, but also help Chinese enterprises to break through the dilemma of locking at the low end of

GVC and extend the national value chain by transferring surplus production capacity and capital and strengthen cross-regional innovation cooperation, and provide opportunities for Chinese industries to be upgraded to the middle and high ends, thus accelerating the upgrade of the economy to a new stage of innovation-driven development.<sup>[6]</sup>

In view of its regional advantages and economic development potential, the Yangtze River Delta region should give full play to its role of two-way openness and dual hubs, integrate its own development into the long-term strategy of building a new dual-cycle development pattern, drive the development of the external cycle with a high-quality internal cycle on the basis of promoting the coordinated development of the regional economy, and meanwhile energize the internal cycle with a high-quality external cycle under the new background of the current global value chain reconstruction and China's progressive reform.<sup>[3][7]</sup> As for the value system of "three circulations" in which China acts as the core hub, the "medium circulation" of domestic value composed of the eastern, central and western regions of China is added on the basis of the "upper circulation" constituting by China and developed economies and the "lower circulation" consisting of China and developing economies.<sup>[4]</sup> The value system provides a powerful foundation for the leap-forward development of the industrial chain and innovation chain of the advanced manufacturing industry in the Yangtze River Delta region, and contributes to the deep integration of the two chains in the development and evolution. The "upper circulation" composed of China and developed economies provides space for Chinese enterprises in the Yangtze River Delta region to absorb high-end elements. Transnational companies in developed countries occupy the position of "chain owners" and export high-end production elements such as technology and advanced equipment to China. Chinese manufacturing enterprises are mainly responsible for assembly production and for exporting intermediate products and final consumer goods to western developed countries. In the "lower circulation" consisting of China and developing economies, China has the absolute advantage of becoming the "chain owner" and leading the global and regional value chain. Especially under the background of the BRI, countries (regions) along the BRI are different in the industrial gradient, most of which have underdeveloped economies and demands for capital, technology and equipment within the supply capacity of China. The construction and deep interaction of the BRI global and regional value chain will be facilitated if China can strengthen the international capacity cooperation and realize the two-way export of resource elements in such countries and low-end products of China according to the difference of endowment advantages under the guidance of the BRI.<sup>[8]</sup> The "medium circulation" with the division of labor and cooperation among the eastern, central and western

regions and between inland and coastal areas of China will help to further release the endogenous growth vitality of the Chinese economy. China can develop the "great power advantages" through integration as the huge consumer market has created space for Chinese enterprises to cultivate the driving force of demand.

It is necessary to lay out the innovation chain around the industrial chain and upgrade the latter around the former. This study proposes to break through the traditional idea of upgrading along the GVC, and encourages advanced manufacturing enterprises to use the operation experience accumulated in the GVC for the integration into the global innovation chain (GIC) and the construction of a global and regional innovation chain (IRIC) and a national innovation chain (NIC) so as to make breakthroughs in the key technology of the advanced manufacturing industry through the leverage of GIC/IRIC/NIC and cope with the "cutthroat" threat of western developed countries headed by the United States. In addition, featured with high industrial agglomeration and strong supporting capacity, the Yangtze River Delta region should give full play to the strategic advantages of its integrated development and form a great attraction to global innovation resources while relying on the Chinese economic cycle system, thus providing sustainable innovation power for the integrated development of the industrial chain and innovation chain of the advanced manufacturing industry.

#### **4. COUNTERMEASURES AND SUGGESTIONS FOR OPTIMAL DEVELOPMENT OF INDUSTRIAL CHAIN AND INNOVATION CHAIN OF ADVANCED MANUFACTURING INDUSTRY IN THE YANGTZE RIVER DELTA REGION**

The trade friction combined with the COVID-19 epidemic has made a great impact on the stability of the global industrial chain, and great importance has been attached to the safety and controllability of the industrial chain by all countries. The global industrial chain shows an obvious trend of de-globalization and is gradually reconstructed towards regional clustering. Its local and diversified development is an alarm for the development of the manufacturing industrial chain in China, which meanwhile forces China to speed up the implementation of the development strategy driven by independent innovation, thus accelerating the integrated development of the industrial chain and innovation chain of China and boosting the transformation and upgrading in the direction of independence and controllability.<sup>[9]</sup> The Yangtze River Delta region has a strong industrial base and high-tech industry with leading competitiveness in the country. An important way to promote the optimal development of the industrial chain and innovation chain of the advanced manufacturing industry in the region and

improve the national competitiveness is to integrate innovation resources, accelerate the complementation of advantages of different regions in science and technology and form a joint force of scientific and technological innovation based on the opportunity of its integrated development and the collaborative driving force of the value system of "three circulations" so as to fully stimulate the "innovation element dividend" and "opening policy dividend" of the Yangtze River Delta region in the new era and turn them into a new power to cultivate and develop world-class advanced manufacturing clusters. Under the background of the dynamic remodeling of the global industrial chain, China's manufacturing industry, deeply integrated into globalization, is faced with competition from great powers and with both opportunities and challenges. It is necessary to make concerted efforts from government policies, enterprise innovation, talent cultivation and other aspects to promote the deep integration of scientific and technological innovation and the industrial chain so as to boost the high-quality innovative development of the advanced manufacturing industry.

**Government policy.** The integrated development, optimization and upgrading of the industrial chain and innovation chain of the advanced manufacturing industry are complex systematic projects and arduous long-term tasks, for which it is necessary to strengthen the top-level design, overall planning and strategic layout. On the one hand, it is required to speed up the establishment of an institutional system with unified rules, deepen the reform of the market system and mechanism and promote the free flow of production elements so as to strengthen the element support and policy support for the development of the manufacturing industry. The Yangtze River Delta region should give full play to the core hub function of two-way openness, strengthen the two-way interaction between openness expansion and reform deepening, force reform with opening, drive opening with reform, and boost institutional openness while deepening element openness. It should also make full use of the opening opportunity of the BRI and Regional Comprehensive Economic Partnership (RCEP) to facilitate the connection of existing rules and standards to high-quality international economic and trade rules and improve its integration into the global industrial chain and innovation chain. On the other hand, it is necessary to eliminate the fragmentation of governments at all levels in the region and policy barriers that hinder its integrated development, strengthen the full cooperation among regional governments on the basis of healthy market competition, and give full play to the political and institutional advantages of China in "concentrating our efforts for great deeds", and build a demand-driven regional collaborative innovation community with integrated thinking based on the advantages of rich talents and scientific and educational resources in the Yangtze River Delta region while

focusing on the key areas and "cutthroat" technologies that are in short supply of national strategies and urgently needed for regional development, thus boosting the integration of the industrial chain, innovation chain and value chain and cultivating the Yangtze River Delta region into a growth pole of scientific and technological innovation with global radiation and attraction.<sup>[10]</sup>

**Enterprise innovation.** Enterprises are the subjects of the upgrading and development of China's advanced manufacturing industry, and independent innovation capability is the greatest driving force for its transformation and upgrading. On the one hand, enterprises should enhance their innovation awareness, enhance independent innovation through technology introduction, improve their innovation ability, and attach great importance to the protection and management of intellectual property rights and the stimulation of employees' innovation enthusiasm.<sup>[11]</sup> On the other hand, they should increase investment in innovation R&D, and attach importance to not only the R&D of key and new technologies and products but also the development and utilization of basic research and common technologies. In addition, they should broaden channels for innovation cooperation initiatively, build an open innovation platform with digital technology, and integrate upstream and downstream enterprises to establish a full chain innovation network-oriented "chain owner" enterprises. Finally, leading enterprises in the industry should go out actively along the BRI, seize the opportunity of optimized allocation of global resources, integrate and utilize advanced elements of production and innovation in the world, and lay out value-added links such as R&D, procurement, production and sales in the world, so as to enhance the international competitiveness of enterprises.

**Cultivation of diversified, innovative talents.** The development of the economy and society and the improvement of the comprehensive national strength are all inseparable from the support of talents. Various high-quality and highly skilled talents are an important part of the construction of the technological innovation capacity of enterprises and important support for the implementation of the innovation-driven development strategy in China. China should speed up the improvement of the incentive and guarantee system and improve the social status of skilled talents. Local governments should attract various high-quality talents from all over the world to work, start businesses and settle down by establishing innovative compensation and talent guarantee systems in combination with corresponding talent and financial and taxation policies, so as to provide good talent support for the transformation and upgrading of the local advanced manufacturing industry. Enterprises should attach great importance to the introduction and cultivation of talents, strengthen the industry-university-research-government cooperation, and improve the introduction and cultivation of compound talents, senior engineers,

innovative talents and management talents with the help of universities and research institutes, so as to reserve talent resources for their innovative and development.

## 5. CONCLUSION

Scientific and technological innovation and technological progress are the main ways to improve the quality of and upgrade the manufacturing industry. Improving the innovation ability of the supply system and making continuous breakthroughs in the “cutthroat” problems and other core technical problems are the essential requirements of the new dual-cycle development pattern. To get rid of the constraints of key technologies and improve the position of Chinese industries in the global innovation system, China must persist in building an innovation chain centered on the industrial chain, and ensure that scientific and technological achievements can be industrialized in each link of the industrial chain, improve the innovation of its own industries continuously, and then realize the connection to the great international cycle at a higher level. It is one of the important measures for the construction of an independent and controllable industrial chain in China to build a value system of “three circulations” under the new dual-cycle development pattern to collaboratively drive the integrated development of the industrial chain and innovation chain of the advanced manufacturing industry in the Yangtze River Delta region. Under the influence of the current Sino-US trade friction and de-globalization trend, the advanced manufacturing industry in the region should turn its passivity into the initiative, seize the opportunity of the BRI and RCEP to fully explore domestic and foreign markets, deeply participate in the reconstruction of the East Asian production network, coordinate the domestic demand market development and international capacity cooperation through two-way openness interaction, and break through the “cutthroat” dilemma through regional collaborative innovation led by independent innovation, thus reducing the dependence on technology import from western developed countries and optimizing the self-dominated industrial chain value network system.

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## REFERENCES

- [1] Chen, X.D., Wang, B., Fan, Z.C., Guo, X.L. Enhancing the technological innovation capability of enterprises and promoting the deep integration of science and technology and economy. *Democracy & Science*. 2020 (6), pp. 3-9.
- [2] Pan, B., Huang, Z.X. Division of labor and cooperation, optimization and upgrading of industrial structure and improvement of foreign trade competitiveness in the manufacturing industry in the Yangtze River Delta region. *Scientific Development*. 2021 (153), pp. 5-14.
- [3] Wang, S.Y., Liu, Y.Q. Integration of manufacturing industry in the Yangtze River Delta region under the new development pattern: status quo, problems and countermeasures. *West China*. 2021 (3), pp. 31-43.
- [4] Wang, X.P., Hu, F., Zhang, Y.Y. Upgrading of China’s manufacturing industry under the dynamic optimization framework of global value chain - from the perspective of collaborative driving by the value system of “three circulations”. *Economist*. 2021 (2), pp. 43-51.
- [5] Sun, J., Gao, Y.Y. Construction and advancement path of value chain system of “three circulations” under BRI. *Journal of Party School of Nanjing Municipal Committee of CPC*. 2018 (5), pp. 82-87, 35.
- [6] Liu, Z.B., Wu, F.X. Double embedment of global value chain under BRI. *Social Sciences in China*. 2018 (8), pp. 17-32.
- [7] Gu, X., Wei, L.X. Study on path and countermeasures for boosting high-quality development of the open economy in the Yangtze River Delta region from the perspective of RCEP. *Modern Economic Research*. 2022 (3), pp. 60-69.
- [8] Pan, M., Zhang, Z.R., Xiao, W. Research on the strategy of China’s industrial external competition and cooperation under the dual-circulation structure of global value chain - from the perspective of trade value-added technology level and technology structure. *Prices Monthly*. 2020 (10), pp. 79-87.
- [9] Shi, J.X., Lu, D.N., Xu, L. Research on the fourth global industrial chain reconstruction and China’s industrial chain upgrading. *Research on Financial and Economic Issues*. 2022 (4), pp. 36-46.
- [10] Dong, J.R., Zhang, W.Q. Technology sources and

technological progress favor the upgrading of China's manufacturing industry - thinking based on the new dual-cycle development pattern. Forum on Science and Technology in China. 2021 (10), pp. 71-82.

- [11] Hu, F., Xi, X., Zhang, Y. Y. Influencing mechanism of reverse knowledge spillover on investment enterprises' technological progress: An empirical examination of Chinese firms. *Technological Forecasting & Social Change*. 2021(169), 120797, pp. 1-10.

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