Front. Bus. Res. China 2022, 16(4): 340–341
DOI 10.3868/s070-007-022-0017-4

FEATURED REVIEWS

Moving Faster to Construct an Organic Industry Ecology in Manufacturing Sector

LI Gang[a, b]

[a] Institute of Industrial Economics, Chinese Academy of Social Sciences, Beijing 100006, China
[b] Shanghai Academy, Shanghai 200072, China

In recent years, China's manufacturing sector has been moving up to the middle- and high-end of global manufacturing sector, and has made great achievements. The 20th National Congress of the Communist Party of China (CPC) calls for "we will moving faster to boost China's strength in manufacturing" and "we will support enterprises that use special and sophisticated technologies to produce novel and unique products; and move the manufacturing sector toward higher-end, smarter, and greener production." To meet these development goals, China's manufacturing sector still needs to recognize the shortcomings of the current development, and strive to transform and upgrade the manufacturing sector.

At present, some core technologies of China's manufacturing sector are still imported and may potentially face the imposed bottleneck. In this regard, China's independent controllability of these core technologies is still weak. As a late-mover, China mainly tracks and develops technologies after they have been industrialized and applied maturely in other countries. Moreover, in theoretical research, the experimental quantity and data accumulation of basic disciplines are still insufficient, still having a big gap between China and other countries in the adjustment and selection of manufacturing parameters and materials. For example, basic raw materials, such as metal materials, still have much room for development in the research and development of sophisticated varieties. Therefore, the stability and reliability of China's manufactured downstream industrial equipment of the industrial chain, such as machine tools, are still insufficient. In addition, the originality of China's manufacturing products is still insufficient, original and disruptive innovative products are few, and the brand influence of products is still weak.

China's manufacturing sector needs to increase investment in talents, R&D, etc. to transform and upgrade, so as to resolve "growing troubles." First of all, China should move faster to develop national strategic talents and to train research talents and highly skilled workers. According to a study by the Institute of Industrial Economics of the Chinese Academy of Social Sciences, human capital investment (concentrated in education and health) is highly correlated with a country's long-term economic growth. Improving the quality of labor force is a vital reason for the rapid economic growth. Therefore, increasing the investment in human capital is also a critical guarantee for China to advance toward the Second Centenary Goal[1]. The particular cultivation of engineering talents will lay a solid foundation for China to continue transforming and upgrading the manufacturing sector.

Furthermore, China should maximize the important role of leading enterprises, actively reconstruct the organic industrial ecology, and break through the "impassability" of internal circulation. With the complexity of product production system, even very simple products are no longer the competition of simple products, but the competition between product

Translated from *Guangming Daily* 光明日报 , 2022–11–10

[1] The Second Centenary Goal is to build China into a great modern socialist country by the middle of 21th century.

supply and production system with the final product as the external expression. Taking the modern machine tool industry as an example, the production of machine tools requires many intermediate inputs, and the division of labor within the industry is the norm. Only the key components are divided into spindle, numerical control system, screw, guide rail, bearing, hydraulic device, numerical control turntable, cutter, etc. Some foreign enterprises can roll out products with higher performance, not only because they have several final machine tool manufacturers, but because the overall industrial systems of these countries have established an organic ecology to promote each other and to evolve together, thus enhancing the competitiveness of the overall machine tool industry chain. In contrast, China's machine tool industry often integrates the industrial chain within the enterprises on their own, and is not good at integrating the superior products of different enterprises through the market mechanism. Therefore, China should introduce relevant targeted policies to encourage industrial chains and long-chain enterprises in innovation chain to jointly build competitive industrial chains, so as to promote the continuous upgrading of China's manufacturing sector and to enhance its international competitiveness.

In addition, Chinese enterprises should intensify propaganda to enhance the influence of national brands. China continues to promote a high level of opening up to the outside world, and is a firm supporter and defender of economic globalization. At present, China's promotion of national brands is far from enough. China should increase the promotion and publicity of manufacturing enterprises and their high-quality products, attract global resource elements, improve the quality and level of trade and investment cooperation, help Chinese manufacturing enterprises deeply participate in global industrial division and cooperation, and promote the upgrading of manufacturing and industrial chain in China.