Study on the Innovative Strength of Chinese Corporations

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Abstract. China's strong emphasis on innovation is shining through the New Era. In the age of a knowledge-based economy, the significance of innovation often surpasses that in any previous ages as an important factor in economic increase. Technology starts, develops, persists, mutates, stagnates, and declines, just like living organisms. A new high-technology core emerges and challenges existing technology support nets, which are thus forced to coevolve with it. Supply-side structural reform remains the centerpiece of China's economic agenda, but priorities have shifted. New technology, industries and business models will provide the strength for future growth.

Introduction

China does well in customer- and manufacturing-oriented innovation, though not in the more advanced varieties. But the country will need them to sustain growth. The events of 2018 have shown that China is passing through a challenging transition: the labor-force expansion and surging investment that propelled three decades of growth are now weakening. This is a natural stage in the country’s economic development. Yet it raises questions such as how drastically the expansion of GDP will slow down and whether the country can tap new sources of growth. Innovation could contribute much of the GDP by 2025. China will have evolved from an “innovation sponge,” absorbing and adapting existing technology and knowledge from around the world, into a global innovation leader. Our analysis suggests that this transformation is possible, though far from inevitable.

The New Era of Innovation

Inheriting from the past and ushering in the future, the Chinese society has entered a new phase, standing on the center stage of the world. The vibrant new era has made hundreds of millions of Chinese people enjoy the convenience and beauty of living. Reshaping innovation mechanism, inspiring creativity while cultivating emerging business types and new markets, these endeavors not only elevate people’s happiness, but also infuse new energy for transforming and upgrading various fields of economy. Innovation means to lead an era. "Innovation" will be both a major theme and preoccupation, given even more importance this year after pronouncements from Party General Secretary Xi Jinping in his work report at last fall's 19th National Congress of the Communist Party of China, regarding the shape of the new era and the new principal contradiction, both inextricably linked to accelerated advance of innovation in numerous fields. Numerous Chinese technology corporations owe their success to innovation and hard work, and are marching onto the global stage. Whether it be through foreign resource strategies or recruiting international talent at overseas research centers, Chinese corporations are gradually expanding outside the country in this emerging new age.

Maintaining Innovation Momentum

To date, when we have evaluated how well Chinese companies commercialize new ideas and use them to raise market share and profits and to compete around the world, the picture has been decidedly mixed. China has become a strong innovator in areas such as consumer electronics and construction equipment. Yet in others—creating new drugs or designing automobile engines, for example—the country still isn't globally competitive. That's true even though every year it spends more than $200 billion on research (second only to the United States), turns out close to 30,000 PhDs in science and engineering, and leads the world in patent applications. Innovative startups that have their roots in technology commercialization are often known for successful products in the early stage of their operations. However, such successes will in turn create a market and inevitably attract more latecomers to enter the market. While early entrants, to a certain degree, will have an advantage, it does not mean that they can afford to rest and do nothing. Companies have to keep striving to innovate in order to defend their positions in the business against competitors. A company's innovation momentum can be boosted by adopting the following strategies: The original department led innovation model is replaced by the current product manager led innovation model. Mistakes are allowed to ensure employees keep an open mind. A number of incentives, including stock options, bonuses and chances of promotion, are provided and adjusted regularly according to contributions employees make to their job. Innovation always begins with people. A lack of excellent employees often leads to a lack of good ideas or effective execution of good ideas. The bosses will allocate a lot of resources to support their new products. Changes may have already taken place.

A More Innovation-Driven Economy

To achieve this goal, China must continue to transform the manufacturing sector, particularly through digitization, and the service sector, through rising connectivity and Internet enablement. Additional productivity gains would come from progress in science- and engineering-based innovation and improvements in the operations of companies as they adopt modern business methods. To develop a clearer view of this potential, researchers have identified four innovation archetypes: customer focused, efficiency driven, engineering based, and science based. Chinese companies that rely on customer-focused and efficiency-driven innovation—in industries such as household appliances, Internet software and services, solar panels, and construction machinery—perform relatively well. However, Chinese companies are not yet global leaders in any of the science-based industries (such as branded pharmaceuticals) that we analyzed. In engineering-based industries, the results are inconsistent: China excels in high-speed trains but gets less than its GDP-based share from auto manufacturing. China benefits from the sheer size of its consumer market, which helps companies to commercialize new ideas quickly and on a large scale; even a relatively small market like online gaming is bigger than the auto industry in Turkey or Thailand.

Chinese companies have learned how to read the requirements of their rapidly urbanizing country and to scale up new products and services quickly to meet them. Companies like smartphone manufacturer Xiaomi are responding with cheaper and better products designed to offer hardware features as good as those from global brands but priced for the Chinese market. Internet service providers are another hotbed of customer-focused innovation. Alibaba, Baidu, and Tencent have become global leaders in online services, largely thanks to their success in the enormous Chinese market. Customer-focused innovation could reshape large swaths of China's service sector, where productivity lags behind that of its counterparts in developed economies. The government already is pushing to modernize traditional businesses through its Internet Plus initiative, announced in early 2015. Innovations are needed to expand access to services (for example, remotely monitoring the health of rural patients), to improve the quality of offerings (greater choice and customization in financial and educational products), and to optimize operations (crowd-sourced logistics). Chinese companies will also have opportunities to use their skills in customer-focused innovation to take a

lead in selling to other emerging markets. In manufacturing, China's extensive ecosystem has provided an unmatched environment for efficiency-driven innovation. Some efforts are under way to mobilize rapid, flexible manufacturing. In Guangdong province, for example, manufacturers have set up joint platforms to share the benefits of R&D and operations among companies in the same clusters. In other industries, such as medical equipment, the private sector will drive innovation. Mindray, United Imaging Healthcare, and other smaller new Chinese players will continue to make inroads in market categories (for instance, CT scanners and MRI machines) that foreign suppliers now dominate. Government programs to subsidize purchases of Chinese-made equipment by the country's hospitals are providing a boost even as a new generation of medical entrepreneurs draws from global knowledge and partnerships.

A Better Research Team

A massive government push to rise R&D spending, train more scientists, and file more patents has yet to give China a lead in science-based innovation. Huge investments by government and the private sector to shepherd projects from the lab to commercial deployment are needed, as well. What's more, despite the large number of Chinese students trained in scientific and technical fields, companies struggle to find capable talent. The government is addressing some of these obstacles. Efforts such as the Thousand Talents program bring overseas Chinese to the country to launch their own companies and work in scientific organizations and universities. Even as these reforms play out, Chinese innovators are adopting novel approaches—for instance, using the country's massive market size and huge pool of low-cost researchers to industrialize and speed up experimentation and data collection. One such innovator, BGI, is deploying massive scale (2,000 PhDs and more than 200 gene-sequencing machines) to power its way through biotech problems. The extent and speed of China's advances in innovation will have significant implications for the country's growth and competitiveness and for the types of jobs, products, and services available to the Chinese people. They will also have powerful consequences for multinationals (competing at home and abroad with Chinese companies), some of which are now using China as an R&D base for global innovation. Fortunately, that isn't a zero-sum game: a more innovative China ought to be good for a global economy that seeks new sources of growth.

Summary

China has been ranked third in the world for innovation by global business leaders. As China transits to a more innovation-driven economy, an understanding of how businesses deal with this change is critical to operating in this environment. During the Third Industrial Revolution, fundamental economic change occurs when new technologies converge with innovation power. The Sharing economy is also explored as a crucial element of the Third Industrial Revolution. Innovation processes can either be pushed or pulled through development. To succeed with either method, an understanding of both the market and the technical problems are needed. By creating multi-functional development teams, containing engineers and marketers, both dimensions can be solved. The product lifecycle of products is getting shorter because of increased competition. This forces Chinese companies to reduce the time to market. Innovation managers must therefore decrease development time, without sacrificing quality or meeting the needs of the market.

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