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High-tech Zones (Science & Technology Parks) and China's Urbanization

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Executive Summary

Witnessed by the last two decades, high-tech zones (science & technology parks) have played a considerably crucial role in pushing China's economy boom. The rapid rise of high-tech zones has not only brought the emerging of a number of globally-competitive high-tech industries and MNCs, but accumulated tens of thousands of innovative SMEs, which have affected China's economy in an unprecedented level. While pushing China's new industrialization process, high-tech zones are providing a tremendous driving force to China's urbanization at the same time. On one hand, high-tech zones have created job opportunities, populated new areas and new demands in R&D, logistics and business facilities, which all resulted in a steady improvement of urban services and functions. On the other hand, urbanization has provided a vast market for high-tech zones, which enabled the new technologies being widely used in this process. This paper reviews how High-tech zone have promoted the converging development of industrialization and urbanization of the host cities and looks into the future of these high-end new urban areas with reinforced functions of R&D, incubation, industries and modern services.

I. China's High-tech Zones (Science & Technology Parks) Have Become a Main Driver for China's Rapid Development

Since the reform and opening-up, China insisted scientific innovation, actively promote the new and high-tech industry. In 1988, Chinese Ministry of Science and Technology implemented "Torch Program", China's High-tech Zones Emerged. Currently, China is constructing 105 national High-tech Zones (Science & Technology Parks). These zones have become core carrier of China's high-tech industry development and strategic highland of self-dependent innovation. The total scale of economy increased continuously (in 2011, the GDP of high-tech zones accounts for over 8.0% of China's total GDP), a batch of internationally competitive industries and manufacturing sprang up, a batch of increasingly international multinationals and industrial leaders are emerging, gathering thousands of innovative SMEs, which offered strong support of China's national economy and rapid social development.

II. China's High-tech Zones (Science & Technology Parks) Are Promoting the Convergence of New Industrialization and New Urbanization

In recent years, the Chinese government has put forward a strong promotion of new industrialization and new urbanization, and the strategic role of High-tech Zones (Science & Technology Parks) has been highlighted in the new national strategy. With scientific

innovation as the main line and development of new & high-tech industry as direction, High-tech Zones (Science & Technology Parks) kept optimizing industrial structure and became the pioneer of the transformation of economic growth national wide. As the advance of new industrialization, High-tech Zones (Science & Technology Parks) have injected tremendous impetus into China's urbanization, and the integration trend of new industrialization and urbanization is obvious. On one hand, High-tech Zones (Science & Technology Parks) have absorbed large amount of employment, motivated population gathering, spawned various needs of R&D, logistic, business, commercial and supporting devices, which gradually upgraded and enhanced city's service function. On the other hand, the development of urbanization provided broad market of products and services, and new& high-tech has been put into large amount of application of city's development. In China, High-tech Zones (Science & Technology Parks) have commonly become a significant part of city's economy, and the engine of city's development. High-tech Zones (Science & Technology Parks) are gradually transforming into new or high-end functional areas integrating functions of R&D and innovation, entrepreneurial incubation, industrial development and high-end services.

In China's large cities and metropolitans, as the engine of city's innovative development, High-tech Zones (Science & Technology Parks) have gathered talents, capital, technology and other high-end elements, improved the industrial and innovative environment, constantly lifted the service standard, accelerated the industrialization and urbanization level of surrounding cities and regions through industrial chain correlation and innovative collaboration. A large amount of high-level human resources has already become a key driver of High-tech Zones (Science & Technology Parks) development in large cities. The gathering of high-end talents not only accelerate the innovation of technical results, promote the appearance of new industrial form and industrial development, but also proposed higher requirement of the environment of High-tech Zones (Science & Technology Parks) and promoted regional development. On one side, high-end talents require an advantageous innovative environment in High-tech Zones. For instance, they need scientific research institutions and enterprises, affluent scientific instruments and facilities, active technology exchange, convenient administrative services and various financial channels as the platform for their innovation. The improvement of innovation environment has in turn unleashed the constant emerging of technological innovative achievements, thus to boost the transformation progress from technology to products. On the other side, high-end talents require advantageous living environment in (or around) High-tech Zones, such as residential community with beautiful environment, high standard medical facility, offspring education system, convenient and efficient commercial service agencies, and colorful dining and recreation sites. For all that makes High-tech Zones most fully functional and highest service standard areas, and in turn the continuously upgrading of living environment also brings the accelerated gathering of high-end talents.

Take Beijing as an example, the Zhongguancun Science Park gathers Peking University, Tsinghua University, Chinese Academy of Sciences and many other universities, research institutions. The favorite environment of Zhongguancun accelerates the industrialization of all kinds of scientific and technological achievements. Meanwhile, a large number of overseas returnees start up their business in Zhongguancun along with many scientific and

technical personnel and college graduates in the park, which makes Zhongguancun an area of most abundant intellectual resource, most active innovation and entrepreneurship in Beijing, even in China. Lenovo, Baidu, Sina, Sohu and other internationally renowned companies are hatched up there. With a large number of excellent innovation resources, the Zhongguancun Science Park constructed public service platform, business incubators, high-tech enterprise accelerator and specialized industrial base, built up a set of business incubation carrier system which includes technical R&D, technology transfer, enterprise incubation, and industry gathering, which has improved the city's development level. In addition, the Zhongguancun Science Park firstly implemented a series of institutional mechanism innovation, including one-stop administrative approval service, technology financing guarantee, venture capital, guaranteed compensation and etc. Regarding industrial development, Zhongguancun Science Park has improved incubation, technical service, personnel training, financial service, business service, housing, education, medical care and other industrial functions , which accelerated the development of the park, also improved the governmental administrative service level, exerted tentative and demonstrative function in order to improve the function of governmental service and to perfect city's function. Besides, a large number of enterprises of the Zhongguancun Science Park set up branches or industrial bases in other cities within the capital-ram city circle, which promoted the rapid development of enterprises. Through maintaining a close contact with the Zhongguancun Science Park in electronic information, internet, energy-saving environmental protection and other industrial areas, the surrounding cities have accelerated the level of the new industrialization and urbanization development.

Affected by the level of urban development and stage of industrial development, most of High-tech Zones (Science & Technology Parks) are positioned to provide service to innovation-led and high-end industrial clusters of local area in the small and medium cities of China. Through the technological innovation, the park developed to high-end industry, combined with logistics, commerce, design and other productive services, regional urbanization has been upgraded by industrial development, meanwhile, related living facilities and service functions have been improved. Experiences have proved that China's High-tech Zones (Science & Technology Parks) are the effective tools for promoting industrial and urban development. Therefore, in many second-tier and third-tier cities, local governments construct high-tech zones as new district of city, Zhengzhou, Wuxi, Suzhou and other places have achieved good results. Firstly, most of the industries inside High-tech Zones (Science & Technology Parks) are high-tech industries, which conform to the city's development orientation of high-end, low-carbon, innovation-oriented. Secondly, most of High-tech Zones (Science & Technology Parks) located in the peri-urban areas, which are convenient to get support of relative function from the city in the early stages of their development, and improve the level of regional urbanization since the zones getting high-speed development stage. Meanwhile, it could avoid the planning deficiencies in old district of city by integrative planning and developing specialized zones. Thirdly, High-tech Zones (Science & Technology Parks) could provide more support service and better employment to local residents by their faster growth rate and better industrial development than other regions.

For instance, the Suzhou high-tech zone is one of the most important gathering areas for

high-end electronic information manufacturing in China. To cope with the need of the city's development, this high-tech zone was commissioned to manage the villages and towns nearby, which extends its area to 223 square kilometers. Aimed to integrate both city and rural area, the local government has made a 10-year plan to further develop this high-tech zone, with the specialty in view and culture, the theme in technology, culture, ecology and efficiency, the function in innovation, high-tech modern service, cultural ecological living and tourism and leisure. At the same time, continuously upgrading the traditional leading industries, Suzhou high-tech zone also undertakes the function of develop new emerging industries such as new energy, biomedical industry, software engineering and etc. To support the development of the biomedical industry, Suzhou high-tech zone has successfully introduced the institute of biomedical engineering of Chinese Academy of Sciences, attracted biomedical companies, enterprise incubators and industrial park around the institute, built up additional infrastructures such as apartments, schools, hospitals and department stores in surrounding areas, making this region a new core part of the city in terms of good working and livable living conditions. In coastal area of Tai Lake, besides original function known as traveling and viewing, Suzhou high-tech zone would also be built as an area for conducting healthy therapies. The local people could obtain employment in tourism, commerce, healthy therapies and other fields.

III. Future Development of China's High-tech Zones (Science & Technology Parks):

This year, the newly assumed Chinese government began to prelude the China's huge development of urbanization, the merge of industrialization and urbanization spirally interweaved, which will be one of the important forces of transformation and upgrade of China's economy in the future decades. The Chinese urbanization will bring a significant change and integrate closely with the development of High-tech Zones (Science & Technology Parks) in the long period. Since the deep evolution of the third industrial revolution, the development of China's High-tech Zones (Science & Technology Parks) will show a variety of trends, the proportion of strategic emerging industries will be grown, the entrepreneurship of high-end talents will become a mainstream, technological innovation and commercial model innovation will occur frequently, which will play a significant impact on the development direction of the China's High-tech Zones (Science & Technology Parks):

The environment of the China's High-tech Zones (Science & Technology Parks) development will continue to optimize. On one hand, the service function of High-tech Zones (Science & Technology Parks) will be more complete, the living condition will be more livable and ecological, humanistic atmosphere will be more dense, commercial facilities will be more convenient, transportation will be more improved, human communication will be more easy, the relation between human and nature will be more harmony and coexisting; on the other hand, China's High-tech Zones (Science & Technology Parks) will continue deepening institutional and mechanic reform, build and improve more efficient enterprise service system, strengthen business laws and regulations, and diversified demands of human beings will be more valued and satisfied.

China's High-tech Zones (Science & Technology Parks) will drive more development of other cities. Since 2008, the Chinese Ministry of Science and Technology has already approved 40 provincial high-tech zones (Science & Technology Parks) upgrading to national high-tech

zones (Science & Technology Parks), which received high importance and active response of local governments. High-tech zones (Science & Technology Parks) play a more important role in demonstrating, leading, radiating and driving of the city's development. Constructing and developing High-tech zones (Science & Technology Parks) have become an important grasping device of promoting new industrialization and urbanization of numerous Chinese cities, which already achieved notable results.

China's High-tech Zones (Science & Technology Parks)'s international level will be continuously enhanced. With the constant deepening of economic globalization, China will play a more significant role in the world stage, as the frontier of China's innovative development, China's High-tech Zones (Science & Technology Parks) will be more involved in the development of the international cooperation, build up diversified international cooperation channel, improve the international industrial coordinate development environment, complete life supporting services for international talents, optimize international financial service system, specify international administrative service system, accelerate and foster a batch of world-class and Chinese-style High-tech Zones (Science & Technology Parks). China's High-tech Zones (Science & Technology Parks) will play a more active role of the world development in the future!