HOW THE GREATER BAY AREA IS REVOLUTIONISING INNOVATION IN CHINA

Netherlands
Innovation
Network

July 2023

FOREWORD

This article will elaborate on the more-and-more notable initiative known as the Greater Bay Area (GBA) in China, which aims to create a unified economic and innovation hub encompassing multiple cities.

With its strategic location, skilled workforce, and supportive government policies, the GBA has the potential to revolutionise innovation and drive economic growth in various advanced industries such as 6G, AI, FinTech, Smart Cities, robotics, and biotech. The region's unique characteristics, including access to major ports, leading universities, and a vibrant private sector, make it an attractive destination for global talent and businesses. The GBA's GDP has been steadily growing, fuelled by thriving technology, finance, and manufacturing sectors. Infrastructure projects, policy integration, and investments in knowledge infrastructure are further enhancing the region's innovative ecosystem. However, challenges on different levels like geo-political and economic security considerations on the one hand, and the shifting manufacturing landscape and the need for sustainable development on the other hand, must be addressed for the GBA to reach its full potential. Despite these challenges, the GBA remains a remarkable destination for cost-effective engineering and high-quality technology production, positioning it as a global player in innovation and economic development.

Through this article, we aim to shed light on the GBA's journey towards becoming a global player in innovation and economic development.

AN (IMPRESSIVE) OVERVIEW

The Greater Bay Area (GBA) project is a Chinese government initiative that aims to unify 11 southern China cities, including Hong Kong, Shenzhen, Guangzhou and Macau, along with seven supporting cities, into a single economic and innovation hub. The region is slightly larger than the Netherlands, with a population larger than Germany and a GDP that matches that of South Korea, the tenth largest economy in the world in 2022 and the fourth largest in Asia. China intends to transform the region into a new engine for growth and innovation, with the goal of establishing new benchmarks in numerous advanced industries, including 6G, AI, FinTech, Smart Cities, robotics and biotech. The GBA's strategic location, skilled workforce, and supportive government policies make it a significant hub for commerce and innovation, and it has the potential to drive economic growth and innovation in the region and beyond.

The GBA is not the sole economic and innovation city cluster in China; there are two other major regions: the Yangtze River Delta and the Jing-Jin-Ji region (Beijing, Tianjin, and Hebei region). These three regions are repeatedly referenced in the 14th Five-Year Plan and each plays a vital role in China's economic progress.

The GBA has several unique characteristics that contribute to its success. Firstly, it has access to the world's busiest port, the Port of Shenzhen, which handles over 27 million containers per year. It also has access to several other major ports and airports within its region, making it an important hub for global trade and commerce. Secondly, the region is home to several leading universities, research institutions, and technology companies, which contribute to its innovative and entrepreneurial spirit. These factors, coupled with the GBA's strategic location, make it an attractive destination for talent from around the world, which is driving innovation and growth in various sectors.

Shenzhen, although still relatively unknown to many people outside of China, has emerged as one of the most famous cities within the GBA, alongside the internationally renowned cities of Hong Kong and Macau. Shenzhen, China’s Silicon Valley, was China's first Special Economic Zone (SEZ) and served as a testing ground for other similar experiments throughout the nation, acting as the spark for China's economic transformation. Shenzhen was strategically chosen due to its proximity to Hong Kong, which played a vital role in providing investment and expertise, ultimately turning the small town of only 50,000 inhabitants into the sprawling metropolis of 12 million people it is today. Furthermore, the entire Guangdong province underwent rapid industrialization, earning it the moniker "the factory of the world." Currently, 40 years after these initial reforms, China is once again leveraging the Hong Kong-Shenzhen-Guangzhou connection to drive itself towards the next stage of development and achieve its goal of becoming a fully developed economy.

The objective is to reinforce collaboration among the cities within the region by emphasizing their distinctive competitive advantages and strengths, in order to establish a system in which each city complements the others.

The GBA is perhaps one of the only areas in the world where a company can access a complete range of resources including capital, talent, technology, production, logistics, marketing, and consumers within two hours of travel realistically (one hour according to the official propaganda numbers).

To illustrate, a multinational corporation could establish their local marketing and sales headquarters in the influential city of Guangzhou while also setting up their technology R&D centre in talent-rich Shenzhen. Talent that comes from famous universities in Hongkong and Guangzhou. They could then outsource their manufacturing to suppliers in Foshan or Dongguan, where the world's highest concentration of electronics, machinery, and consumer products companies exist.

Multinational Corporations would have the chance to operate a unified logistics chain through domestic hubs in Zhuhai or international ports in Hong Kong and Macau, as well as obtaining domestic or international financing via Shenzhen and Hong Kong. Additionally, they could participate in global trade fairs such as the Guangzhou Fair or in one of the many resorts in Macau.

Furthermore, the GBA region offers good living standards, supported by world-leading education, healthcare, and ESG-compliant infrastructure. These factors not only make it an appealing destination for multinational companies to establish their presence but also attract talented individuals to settle in the GBA.

The GBA's GDP has grown by over 15% in 2021 alone, and several industries are driving this growth. The technology sector is a key contributor to the GBA's economy, with big established companies such as Tencent, Huawei and BYD, but also recent local champions such as DJI and X-Peng, driving innovation (pun intended) in areas such as artificial intelligence, 5G, autonomous driving, and the internet of things. The finance sector is also thriving, with Hong Kong and Shenzhen serving as important financial centres. In addition, the manufacturing sector is a significant contributor to the GBA's economy, with the region being a major producer of electronics, textiles, and other goods.

INTEGRATION ALSO ON POLICY LEVEL

The integration of different cities within the GBA is most prominently displayed through China's remarkable infrastructure projects. Perhaps the most notable of these projects is the Hong Kong-Zhuhai-Macau Bridge, which opened in 2018 and

significantly reduced travel times between Hong Kong, Zhuhai, and Macau. However, there are several other noteworthy infrastructure projects worth mentioning. For instance, the Express Rail Link, also opened in 2018, connects Hong Kong to Shenzhen and Guangzhou, providing access to China's expansive high-speed rail network. The Shenzhen-Zhongshan Corridor is another notable project currently under construction and expected to be completed by 2024. It will be an eight-lane highway and reduce travel time between Shenzhen and Zhongshan/Jiangmen by approximately 30 minutes.

Beyond infrastructure projects, the GBA requires more cohesive policies and regulations to facilitate the free flow of goods, services, capital, and people within the region, especially between mainland China, Hong Kong and Macau. Currently, the region is not as integrated as the European Union.

One promising policy agreement that warrants mention is the "Work Plan for Regulatory Innovation and Development of Pharmaceutical and Medical Device in the GBA." This plan aims to enable Hong Kong and Macao residents to work and live in the GBA with same level of access to healthcare services. It will attract local and multinational pharmaceutical, biomedical, and health technology companies to expand their businesses in Hong Kong and the Mainland China cities in the GBA, benefiting patients in both regions. Designated medical institutions operating in any of the cities in the GBA will be allowed to use drugs and medical devices that are already used in Hong Kong and Macao public hospitals for urgent clinical use, with the approval authority for such use shifting from the National Medical Products Administration to the Guangdong Provincial Medical Products Administration, as authorized by the State Council. This will significantly reduce the time and difficulty for medical companies that seek to bring their medical equipment and drugs to the GBA market.

INNOVATION DRIVEN

China boasts numerous innovation hubs across the country, with the earlier-mentioned Yangtze River Delta and the Jing-Jin-Ji region serving as prominent examples. However, what distinguishes the GBA and sets a city like Shenzhen apart is the robust presence of the private sector, which serves as a catalyst for innovation. Referred to proudly by the municipal bureau of Science & Technology as the "four 90%," Shenzhen's innovation ecosystem is characterized by the following: over 90% of R&D institutions are established within enterprises, more than 90% of R&D personnel are concentrated within enterprises, over 90% of R&D funds are contributed by enterprises, and more than 90% of service invention patents originate from enterprises. Consequently, public investment in R&D in Shenzhen is relatively modest.

Reasons why Shenzhen's local innovation ecosystem lacks this balance in terms of its public and private R&D investments can be found in its short history. While Shenzhen's technological output resembles that of Silicon Valley in specialization and trajectory, its early path diverged from the university-driven model of Silicon Valley. Due to the initial absence of local universities, Shenzhen's innovation ecosystem suffered from a deficiency in science-based innovation and collaborations between universities and industries. Consequently, Shenzhen's technological trajectory took a unique course, driven directly by market demand. The city's comparative advantage lies in the swift commercialization of existing knowledge and the rapid response of private enterprises to market needs. These private companies were exposed to advanced management and technological knowledge from multinational corporations in developed countries, as well as the nearby Hong Kong, Macau, and Taiwan regions. The abundance of scientific knowledge resources from Hong Kong played a vital role in facilitating commercialization. However, for future development, Shenzhen faces the challenge of fostering science-driven breakthrough innovation, which has become a bottleneck and a challenge.

To address this challenge, the Shenzhen government continues to invest in public-funded knowledge infrastructure and supports the establishment of local universities and research institutes. Collaborative research organizations, such as Tsinghua Shenzhen International Graduate School and Harbin Institute of Technology, Shenzhen Campus, have begun actively contributing to local knowledge transfer. In addition, several prestigious universities from Hong Kong have been enticed to establish campuses in Shenzhen. One such example is Hong Kong University, which unveiled its plans in 2021 to launch a campus in Shenzhen. Furthermore, not in Shenzhen, but also in the region, the Hong Kong University of Science and Technology has announced its intentions in 2022 to establish a campus in the city of Guangzhou.

These are two examples of the intensification of collaboration between Hong Kong and the GBA in the field of education. Hong Kong's eight publicly funded universities, considered top institutions in Asia, have significant ties with China, including a substantial presence with campuses in Guangzhou, Shenzhen, Zhuhai, and Dongguan.

The collaboration is resulting in the blurring of boundaries between education in Hong Kong and the GBA. Retired or current professors from Hong Kong are actively sought for joint appointments at the sister campuses, incentivized with additional research grants, resources, and facilities. This strategy has shown success, with a significant percentage of professors and students from Hong Kong being recruited by sister campuses.

Shenzhen has made significant investments in developing local infrastructure to address its shortage of scientific knowledge supply. Initiatives such as virtual university parks, Xili University Town, the establishment of leading external scientific research institutes, Guangming Science City, and numerous key national-

level science labs have been instrumental in facilitating Shenzhen's catch-up process to have more public-funded R&D contribution and scientific knowledge.

Additionally, the government's policies aimed at stimulating innovation and fostering a knowledge infrastructure in Shenzhen have proven successful. The city has implemented a range of measures to attract talented individuals. Five years after the launch of the "Peacock Plan" in October 2010—an incentive program initiated by the Shenzhen Municipal Government to attract high-level talents from abroad—59 innovative R&D teams had already been enticed to Shenzhen and Guangdong. Moreover, a total of 1,219 individuals had been designated as high-calibre foreign professionals under this plan. Notably, in 2015 alone, the plan drew in 18 R&D teams specializing in fields such as biology, pharmaceuticals, life sciences, software, telecommunications, microelectronics, and new energy. Among these, 2D Material Optoelectronic Devices emerged as a notable area of research in China.

Furthermore, Shenzhen has taken measures to both attract and retain talent, including strengthening local universities and enhancing incentives and services. The municipal and district governments have allocated a substantial R&D budget of 20.93 billion Yuan to support ground-breaking, generic, and core technologies, resulting in the initiation of 156 strategic technology projects. In 2020, Shenzhen's expenditure on R&D reached 5.46 percent of its GDP, a notable increase from 3.48 percent in 2010. For comparison, in 2020, Israel, recognized as one of the world's most innovative nations, allocated 5.44% of its GDP to R&D, while the Netherlands devoted 2.29%. Shenzhen's R&D spending considerably surpasses China's average of 2.4%.

NOT ALL INNOVATION AND SUNSHINE

China's manufacturing industry is recently facing more and more challenges as many international tech companies are looking into moving their production to other countries such as Vietnam and India. This trend is largely due to China's zero-Covid policy, the US trade war, and the American export ban on high-tech products. As a result, factories and suppliers in South China are experiencing a decrease in orders, leaving many lower-educated workers struggling.

Foxconn, for example, a major supplier to Apple in China, is currently in the process of moving a significant portion of its production to other countries, leaving many workers in Shenzhen without jobs. Many other international tech companies are also choosing to move their production to Southeast Asia due to lower labour costs and the increasingly unstable political and economic climate in China. There is also the impact of the US export ban on high-tech products, which is forcing

companies to assemble their products outside of China if they want to include the latest chips.

This can bring China's reputation as the "factory of the world" at risk as more and more companies move their production elsewhere. It also raises questions about the sustainability of China's manufacturing industry and the potential social and economic impact of this trend on lower-educated workers.

To fully realise its potential, the GBA will need to address these challenges and work towards sustainable and equitable development. The GBA's success will depend on its ability to strike a balance between economic growth and environmental protection and to promote social equity and stability. The region has the potential to become a significant player in the global economy, but it will need to address these challenges to fully realise its potential.

Not specifically to the GBA, but more to China in general, European companies in China are facing increased dissatisfaction in 2023, surpassing the challenges of 2022 which was disastrous due to the many severe Covid-19 restrictions. This is according to the Business Confidence Survey 2023, done by the European Chamber in China. China's post-pandemic economic recovery has faltered, with declining exports, high youth unemployment, a stagnant housing market, and local government debt. Around 30% of European companies report lower revenues, and 64% find doing business in China more difficult. The uncertain economic outlook is a major concern.

Nevertheless, the Greater Bay Area remains a unique destination on the global stage, offering an unparalleled advantage for companies seeking cost-effective engineering and production of high-quality technology products. This region enables end-to-end realisation, encompassing design, production, and scalability, at a pace and magnitude that surpasses the capabilities of other regions and innovation hubs worldwide.

Fons Klein Tuente
Senior Officer for Innovation, Science & Technology

Consulate-General of the Kingdom of the Netherlands in Guangzhou
34/F, Teem Tower, 208 Tianhe Road,
Guangzhou, P.R.China
荷兰王国驻广州总领事馆
广州市天河路 208 号粤海天河城大厦 34 楼

T +86 20 38132228
F +86 20 38132299
M +86 138 234 62865
fons.kleintuente@minbuza.nl

http://www.netherlandsinnovation.nl