

Building a Dual Circulation Development Pattern in Guangdong-Hong Kong-Macao Greater Bay Area Based on SWOT-PEST Analysis

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Abstract

Guangdong-Hong Kong-Macao Greater Bay Area is located in the combined area of our internal and external circulation, and the process of building the Guangdong-Hong Kong-Macao Greater Bay Area is also the process of the positive interaction between the internal and external circulation of the Chinese economy. Facing the current development strategy of dual circulation, in this paper, the SWOT PEST analysis method is used to analyze the current situation of the Guangdong-Hong Kong-Macao Greater Bay Area in its development process from the perspectives of advantages, disadvantages, opportunities, threats, politics, economy, society, science and technology, and combination with relevant data of the all-round development of the area, and try to put forward corresponding suggestions. Research shows the Guangdong-Hong Kong-Macao Greater Bay Area has a unique geographical location and development condition, and has grown into a world-class bay area. However, there is still a need for further coordination in terms of system, culture, and resources, so as to achieve Extensive consultation, Joint contribution, Shared benefits.

Keywords

Guangdong-Hong Kong-Macao Greater Bay Area, Dual Circulation, SWOT-PEST

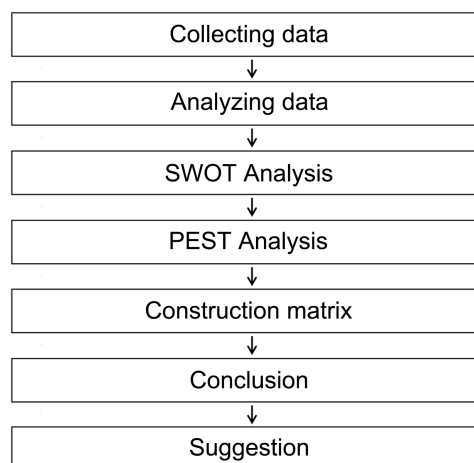
1. Introduction

In March 2021, Outline of the 14th Five-Year Plan for National Economic and

Social Development of the People's Republic of China and the Vision for 2035 proposes to urge the country to accelerate the establishment of a "dual circulation" development pattern in which domestic economic cycle plays a leading role while international economic cycle remains its extension and supplement¹. As the core bay area of China, the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) already has a basic scale comparable to that of the world-class bay Area. With a GDP of 11.08 trillion yuan in 2020, the GBA has become the largest and most populous bay area in the world, the fourth largest in the world, and the most conveniently and frequently connected developed area for countries along the Maritime Silk Road. At the same time, the Guangdong-Hong Kong-Macao Greater Bay Area, as the combination of China's economic internal and external circulation, has the basic conditions and institutional advantages to creating a new development pattern of "dual circulation". With the development of comprehensive deepening reform in China and the changing international social environment, China's economy needs to develop steadily amidst the risks and challenges through deeper structural reform. The GBA has an irreplaceable role in promoting the stability of the internal circulation and the formation of a new comprehensive opening-up pattern, so it should give full play to its fine tradition of being an early and pilot area and actively explore the right path for a new development pattern of dual circulation.

2. Conceptual Framework

This paper conducts quantitative and qualitative research through literature analysis, and uses SWOT-PEST analysis for comprehensive analysis. The foreign trade and GDP data of Guangdong Province are obtained from the *Guangdong Statistical Yearbook*, the GDP data of nine cities in *Guangdong Province* are obtained from the *Reform and Innovation Report of the Greater Bay Area of China* (Tu et al., 2021), and the data of the Hong Kong Special Administrative Region are obtained from the *Hong Kong Statistical Monthly*.



¹Xinhua. http://www.xinhuanet.com/politics/2021-03/05/c_1127172953.htm?baike

3. Literature Review

The Guangdong-Hong Kong-Macao Greater Bay Area is a testing ground for China's dual circulation Development Pattern. Firstly, Wen Guohui, Xie Baojian, Liu Songping, Chen Anming, Chen Guanghan, Jiang Nanping and other scholars believe that the GBA has similar locational conditions, economic strength and industrial foundation as the world-class Bay Area. The economic base determines the superstructure. The GBA has developed a unique Guangfu culture and business tradition. The unified Guangfu culture will strengthen the cultural identity among the three places, but Zhou Daming, Tian Xuya, Zheng Dengpan and Li Shengxiao believe that the traditional clan concept will be detrimental to the business operation of the Greater Bay Area. Li Yan and Wang Yue believe that the trade friction between China and the United States will have a certain impact on the main pillar industries of the Greater Bay Area. But there are constraints. Scholars Xu Qing, Zhang Huifei and Liu Zuoqing believe that there are some differences between the cultures and systems of the three regions. Since the outbreak of COVID-19, the economic development of the Guangdong-Hong Kong-Macao Greater Bay Area has been hit hard. According to Guo Qing, the economic development of the Greater Bay Area is mainly due to its excessive dependence on external circulation, and the supply and demand composed of foreign markets have been sharply reduced (Liu & Chen, 2020).

It can be seen that the existing literature has a relatively detailed classification of the research on the development of the Guangdong-Hong Kong-Macao Greater Bay Area, but lacks an analysis of the new dual circulation development pattern from an all-round perspective. This paper is devoted to analyzing the advantages and disadvantages of the Guangdong-Hong Kong-Macao Greater Bay Area's participation in the construction of a dual circulation Development Pattern from multiple perspectives. There are still some shortcomings in this paper. For example, the scope of required data is too wide to cover all angles completely, and the secondary data in some contents are mostly written and lack of a large amount of data support.

4. SWOT-PEST Analysis

SWOT analysis is a comprehensive consideration of its own strengths and weaknesses and the opportunities and threats it faces. The PEST model is a tool for systematic analysis from a macro perspective, analyzing the external environment of things through four factors: political, economic, social, and technological, which are highly objective and contemporary and are not affected by their own factors. The SWOT-PEST model is obtained by refining the external factors of the SWOT model in the categories of opportunities and threats using PEST theory (Table 1).

5. SWOT Analysis

According to SWOT analysis, the Guangdong-Hong Kong-Macao Greater Bay

Table 1. SWOT-PEST analysis matrix.

SWOT		PEST			
		Political (P)	Economic (E)	Social (S)	Technical (T)
Internal factors	Strength (S)	SP	SE	SS	ST
	Weakness (W)	WP	WE	WS	WT
External factors	Opportunity (O)	OP	OE	OS	OT
	Threat (T)	TP	TE	TS	TT

Area has unique geographical advantages and economic foundation, and has gradually developed into a world-class Bay area with the support of preferential policies. At the same time, it is largely dependent on external circulation, and global uncertainties have a great impact on it.

5.1. Internal Strengths (S)

5.1.1. Strong Economic Strength and Perfect Industrial Structure of Nine Cities in Guangdong

The GBA is influenced by western countries such as the UK and Portugal, and have a longer-term economic construction base than other provinces. 2020 GDP of GBA is 11.08 trillion yuan (Chen & Deng, 2021), and the Greater Bay Area has four core engines of economic development, including Guangzhou, Shenzhen, Hong Kong and Macao, with a leading level of residential consumption in China. Guangdong Province has 16 Fortune 500 companies, with head information technology companies such as Tencent, Huawei, and Gree; there are also listed real estate companies such as Evergrande Group and Vanke Group. Dongguan and Foshan have outstanding manufacturing strength, with eight pillar industries such as electronic information occupying a large market share globally; Huizhou has good development in digital, petrochemical, garment, shoes, cement and auto parts; Zhuhai Zhongshan has pharmaceuticals, electronic appliances, chemicals, hardware and lighting; Jiangmen has automobiles, motorcycles, ships, printing and shoes; Zhaoqing has agricultural products, metal processing, food and beverage, etc. There are outstanding achievements in this area. Hong Kong's position as a logistics center is significant in the Asia-Pacific region, and it is not only the world's fourth-largest international financial center, but also the world's largest offshore RMB center. Hong Kong has been a leader in the World Bank's business environment, and its international financial status is determined by its openness and economic dynamism. At the end of 2020, Hong Kong's securities market ranked third in Asia and fifth in the world in terms of market capitalization. Hong Kong is also one of the world's most active initial public offering markets, ranking in the top three globally in terms of capital raised over the past five years. Hong Kong will be the sixth-largest commodity trading economy in the world in 2020, up to two places from 2019. With 4.5 million metric tons of

cargo throughput, Hong Kong International Airport ranks second in the world's airports.² Macau bridges Sino-Portuguese economic and trade cooperation and provides a platform for cooperation and exchange between the Guangdong-Hong Kong-Macao Greater Bay Area and Latin America and Portuguese-speaking countries.

5.1.2. Significant Location Advantages, Economic Development Strategic Location

As the fourth largest bay area in the world, the Guangdong-Hong Kong-Macao Greater Bay Area shares similar location advantage condition with the other three bay areas—it is located in the bay area. Since ancient times, the coastal region has had unrivaled economic conditions and opportunities for external communication and exchange, and Guangzhou has been an important hub for China and the world since the Qin and Han Dynasties. The topographic features of the Bay Area, with its many harbors and islands, provide a unique advantage for the region to build an outward-oriented transportation infrastructure. Ports play an increasingly important role in the trend of globalization, linking the dual domestic and international circuits and serving as an important pillar of global trade. The GBA has a long coastline and many ports, with many excellent ports such as Guangzhou Shenzhen, and Hong Kong (Deng, Xu, & Zhou, 2022). With the advantages of large volume, sufficient capacity, and low freight costs of shipping closest to the Southeast Asian market, the GBA has a more important strategic position than the port cities near the Bohai Sea and the East China Sea: it is the closest economically developed area in China to the South China Sea and is the outpost of China facing the South China Sea; many international routes into China pass through the Greater Bay Area. Due to its unique location, the Greater Bay Area has a large concentration of economic activities, laying the foundation for its globalization trend.

5.2. Internal Weakness (W)

5.2.1. The Deep-Rooted Clan Concept Is Not Conducive to Business Operation

With the development of time, clans have gradually developed into same-sex kinship groups, and there is a strong cohesive force within the clan. The worship of ancestors is the highest ritual in the clan, and this worship and belief in ancestors has left its mark on modern society in the blood. Guangdong Province is geographically mountainous, and in the ancient times when information and communication were closed, it was easy to form clans based on geographical location, thus developing into a clan-based Cantonese business. This clan concept has a very important influence on the creation, production and operation of family enterprises. As a private economic model, family businesses have dominated China since the reform and opening up. For example, in the Hong Kong

²Source: Census and Statistics Department, Hong Kong Special Administrative Region Government, Hong Kong Monthly Digest of Statistics, December 2021.

Special Administrative Region there are the four major families that have a huge influence mainly in real estate. On the one hand, family businesses create a high sense of corporate identity among employees; on the other hand, compared to modern corporate management models, most family businesses have too much centralized power, with the top decision maker largely in control of the company's affairs and all departments under his or her supervision reporting directly to the top decision maker (Zhou & Tian, 2015). The traditional Chinese ideology of "elders being the most important" and "orderly order of elders and children" leads to insufficient decision-making power for second-generation managers. Insufficient decentralization affects the innovative power of second-generation managers, who are the most receptive to new things and new thinking, which is an important factor for family firms to compete with other firms (Zheng & Li, 2019). Therefore, how to maintain the vitality of family businesses poses a challenge to managers.

Take Midea Group as an example, He Xiangjian successfully founded Midea, the leading brand of household appliances, and in 2009 he did not choose to let his children inherit the group, but chose Fang Hongbo to succeed him. This choice is good to avoid the disadvantages of family business in management, and the United States Group led to a new height of 100 billion yuan sales. In contrast, in the Chaoshan region, the strong clan concept has led to the government, society and the market are full of clannishness and blood relations, local protectionism prevails, nepotism is widespread, and corruption grows in large numbers. Jieyang Kangmei Pharmaceuticals since the beginning of the listing, the founder Ma Xingtian has paid bribes to the former secretary of the Jieyang Municipal Party Committee, the former secretary of the Guangdong Provincial Party Committee, the former director of the Guangdong Provincial Food and Drug Administration and other people, and eventually committed the largest fraudulent fraud in the history of A shares.

5.2.2. Business Tradition Inhibits the Development of Higher Education

Guangdong Province is far from the political center and has well-developed and convenient foreign trade, and its residents mostly maintain their livelihood through business. The number of families in Guangdong is generally high, and the large family gives more options to those who feel they are not suitable for studying, which over time has developed into the view that studying is not the only way out. From the perspective of college entrance examination statistics, the number of participants in the college entrance examination in Guangdong Province is at the forefront of the country, but the acceptance rate of the college entrance examination is at the bottom of the country. Science and technology innovation and social development are dependent on higher talent resources. The low willingness of students to study means that the number of talents cultivated is low, which is not conducive to the further development of the Greater Bay Area.

5.2.3. Hong Kong and Macao Have a Single Industrial Structure and Are Vulnerable to External Environmental Shocks

Since the 1980s, Hong Kong has undergone industrial restructuring and upgrading to develop international financial, trade and business services, eventually forming an industry system dominated by the service sector (Xie, 2013). The four major industries in Hong Kong are financial services, tourism, trade and logistics, professional services, and other business and industrial support services, and the total value added of the four major industries accounted for 55.1% of GDP in 2020, which is the main source of Hong Kong's economy³. These four major industries are extremely dependent on the external economic environment and can hit Hong Kong's overall economy hard in the face of external shocks. After the reform and opening up of the Mainland, a large number of IT-based enterprises have emerged, such as Huawei and Tencent. Hong Kong has missed the opportunity to develop its information industry and has not established its own information technology, but still relies heavily on information systems from Western countries. The four major industries in Macau are export processing industry, tourism and gaming industry, construction and real estate industry, and finance and insurance industry. These four industries cannot fully satisfy the consumption needs of citizens and are also highly dependent on the external economic environment, which is not conducive to the sustainable development of Macau in the long run.

5.3. External Opportunities (O)

5.3.1. Policy and Institutional Preferences to Reduce the Burden of the Development of the GBA

Since the reform and opening up, the Guangdong, Hong Kong and Macao Greater Bay Area has been a pioneering reform region with a tradition of early and pilot implementation. There are five special economic zones in the country, and three of them are located in the Greater Bay Area, taking the lead in the development process of the new era. In the 21st century, three major economic spheres have been formed, namely "Guangzhou-Foshan-Zhaoqing", "Shenzhen-Dongguan-Huizhou" and "Zhuhai-Zhongshan-Zhanjiang", and two major window cities, Hong Kong and Macau. The three FTZ in Guangzhou Nansha, Qianhai Shenzhen Shekou, and Zhuhai Hengqin were developed on the basis of the two special economic zones in Shenzhen and Zhuhai, forming a superposition of multiple economies, including special administrative regions, special economic zones, and free trade zones, with more advantages in terms of institutions (Wen, 2019). Outline of the Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area issued by the CPC Central Committee and The State Council in 2019 (hereinafter referred to as the "Outline") clearly states that the GBA should become a dynamic world-class city cluster; an international science and technology innovation center with global influence; an important

³Source: Census and Statistics Department, Hong Kong Special Administrative Region Government, Hong Kong Monthly Digest of Statistics, December 2021.

support for the construction of the “One Belt One Road”; a demonstration area for in-depth cooperation between the Mainland, Hong Kong and Macao; and a quality living area that is pleasant to live, work and travel⁴ has become the construction platform of the Guangdong-Hong Kong-Macao Greater Bay Area. The Hong Kong-Zhuhai-Macao Bridge will be opened to traffic in 2020, improving the land transportation system of Guangdong, Hong Kong and Macao, enhancing economic and trade exchanges between the three places, facilitating the integration of Hong Kong and Macao into the development plan of the Bay Area, and enhancing the comprehensive competitiveness of the Pearl River Delta region. As separate customs territories recognized by the WTO, Hong Kong, China, and Macau, China, have a certain degree of independence and in some respects can independently engage in external relations activities. Under the “One Country, Two Systems” system, policies in the political, economic, cultural, technological and other areas are diversified, and such policies are suitable for different types of enterprises to develop here, providing them with a favorable policy environment.

5.3.2. Mature Development of Exhibition Industry and Rich Trading Platform

Guangdong Province, as the southern gate of China and also the window of opening to the outside world, has one of the most developed exhibition industries in the country, and it also takes the head position in the formulation and implementation of policies. The exhibition policies in Guangdong Province cover a wide range, with early policy designation, rich types and keeping up with the times, which can meet the development needs of different enterprises at different levels to the greatest extent (Liu & Liu, 2014). For example, Guangzhou, as an international convention and exhibition center city, the 130th Canton Fair, which ended in 2021 with the theme of “promoting domestic and international dual circulation”, had an offline exhibition area of about 400,000 square meters, 7795 exhibitors, and 600,000 people entered the pavilion in 5 days; about 26,000 Chinese and foreign enterprises participated in the fair and uploaded exhibits in total. About 26,000 Chinese and foreign enterprises participated in the exhibition and uploaded a total of 2,873,900 exhibits, a record high⁵. The 15th China Expo in 2021 attracted 3019 exhibitors from 40 countries or regions, with an exhibition area of 150,000 square meters and a total of 6628 booths.

5.4. External Threat (T)

5.4.1. Impact of the Covid-19's Outbreak

Premier Li Keqiang noted in the government's 2020 work report that “the world economy is in severe recession due to the global epidemic, with industrial chains and supply chains disrupted and international trade and investment shrinking.” Under the impact of the epidemic, the overall economic growth rate of the

⁴Xinhua: http://www.xinhuanet.com/politics/2019-02/18/c_1124131474.htm.

⁵Xinhua: http://uav.news.cn/2021-10/21/c_1211412119.htm.

Guangdong, Hong Kong and Macao Greater Bay Area decelerated significantly from 2019. According to the data, in 2020, the GDP of nine cities in Guangdong Province will grow by 2.4% year-on-year, which is 0.1 percentage points higher than the national growth rate (Wen, 2019), and Hong Kong and Macau will experience a significant economic recession, with four major industries in Hong Kong bringing \$1412.1 billion in added value to the economy and employing 1,504,200 people in 2020. Compared to 2019, the value added and employment of the four major sectors will fall by 8.7% and 13.8% respectively in 2020, and GDP will fall by 6.4%. Among them, tourism will have an added value of \$9.3 billion in 2020, accounting for less than one-tenth of the value in 2019⁶. As a result, the GDP of the Guangdong-Hong Kong-Macao Greater Bay Area (including Hong Kong and Macao) decreased by about 5.9% in 2020 compared with the previous year, significantly lower than the 4.4% growth in 2019, which broke the long-term trend of GDP growth. Despite the recovery in 2021, the GDP in the first half of 2022 decreased by \$24,042 billion from the first half of 2021 due to the new round of pandemic.

5.4.2. Trade Disputes between China and the United States Has an Impact on the Greater Bay Area

During Trump's presidency, the United States conducted the "301 investigation" and imposed huge tariffs of up to 25% on Chinese exports, unleashing trade friction between China and the United States, and expanding from the economic and trade fields to financial and technological industries. Sanctions were imposed on China's Huawei, ZTE and other information technology companies, setting off a trend of anti-globalization, with the intention of curbing China's economic development from a technological perspective. The U.S. has been the most important exporting country of Guangdong Province, with the total amount of exports ranking first in each country (Table 2), and the total amount of foreign trade of Guangdong Province has been in the leading position of all provinces in the country for many years and occupies about one-fifth of the share (Table 3), the trade disputes between China and the United States is a positive and huge impact on Guangdong Province. The gaming industry, as the pillar industry of Macao, not only relies heavily on the external market, but there are also a large number of U.S.-owned gaming enterprises within the industry. U.S.-funded gaming enterprises, led by MGM China, Sands China, and Wynn Macau, are bound to adjust their bidding strategies as a result of the U.S.-China trade dispute, and their influence covers a large part of the gaming industry (Li & Wang, 2019). Although the Biden administration has adjusted its strategy toward China and is prepared to cooperate with China on international issues that concern all of humanity, such as anti-epidemic, anti-terrorism, and climate, China still has to be prepared to start a game in the financial and trade fields, which is a long-term competition and cooperation. In the Russia-Ukraine war,

⁶Source: Census and Statistics Department, Hong Kong Special Administrative Region Government, Hong Kong Monthly Digest of Statistics, December 2021.

Table 2. Guangdong province exports to the main countries/region.

Year	The United States (billion dollar)	Percentage (The United States/ Total Account)	Hong Kong (billion dollar)	Association of Southeast Asian Nation (billion dollar)	European Union (billion dollar)
2020	1605.30	16.98%	1425.39	782.59	840.35
2019	1121.31	16.05%	1564.08	710.92	983.81
2018	1080.69	17.32%	1729.86	653.03	933.91
2017	993.31	17.35%	1814.56	584.03	809.22

Data source: Guangdong statistical yearbook.

Table 3. The main provinces and cities of the country's foreign trade.

Year	Total Import and Export of Guangdong Province	Shanghai Total Import and Export	Total Import and Export of Jiangsu Province	Total Import and Export in Beijing	Total national import and export	Guangdong Province, the proportion of total imports and exports in the country
2020	70871.1	34872.7	44503.6	23313.0	322215.2	21.99%
2019	71487.7	34054.0	43383.1	28689.7	315627.3	22.65%
2018	71602.1	34012.1	43793.5	27185.5	305008.1	23.48%
2017	68168.8	32242.9	39997.5	21943.7	278101.0	24.51%

Source: China statistical yearbook, data does not include Hong Kong and Macau (Fu & Liu, 2021).

Apple disabled the payment function of Apple phones in Russia, causing social chaos and adversely affecting the war situation. In the face of technological blockade, China's focus on the development of electronic information technology is imminent.

6. PEST Analysis

The PEST analysis shows that the GBA is at the forefront of the development of The Times. Combined with its strong financial strength and scientific and technological strength, the Guangdong-Hong Kong-Macao Greater Bay Area has successfully integrated with the world in an all-round way. On the other hand, the internal talent management system of the Bay Area and other aspects of social management need to be deeply integrated.

6.1 Political Factors (P)

6.1.1. "One Country, Two Systems" Is a Double-Edged Sword on the Road to Integration and Development

The "one country, two systems" system maintains the long-term stability of the

country, but it is also a double-edged sword. On the one hand, it can bring into play the advantages of different political systems, and better “bring in and go out”. Hong Kong and Macau as an independent customs territory can attract more foreign capital inflow, providing a rich material basis for “going out”, and mainland enterprises can also use Hong Kong and Macau to broaden their development space; on the other hand, the differences in their legal and administrative systems will have constraints on the synergistic development of the Greater Bay Area. First of all, “one country, two systems, three customs zones and three currencies” naturally divides the Guangdong-Hong Kong-Macao Greater Bay Area into three markets, in which the barriers are the different judicial systems and administrative systems among the three places. It is not conducive to the circulation of basic production factors among the three places, nor is it conducive to the flow of resources and personnel, and the institutional transaction costs greatly reduce the enthusiasm of cooperation among enterprises in the three places. Second, due to the different management mechanisms, there are bound to be legal disputes and legal conflicts (Dong, 2021).

6.1.2. The Construction of “One Belt, One Road” and the Development of the GBA Help Each Other

The Guangdong-Hong Kong-Macao Greater Bay Area has world-class financial strength, a large and solid manufacturing system, and an advantageous location with close ties to countries along the B&R, bringing life to the Belt and Road Initiative and accelerating China’s integration into the world market. It is conducive to the healthy development of both domestic and international cycles (Mao, 2018). The purpose of the B&R initiative is to promote China’s international and regional cooperation, and with the continuous economic and trade exchanges with countries along the route, the international voice and influence of the Greater Bay Area will be strengthened, and its ability to allocate global resources will be optimized.

6.2. Economic Factors (E)

6.2.1. Leading the World in Economic and Financial Strength

In 2021, the Guangdong-Hong Kong-Macao Greater Bay Area experienced steady economic growth throughout the year, with the total economic volume taking the lead nationwide to exceed RMB 12 trillion, with the cities of Shenzhen and Guangzhou leading the way with GDPs of RMB 3606.5 billion and RMB 2823.2 billion respectively, with Shenzhen’s GDP exceeding RMB 3 trillion for the first time and Dongguan joining the trillion GDP ranks for the first time, taking the economic development of the Greater Bay Area to new heights. Since the Covid-19 epidemic, the government has implemented a series of policies such as tax cuts and fee reductions, successfully withstanding the impact of the epidemic, maintaining domestic demand momentum for consumption and seeking progress in a stable manner, and the huge population base of Guangdong Province has laid down advantageous conditions for economic development.

2021 Guangzhou's total retail sales of social consumer goods exceeded the trillion yuan mark and Shenzhen's 950 billion yuan. Relying on Hong Kong, the GBA has a richer pool of financial professionals than other city groups in China. According to the latest data from the Global Financial Centre Index (GCFI 30), four Chinese cities—Hong Kong, Shanghai, Beijing and Shenzhen—are among the top 20 global financial centers in 2021, with a high concentration of financial center cities⁷.

6.2.2. The Epidemic Has a Huge Impact on the Industry

Since China joined the WTO, the export-oriented economy has developed rapidly, and the proportion of total import and export to GDP has increased significantly. Compared with developed countries such as the United States and Japan, the foreign trade dependence has basically remained high, and a high foreign trade dependence means that the economic development of a country is highly dependent on the external economic environment (Guo, 2020). The impact of China's industrial chain and supply chain in this epidemic is mainly reflected in three aspects: first, the import of raw materials for products is hindered, which in turn affects the domestic industrial chain; second, the export of external markets is hindered as the epidemic develops; and third, the restructuring of the global industrial chain changes during the epidemic. Since China's remarkable success in fighting the new crown epidemic, the contraction of the global demand side due to the epidemic has replaced the supply deficit as a factor affecting China's development (Liu & Chen, 2020). The Greater Bay Area, especially Hong Kong and Macao, has borne the brunt of this, with Hong Kong and Macao relying heavily on external markets for their pillar industries, including tourism, retail, food and beverage, accommodation, and airline turnover falling off a cliff, Cathay Pacific Dragonair, Hong Kong's second largest airline, ceased operations in 2020.

6.3. Social Factors (S)

6.3.1. High Degree of Cultural Identity in the Region

The GBA share the same roots. Starting from the Warring States period, the population from the north continued to migrate southward, and together with the local people, they pioneered and developed the Lingnan Han culture, also known as Guangfu culture. Cultural identity is reflected in language, ancestry, and customs. To this day, the three regions still retain a large number of traditional Lingnan architecture, such as Chen's Lineage Hall in Guangzhou, Kaiping Diaolou and Villages, the Zhengjia Da house in Macau, and the Riding Houses that dot the old streets; most of the residents in the three regions speak Cantonese as their native language; and enjoying Cantonese opera is still a leisure time hobby for the older population in the Greater Bay Area. The Dancing Lion in

⁷IFPI.com:

https://baike.baidu.com/reference/1555912/1985mfz-EV2lBwPCbaydW8tIGb7rDBG8i0FiXqrGSl19zg6zdllSKlchKefNo6_Rg4hgLdNnYfXYHVINstj11vctVsYu1gKU4b4NR9fvJxxQ1XDLszOnq4WxHzPdAmyeZ0GScQ.

Cantonese culture still adds to the festive atmosphere of the Bay Area during traditional festivals, such as the Dragon and Lion Festival in Hong Kong and the Drunken Dragon Lion Dance in Macau. Cantonese cuisine is also one of the eight major cuisines, making the morning tea culture based on the Greater Bay Area to the world. The homogeneity of the traditional culture of Guangdong, Hong Kong and Macao in the Greater Bay Area, so that the new era of the Greater Bay Area has a more convenient political, economic and cultural exchange, is conducive to increasing the sense of identity and cohesion of the residents of the three places.

6.3.2. Differences in Cultural Environment and Lack of Communication between Guangdong, Hong Kong and Macau

The differences between Guangdong, Hong Kong and Macau are not only reflected at the political level and institutional level, but also in the daily life of the people mainly at the ideological and ideological level. Due to historical reasons, Hong Kong and Macau have developed a different cultural atmosphere from mainland China, which is reflected in religion, interpersonal communication, and business philosophy, and this difference creates a sense of alienation among the people. To a certain extent, this can have a negative impact on the synergistic development within the Greater Bay Area (Xu, 2021). Different teaching materials are used in primary and secondary schools in Mainland China, Hong Kong and Macao, and teachers in Hong Kong can choose their own teaching materials according to their needs, and the differences in social and news media platforms in Mainland China, Hong Kong and Macao all contribute to a certain extent to the different cognitive profiles of students in the three regions. The dissemination and exchange of cultural products help to feel awareness of the local customs and customs as well as social culture. Take the Hong Kong Film Awards as an example, each year the Awards represent the highest standard of Hong Kong films in that year. However, each year, some of the films on the shortlist are not screened in the Mainland, and some films in the Mainland are not screened in Hong Kong. In the 40th Hong Kong Film Awards, for example, only two of the five films nominated for Best Picture entered the mainland market.

6.3.3. The Talent Environment within the Bay Area Needs to Be Improved

Guangdong, Hong Kong and Macao have a large number of talents in various fields, but relatively closed in terms of personnel exchanges. The reasons for this are, first, the salary package, social welfare is different, the people of Hong Kong and Macao are generally higher than the mainland, and the social security system is different, it is more difficult to attract Hong Kong and Macao talents to settle in the mainland. Secondly, the cooperation platform is less, unable to form a large-scale exchange of talent cooperation. At present, the cooperation and exchange of scientific and technological talents from Guangdong, Hong Kong

and Macao are mainly divided into full-time landing of talents from Hong Kong and Macao in Guangdong Province and short-term travel of talents from Guangdong Province to Hong Kong and Macao, and both sides achieve interchange through cooperation and exchange to improve the environment of talent cultivation in the three places (Zhang & Liu, 2021). The talent training in music is even more different in terms of teaching equipment and teaching content. Only the Singhai Conservatory of Music, the Hong Kong Academy for Performing Arts and the Department of Music of the Chinese University of Hong Kong have world-class teaching facilities, and other music institutions in the Greater Bay Area still have a large gap in facilities, which is not conducive to cultivating high-quality talents (Chen, 2021).

6.4. Technical Factors (T)

6.4.1. The GBA Has a Major Science and Technology Base

Around 2000, Guangdong Province underwent industrial transformation and upgrading, and built a large number of major S&T infrastructures in the PRD, fully implementing the Outline released in 2019, aiming to build an international S&T innovation center with global influence and support the development of a modern industrial system. There are currently seven major science and technology infrastructures in the Guangdong-Hong Kong-Macao Greater Bay Area (Table 4), which are (Chen & Wei, 2020).

6.4.2. Good Prospects for the Development of Science and Technology in Hong Kong and Macao

Hong Kong and Macau have included science and technology innovation in their key development plans, actively integrated into the Guangdong-Hong Kong-Macao Greater Bay Area science and technology innovation system, and strived to build the Greater Bay Area into a world-class science and technology innovation center. Hong Kong, led by the Innovation and Technology Bureau, has built a series of science and technology parks and research platforms; Macao, with the Framework Law on Science and Technology as its platform, and led by the Macao Science and Technology Commission, has built a number of state key laboratories based on two Macao universities, among which the State Key Laboratory of Lunar and Planetary Sciences of the Macao University of Science and Technology has successfully contributed to the development of China's space industry and made achievements in deep space exploration.

6.4.3. The GBA Lead the Country in the Number of Patents

In the 1960s, a large-scale scientific and technological revolution emerged worldwide, and developed countries rapidly enhanced their productivity and rapid economic development by virtue of intellectual capital such as patents. With the development of society, the knowledge-based economy has taken the historical stage, and intellectual capital such as patent technology has become an important driving force for social progress and development. The number of patents

Table 4. Major science and technology infrastructure in Guangdong, Hong Kong and Macao bay area.

Technology Infrastructure	Construction time	Applications	Outstanding Features
National Supercomputing Center Guangzhou	Its supercomputing system “Tianhe II” was completed and put into operation in 2013	Atmospheric marine environment, astronomy and geophysics, industrial manufacturing design, new energy and materials, biomedical health and smart city cloud computing	
National Supercomputing Center Shenzhen	2009		Jointly built by Chinese Academy of Sciences and Shenzhen Municipal Government
Dongguan Scattered Fission Neutron Source	It was put into construction in October 2012 and is now in full operation	Physics, chemistry, life sciences, materials science, nanoscience, medicine, national defense research and new nuclear energy development, etc.	
Huizhou Accelerator-Driven Transmutation Research Facility (CiADS)	Construction started at the end of 2017, with a construction cycle of 6 years	Study of neutron properties, detection of microstructure and motion of matter	Microstructural studies of DNA, crystalline materials, polymers, and other substances can be performed.
Huizhou Intense Flow Heavy Ion Accelerator (HIAF)	Construction started at the end of 2017, with a construction cycle of seven years	Research on the fundamentals of nuclear physics and nuclear astrophysics	
Jiangmen neutrino experiment project	Jiangmen Neutrino Experiment Phase II started construction in January 2015	Neutrino mass order; astrophysical studies of supernova neutrinos, Earth neutrinos, solar neutrinos, etc.	
Shenzhen National Gene Bank			The only national gene bank in China and the fourth in the world, which has stored more than 1000 samples of various biological resources

is linked to social innovation capacity and social development vitality, which can promote the research and development of new products and technologies and have a positive effect on regional economic development. The number of patents is directly proportional to the technological content of products; the higher the technological content of products, the more they adapt to market demand. And due to the repeatable tradability of patents, enterprises can export their patents through technology trade, thus expanding their market share and gaining revenue (Jiang, 2003). As shown in **Table 5**, Guangdong Province ranks first in the country in terms of the number of patent applications and the number of patents granted.

7. Construction Matrix

This study uses the SWOT-PEST method to analyze the advantages, disadvantages, opportunities and challenges of the Guangdong-Hong Kong-Macao Greater Bay Area dual cycle from four aspects: political, economic, social and technological. The GBA has advantages and opportunities such as strong economic strength and the leading number of patents in the country, but there are problems such as deep-rooted clan concept and single industrial structure in Hong Kong and Macao, and also faces threats such as the impact of the Covid-19 epidemic and the impact of trade disputes between China and the United States. Overall, the development of GBA has both advantages and disadvantages, and is in the new era of developing a dual circulation strategy, which is the wind vane of development. Facing the heavy obstacles from outside, the GBA has unlimited development potential and is full of vitality and vigor. This paper constructs a SWOT-PEST analysis matrix for the current situation of the development of the GBA (**Table 6**).

Table 5. Number of domestic applications and licenses for three types of patents by region (2020).

Region	Number of applications	Number of authorizations	Number of applications as a percentage of the country (%)	Number of authorizations as a percentage of the country (%)
Beijing	254,165	162,824	5.07%	4.62%
Shanghai	210,293	139,780	4.19%	3.97%
Guangdong	967,204	709,725	19.28%	20.16%
Zhejiang	507,050	391,700	10.11%	11.12%
National	5,016,030	3,520,901		

Data source: Guangdong Statistical Yearbook (Chen & Deng, 2021).

Table 6. SWOT-PEST matrix.

	Politics (P)	Economy (E)	Social (S)	Technology (T)
Advantage (S)	The construction of “One Belt, One Road” and the development of the GBA help each other	1) Strong economic strength and a perfect industrial structure in the nine cities of Guangdong. 2) Leading the world in economic and financial strength	Significant location advantages, economic development strategic location	1) Good prospects for the development of science and technology in Hong Kong and Macao. 2) The GBA has a significant science and technology base. 3) The GBA leads the country in the number of patents
Weakness (W)	“One country, two systems” is a double-edged sword on the road to integration and development	1) Business tradition inhibits the development of higher education 2) Hong Kong and Macao have a single industrial structure and are vulnerable to the impact of the external environment	1) Deeply rooted clan values, which are not conducive to business operations. 2) Differences in cultural environments and lack of communication between Guangdong, 3) Hong Kong and Macau. The Talent environment within the Bay Area needs to be improved	
Opportunity (O)	Policy and institutional preferences to reduce the burden of the development of the GBA	Mature development of the exhibition industry, rich trading platform	High level of cultural identity in the region	
Threat (T)		1) The epidemic has had a huge impact on the industry 2) Trade disputes between China and the United States has an impact on the Greater Bay Area	The impact of the Covid-19 outbreak	

8. Research Conclusions and Policy Recommendations

8.1. Research Findings

8.1.1. There Are Shortcomings in the Synergistic Development within the Bay Area, Laying a Hidden Danger for the Subsequent Construction

First, Hong Kong and Macao have a single industrial structure, as the main economic source of the industry is overly dependent on the external economic en-

vironment, in the face of the impact of external factors performance is fragile, can not independently support the daily consumption needs of local residents, and over-reliance on Western information systems, information security lack of security; second, in the integrated cooperation is not comprehensive development, With the implementation of CEPA signed by the mainland and Hong Kong and Macao governments in 2003, outstanding results have been achieved in trade, with a large amount of tariff reduction and exemption for enterprises in the three places, which has well promoted economic and trade exchanges. However, there is still a lack of close ties in the fields of medical and health care, social security, cross-border e-commerce, etc., and the trend of “economic hotness but social coldness” has emerged. The cultural atmosphere in the three regions is different, and it is easy to create a sense of alienation or misunderstanding.

8.1.2. The Popularity of Higher Education Needs to Be Improved, and the Mechanism of Talent Training Needs to Be Perfected

Due to the clan concept and business traditions, most people choose to continue to run their family business or engage in lower-end service and manufacturing industries. According to the data from the college entrance examination, the lack of willingness of students to study has led to a lack of talents in society to participate in high-end industries, which is not conducive to the development of industries with high technological content and high added value, leading to a slowdown in economic growth and difficulties in developing a high-level economy. Currently having high-end R&D talents, high-end technical talents and high-end management talents has become the core competitiveness of enterprises. The existing talent training mechanism in the GBA has a lot of room for upward adjustment. Firstly, the different remuneration and social welfare systems in the three places are not conducive to the flow of personnel; secondly, there are fewer cooperation platforms, which cannot form large-scale talent exchange and cooperation; there is also room for improvement in teaching infrastructure.

8.1.3. The Strategic Position of the Greater Bay Area Is Important, and Development Relies Heavily on External Circulation

According to foreign trade data, combined with the industrial structure of Guangdong, Hong Kong and Macao, it can be seen that as a world-class Bay Area, Guangdong, Hong Kong and Macao Greater Bay Area is deeply integrated with the world market, most industries are closely linked with the external environment, and economic development is more dependent on foreign markets. Affected by the trade war between China and the United States, geopolitics, and the new crown pneumonia epidemic, the supply and demand of foreign markets have been greatly reduced, and the foreign trade environment has continued to deteriorate, causing a huge impact on Hong Kong and Macao. The colonial history of Hong Kong and Macao also gives the two places the qualities of being closer to Western society, attracting a large amount of foreign investment. Hong

Kong is an international shipping center, financial and trade center as well as an air transport hub, with close ties to the world market. Macau, as the world's center of tourism and leisure, is also deeply connected to the world market. Guangdong Province is the "southern gate" of China, with the capital city of Guangzhou receiving a large number of international visitors, and the processing and manufacturing industries of Dongguan, Foshan and Huizhou delivering quality products to the whole country and the world.

8.2. Policy Recommendations

8.2.1. Supply-Side and Demand-Side Structural Reforms Using Advantageous Conditions

As one of the most powerful regions in China, the GBA needs to give full play to its advantages of "Special Economic Zone", "Free Trade Zone", "Greater Bay Area" and "Cooperation Zone". "five zones" of "early demonstration zone" and "cooperation zone", and make the most of the policy of "one country, two systems" and other advantages and innate location conditions to make a difference in the new development pattern and new development opportunities, in the new development pattern and new development opportunities to make a difference. Through the demand-side reform troika: consumption, investment, and export, we will connect production, distribution, circulation, and consumption, break the blockage, expand domestic demand, connect the demand of the mainland market with the Hong Kong market, improve the investment environment of Hong Kong businessmen in the mainland, encourage Hong Kong businessmen to inject capital into the mainland, diversify investment risks, and cooperate with the advantageous scientific research base of Hong Kong and Macao to create high-quality supply and lead the new upgrading of demand. Carry out supply-side reforms to provide backup for the external development of Hong Kong and Macao with a major domestic cycle. The government should strengthen macro-control, coordinate labor, land and other resources, achieve optimal allocation of resource integration, make up for the development disadvantages of Hong Kong and Macao, and coordinate to deal with the development pain points of the GBA, which is conducive to coordinating the existing resources of the Greater Bay Area to better play the development advantages and make the advantages better.

8.2.2. Strengthen Communication and Management in Culture

The cultures of the Guangdong, Hong Kong and Macao Greater Bay Area share the same roots, and differences and complementarities coexist. Differences lead to different cognitive situations in different regions, and homology and complementarity are the ladders that promote the spiritual dimension of the Greater Bay Area to rise to new heights. In the face of the impact caused by historical reasons, the three regions should give full play to the advantages of cultural homogeneity, strengthen national education to awaken deep spiritual culture, and deepen the national identity and national cohesion of Hong Kong and Macao

residents; bring the media system of Hong Kong into the scope of management in the Mainland to avoid the recurrence of non-compliant journalists taking advantage of their status as journalists to incite wrong public opinion; in the exchange of film and television works, on the basis of maintaining the exchange of mainstream topics In the exchange of film and television works, while maintaining the exchange of mainstream subjects and niche subjects, increase the exchange of social subjects and niche subjects, and give play to the role of culture as a deeper driving force for regional integration, and increase the understanding of different regions to avoid misunderstanding due to the unknown full picture.

8.2.3. Improve the Mechanism of Talent Training in the Bay Area

At present, the flow of talents within the Bay Area mostly exists for those who have the ability and experience to work, and consider better development prospects or better living conditions and change their working areas. One of the reasons is that the collaborative cultivation mechanism of universities within the Bay Area is not perfect, and the universities in Hong Kong and Macao have formed their own system, which to a certain extent has hindered the flow of student groups. Communication channels should be opened, and based on the alliance of Guangdong, Hong Kong and Macao universities, the universities share open courses and teaching facilities to jointly train students; increase the opportunities for students to visit and work in other regions; improve the student welfare system, coordinate the differences in the tax systems of the three regions, and simplify the customs clearance process to encourage students to join the construction of the Bay Area. Starting from the talent cultivation stage, we are committed to cultivating talents belonging to the GBA and working for the construction of the GBA.

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