Introduction

In 2009, the governments of Guangdong Province, Hong Kong, and Macao jointly completed the Planning Study on the Coordinated Development of the Greater Pearl River Delta Township. This study supported the establishment of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), a city cluster development comprised of 9 Mainland Chinese cities (Guangzhou, Zhaoqing, Foshan, Jiangmen, Zhuhai, Zhongshan, Shenzhen, Huizhou, and Dongguan) plus the 2 Special Administrative Regions (SARs) of Hong Kong and of Macao (Figure 1).

In 2010, the Study on the Action Plan for the Bay Area of the Pearl River Estuary was initiated. The GBA development project was then included for the first time in the 13th Five-Year Plan (2016-2020) by the State Council that called for a deepening of cooperation and more development within the above cluster of “9+2” cities.

In March 2017, Chinese Premier Li Keqiang reiterated in the report of the work of the government that a plan would be drawn up for the development of the GBA to “give full play to the distinctive strengths of Hong Kong and Macao, and elevate their positions and roles in China’s economic development and opening up.”\(^1\)
The GBA was an economic platform to promote the sustainable development of China’s southern region. As Ma Xingrui, Governor of Guangdong Province and former Party Secretary of Shenzhen, explained, the GBA was based on the principles of complementary development and cooperation, unimpeded exchange of the production factors, infrastructure connectivity, and innovation and technology (I&T); the latter being the key driver for the development of sophisticated, high value-added products and services. These were the same basic principles behind the success of other major economically advanced bay areas globally, such as the San Francisco Bay Area, the New York metropolitan area, and Greater Tokyo Area.

The GBA’s unique feature came from the fact that it encompassed 3 different political systems. It straddled mainland China as well as Macao and Hong Kong, both of which were governed separately under the ‘one country, two systems’ principle. Mainland China operated under a socialist system, but the SARs of Hong Kong and of Macao were both capitalists. Some considered the differences in political and legal systems to be obstacles to integration; Others saw potential for synergy, with these cities complementing one another because of their unique characteristics.

**Figure 1: GBA cities (Area, GDP, and population)**

![GBA cities map](image)

**Source:** Association of Chartered Certified Accountants, Greater Bay Area Opportunities – Capitalizing Hong Kong’s Unique Edge, ACCA Hong Kong’s Recommendations for the HKSAR Government, 2018
Integration would be essential to the effectiveness of regional collaboration and I&T development, the guiding principles of the GBA project. There was a wide range of factors that could promote integration such as connectivity, infrastructure, science and innovation parks, funding schemes, and so on. These were the so-called ‘hardware’ for integration and I&T development in the region.

The ‘software’ factors were argued to be equally, if not more, important. These referred to alignment between the different legal systems; professional and industry standards; regulatory regimes governing health, safety, and protection of intellectual property rights (IPR); public administration practices; rule of law; tax regimes; policies regarding recruitment of talents; attitudes towards Mainland China; and so on.

The GBA was a massive project with a large number of stakeholders. Government agencies with significant involvement in promoting the GBA initiative included the Beijing Central Government, the Guangdong Provincial Government, and the local governments of individual GBA cities and SARs. There was also some involvement from other relevant central ministries and provincial and local level departments. These included the ministries and departments with oversight of industry, information technology, finance, transport, and so on from Mainland China. From Hong Kong, the departments involved included the Innovation and Technology Bureau (and the Innovation and Technology Commission under its purview), the Policy Innovation and Coordination Unit, the Transport Department, the Financial Services and the Treasury Bureau, and so on.

Non-government stakeholders included banks and financial institutions, business and professional groups, professional institutes, political groups, start-up companies, entrepreneurs, other concerned professionals and individuals, and so on. This case study highlights the debate between business and professional groups with vested economic interests in the GBA and political groups as well as concerned individuals apprehensive of the risk that Hong Kong could lose its unique identity to become just another Chinese city.

Bear in mind the following questions as you read this case study:

- How do you think the differences in political systems between Mainland China and Hong Kong would affect the outcome of the GBA initiative?
- Which of the above-mentioned hardware and/or software elements would you stress to bridge the gap between these two places?
- How do you think could the GBA project benefit I&T development in Hong Kong?
- What do you think are needed to attract Hong Kong and other international entrepreneurs to set up their businesses in the Mainland side of the GBA?
In July 2017, at the start of the term for Hong Kong’s new Chief Executive Carrie Lam Cheng Yuet-ngor, the Framework Agreement on Deepening Guangdong-Hong Kong-Macao Cooperation in the Development of the Bay Area (hereinafter Framework Agreement) was signed by the National Development and Reform Commission and the three governments of Guangdong Province, Hong Kong, and Macao. The Framework Agreement emphasized, among other things, the synergies in a regional division of labour among the GBA cities.

In her maiden Policy Address in 2017, Lam announced broad plans for I&T development during her term. The first independent cross-border collaborative study conducted by research institutes (including the Institute for Public Policy at the Hong Kong University of Science and Technology) may have contributed to the government’s decision to step up financial support for long-term I&T development by establishing R&D centres, nurturing local technology talents, attracting foreign talents and top overseas scientific research institutions, building technological research infrastructures, aligning legislation and regulations with the new development model, opening up access to government data, using I&T in the provision of public services, and promoting interest in and the study of science, technology, engineering, and mathematics (STEM). She also highlighted the establishment of an innovation node and a research centre by the Massachusetts Institute of Technology from the US and the Karolinska Institutet from Sweden in 2016.

In May 2018, Chinese Vice-Premier Han Zheng, recently given the task of overseeing the GBA megaproject, visited Shenzhen and other cities in the bay area. He announced that work was being done to prepare an implementation plan detailing the roles that each of the 11 cities would play in the economic integration plan. The blueprint was expected to be released by the State Council within the year.

Efforts were being undertaken on regional and national levels to enhance the global competitiveness of the GBA vis-à-vis other bay areas around the world. With its strong economy and diverse industry, the GBA had the potential to be a world-class metropolitan area. As of 2017, the GBA had a combined GDP of USD1.4 trillion. Its gross GDP was comparable to those of the New York Bay Area and double that of San Francisco’s (Exhibit 1).

The synergies among the 11 cities would be crucial for the coordinated development of city cluster. Guangzhou could develop itself as a manufacturing and logistics hub. Shenzhen, home to more than 30,000 technology companies (including some giants such as Huawei Technologies, Tencent, ZTE Corporations, and BYD) could capitalize on its advanced manufacturing and innovation strengths, and develop itself as the ‘Silicon Valley of the East.’ The unique advantage of Hong
Kong was its free and open market, rule of law, and a business environment aligned to international standards. As a well-established international financial centre, Hong Kong could play the role of a “multilateral bridge between the Mainland and the rest of the world” or as a “gateway for multinational companies accessing the Mainland market” and a “springboard for Mainland companies seeking to go global.” In addition, Hong Kong could develop itself as the nucleus for offshore renminbi business. Hong Kong also had four world-class universities. Universities often function as innovation centres that provide continuous intellectual support for economic growth.

Macao’s contribution to the GBA project was to develop itself as a centre of tourism education and training and a world-class tourism and leisure destination; and to facilitate business relations with Portuguese-speaking countries.

With regard to the Belt and Road initiative introduced in 2013, Ma Jiantang, Executive Vice President of the Chinese Academy of Governance, asserted that the GBA development project could serve as an important gateway linking the countries along the Belt and Road. With an air-and sea-cargo throughput that ranked among the top globally, the GBA could promote the economic development of China’s mid-south and southwestern regions, as well as become a hub for trade, technology, information, manufacturing, finance, leisure, and other professional services.

“The Greater Bay Area is a prime candidate for city cluster development,” wrote Angello Chan, a research analyst at a U.S. bank in Hong Kong, “because it already has good integration across the region with concentrations of economically robust industries.” Hong Kong was notably the most international among the GBA cities, and would play a unique role in terms of helping companies to internationalise their locally-developed technology and to tap on global financing.

In recent years, there were many policies, projects, and plans to set up institutional arrangements to support I&T development in Hong Kong. However, there were still many areas that needed fine-tuning. There were doubts as to whether these plans could be fully implemented given the ‘one country, two systems’ framework within which the GBA project operated. Guangdong provincial chief Ma Xingrui alluded to this challenge in a speech at the Boao forum when he suggested that the removal of the institutional barriers caused by the ‘one country, two systems’ framework could help to fully realise the synergies among the GBA cities.

Aligning with GBA’s Objectives: Reorganization and New Committees in Hong Kong Government

The Hong Kong government established the Steering Committee on Taking Forward Bay Area Development and Mainland Cooperation and the Guangdong-Hong Kong-Macao Bay Area
Development Office. The former was chaired by the Chief Secretary for Administration, and was tasked with coordinating cross-bureau policies and formulating concrete work plans. The latter was set up under the Constitutional and Mainland Affairs Bureau to strengthen coordination with authorities in Mainland China, the Guangdong Provincial Government, and the Macao government.

The Innovation and Technology Bureau (ITB) was established in 2015\(^\text{12}\) to be directly responsible for advancing I&T development in the private and public sectors in Hong Kong, as well as to promote Hong Kong as a hub for international science and technology exchanges.\(^\text{13}\)

The Efficiency Unit was transferred from the Chief Secretary for Administration’s Office to the ITB, signalling that the government wanted to further emphasize the use of I&T to enhance operational efficiency within the public sector and to provide more convenient and value-added public services.

There was also a Steering Committee on Innovation and Technology set up and chaired by Lam to ensure that policy measures proposed in her maiden Policy Address, particularly those that related to I&T development and Smart City projects, were effectively implemented.

As for cross-border collaboration, the Guangdong-Hong Kong Information and Communications Technology Expert Committee was jointly established to strengthen cooperation of the two places by promoting the development and adoption of cloud computing, big data, Internet of Things (IoT), and smart city technologies. The committee was also tasked to promote industry participation from both cities in the formulation of ICT standards.\(^\text{14}\)

**“One Bay, Three Systems:” A Unique Feature of the GBA**

While the GBA shared certain key characteristics with other successful metropolitan areas and city clusters, it also had one unique feature in that it spanned three different political and legal systems. The SARs of Hong Kong and Macau, now governed under the ‘one country, two systems’ framework\(^\text{15}\) (Exhibit 2), had evolved separately from Mainland China for decades, resulting in each SAR having its own distinct mini-constitution and legal structure.

The differences in political systems in the two places gave rise to differences in development paths in terms of public administration practices, rule of law, professional standards, and regulatory regimes governing education, health, tax, and IPR.
Some stakeholders saw these differences as opportunities for synergy; Others argued that if the differences were not well managed, Mainland China stood to benefit disproportionately from the partnership with Hong Kong in terms of I&T development.

It was also argued that equal importance ought to be given to both the hardware and software elements of integration. Examples of hardware factors included infrastructure, coordination, financing and incentive schemes, science parks, and technical training. Software elements included the rule of law, respect and protection of IP, professional standards, mindsets, and other cultural values.

Physical, Cyber, and Cultural Infrastructures for Connectivity and IT Development

The Framework Agreement also stressed the importance of infrastructure connectivity to facilitate the movement of goods and people. Major infrastructure projects in this area were the Hong Kong-Zhuhai-Macao Bridge and the Guangzhou-Shenzhen-Hong Kong Express Rail Link. Projects underway to achieve greater integration were the Shenzhen-Zhongshan Corridor and the seventh Hong Kong-Shenzhen cross-boundary link at Liantang/Heung Yuen Wai. These infrastructures were meant to bring major cities in the GBA region within an hour’s commute of one another.

Apart from massive transport infrastructures to promote interconnectivity between Hong Kong and Mainland China, the governments of Guangdong and of Hong Kong invested huge amounts in the construction of science parks and I&T centres such as the Shenzhen-Hong Kong Innovation and Technology Park and the Hong Kong Science and Technology Park. (See Exhibit 3 for more details of the various infrastructures for I&T development.)

However, some stakeholders argued that aside from investing in physical infrastructure to promote interconnectivity, intangible infrastructures were equally important, such as upgrading professional and industry standards, and promoting cyber and cultural interconnectivity. Striking a balance between the development of both physical and intangible infrastructures could overcome Hongkongers’ suspicions that the GBA project was meant to subsume Hong Kong within Mainland China, erode its unique identity, and make it just another Chinese city.

Hong Kong’s development into a successful global city was aided by its strong commitment to the rule of law and its high professional standards that attracted multinationals to set up their headquarters here. The independent, non-profit newspaper Hong Kong Free Press questioned:
“...shouldn’t the onus be on the mainland side (Guangdong) to actually implement rule of law and raise its regulations and procedures to the level of Hong Kong’s first? Guangdong officials should be coming to Hong Kong to learn about how things are done here, not the other way around.”

It was also argued that there was a huge cultural difference between the two cities in terms of the marketing and promotion of products and services. Hong Kong-based businesses were accustomed to working with global (i.e. non-China) social media platforms, but within Mainland China they would be limited to Chinese social media platforms like WeChat and Weibo. This could prove to be a barrier for some businesses.

For the GBA project to achieve its objectives, another cultural barrier that would need to be overcome was a shift towards localism that had developed particularly among Hong Kong youth in recent years, which pushed for—sometimes with violent means—segregation from Mainland China and Chinese. For example, some localist groups protested the Guangzhou-Hong Kong high-speed rail link. Animosity towards Mainland China was fuelled by competition from Mainland Chinese for scarce resources or necessities (e.g. maternity ward beds and infant milk powder) and by Hongkongers’ inability to politically self-determine by selecting their Chief Executive and Legislative Council members through direct elections.

**Funding and Incentive Schemes to Support IT Development**

The government set a goal of doubling the Gross Domestic Expenditure on R&D as a percentage of the GDP from the current 0.73 per cent to 1.5 per cent by the end of 2022. In his fiscal year 2018-2019 Budget Speech, Financial Secretary Paul Chan Mo-po declared I&T to be “undoubtedly an economic driver in the new era,” and announced the allocation of more than HK$50 billion to speed up I&T development in Hong Kong. This funding would be used for, among other projects, the establishment of the Shenzhen-Hong Kong Innovation and Technology Park in Lok Ma Chau Loop, the setting up of two research clusters in Hong Kong Science and Technology Park (HKSTP), the development of a digital technology ecosystem in Cyberport, and tax incentives for R&D-related expenditures.

The government also encouraged private companies to tap on the knowledge and resources of local universities. Under the I&T Fund, financial assistance was available for industry-university collaboration. The fund subsidized the hiring of graduate students from local universities for proprietary R&D work. It also supported innovative joint research projects with high potential commercial-value in various fields including natural sciences and engineering. Subsidies were available for non-listed enterprises of all sizes to adopt technological products and services to
improve productivity, or to upgrade their business processes through the Technology Voucher Programme. Moreover, to stimulate private investment on local I&T startups, the government would co-invest in local I&T start-ups with partner venture capital companies at a 1:2 ratio through the Innovation and Technology Venture Fund. Collaborative R&D projects between organizations in Hong Kong and Guangdong could apply for funding support through the Guangdong-Hong Kong Technology Cooperation Funding Scheme.

In addition, the government incentivised universities to conduct research in I&T-related areas through the injection of HK$3 billion into the Research Endowment Fund. The Fund, managed by the University Grants Committee (UGC), was established in 2009 with the objective of supporting research at the UGC-funded institutions. Under the I&T Fund, the government provided financial support to midstream and downstream R&D projects undertaken by local research institutes including UGC-funded universities and self-financing universities and colleges; R&D Centres; industry support organisations; professional bodies; and trade and industry associations. This was called the Innovation and Technology Support Programme.

Government funding was made available to R&D projects involving collaborations among local and overseas universities or research institutions through the Midstream Support Programme for Universities; between research bodies in Hong Kong and Guangdong to drive high technology development and commercialization of R&D results through the Guangdong-Hong Kong Technology Cooperation Funding Scheme. Local universities could also apply for funding from the I&T Fund to spin off businesses to commercialise their research. Each technology startup could receive up to HK$1.2 million a year (for no more than 3 years) to cover their operational costs, R&D expenses, and promotional and marketing activities through the Technology Start-up Support Scheme for Universities.

However, despite investments into physical infrastructures and the availability various forms of financial support, which were the hardware elements of IT development, some stakeholders continued to express concern that the practical concerns of Hongkongers and other foreign entrepreneurs needed to be addressed as well. When considering setting up offices or starting businesses in the GBA, factors such as the education system, healthcare and medical insurance, housing affordability, the taxation regime, and the safety of GBA cities would be important to foreign investors, according to surveys conducted by various local groups in Hong Kong. A report by PwC said:

“The failure to achieve smooth connection in the areas of education, medical care, finance, and security hindered the rational allocation of resources within the Great Bay Area.”

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Citing a survey by the Pro-establishment group Hong Kong Youth Power Association, the South China Morning Post wrote:

“58 per cent of respondents would not consider working or living in mainland cities covered by the GBA initiative. Given that the initiative is focused on creating a new “Silicon Valley”, the practical details of participating have not been articulated to young people, who are the drivers of tech ecosystems.”24

Medical and property issues were also major concerns of Hongkongers, not to mention foreigners in general, when deciding whether to work and live in the GBA. Given that some mainland cities did not allow Hongkongers to take out mortgage loans in local banks,25 this could prove problematic. According to Vigers Group, a real estate consultancy:

“[The lack of access to mortgage loans] reduces Hongkongers’ desire to move into the Greater Bay Area. Also, due to the differences in medical systems between the two locales, Hong Kong citizens are not entitled to local Chinese medical benefits as they have not paid medical insurance in the mainland, so their medical expenses are relatively high. Although Hong Kong people have medical insurance in Hong Kong, most hospitals in mainland China do not accept it as it is classified as overseas medical insurance.”26

In an interview with the financial newspaper Hong Kong Economic Journal, Phoenix Wan Hok-man, founder chairman of the Hong Kong-based entrepreneur organization Youth Entrepreneur Warrior, advised prospective entrepreneurs thinking of settling in the GBA that:

“...if you want to settle in the Greater Bay Area for a long period of time, such as in continuous residence for over six months a year, you should be concerned about the “personal income tax” in the mainland, where the progressive tax rate can be as high as 45 percent. I believe that is a factor that holds many Hong Kong people back.”27

To address some of the issues discussed above, the Chinese government announced that it would issue new residence permits to residents from Hong Kong, Macau, and Taiwan from 1st September 2018. These permits would accord them better access to public services, social insurance, and other benefits within Mainland China.

Additional questions for discussion from this section:
• How likely are these new measures to satisfy Hongkongers’ needs?
• What other incentives/benefits should Hong Kong officials attempt to secure from their Mainland Chinese counterparts?

**Talent and Workforce Training**

In a speech delivered by Lam at the Boao Forum for Asia Annual Conference held in Hainan Province in April 2018, she highlighted the quantitative and qualitative lack of local technology talent in Hong Kong. One of the ways in which the government addressed this shortage was to invest HK$500 million in the Technology Talent Scheme administered by the Innovation and Technology Commission. The eligibility requirements for the Scheme were that the applicant company or institute had to be a tenant or incubatee at HKSTP or Cyberport, and the company had to operate in the areas of AI, cybersecurity, robotics, data analytics, biotechnology, financial technologies, or material science. Such a company could apply for a quota to hire eligible persons from overseas or Mainland China for R&D work. However, this allowance came with a requirement to employ at least 1 full-time local person (with a minimum 1-year contract) and 2 local interns (with minimum 3-month contracts) for every 3 non-local employees. A breach of this requirement would affect the company’s future applications.28

To nurture I&T talent locally and to encourage university students to pursue careers in related fields, the government introduced the Internship Programme under the I&T Fund to provide financial assistance to the company-recipients of I&T Fund as well as tenants and incubatees of HKSTP and Cyberport to recruit graduates from local universities as interns for R&D projects.

Another factor that would be critical in turning the GBA into a global centre for I&T, finance and trade, and advanced manufacturing and maritime industries would be a global mindset. In a commentary for South China Morning Post, China Silk Road iValley Research Institute senior adviser Feng Da Hsuan and chairman and chief economist Liang Hai Ming wrote that:

“[T]he vision and ideas of foreign talent, especially people from Europe and North America, are quite different from those in China. Besides requiring high-paying jobs, comfortable living conditions and a pleasant working environment, these people also want a clear project mission, a step-by-step plan and well-designed project funding.

“Unfortunately, this is the opposite of how Chinese operate. Generally speaking, while Chinese may have an initial grand vision, they tend to “plan along the way” rather than long-term and without already designated funds. The leadership of this grand development scheme will need great wisdom to bridge the gap.”29
Other stakeholders warned that the governments needed to implement adequate measures to mitigate the brain drain from less competitive Mainland Chinese or GBA cities to Guangzhou, Shenzhen, Hong Kong, or Macau. Local city governments would need to ensure that their cities remained attractive to highly sought-after talent.

Another factor that could hinder entrepreneurship within the GBA was the lack of social safety nets common in other global cities. Such safety nets could help entrepreneurs recover and rebound after businesses failures, encouraging more to embark on these risky ventures.\(^\text{30}\)

**IPR Protection**

Another key concern of stakeholders was the protection of intellectual property rights (IPR), a crucial element in building healthy and successful business environments in knowledge-intensive bay area economies. The legal protection of inventions and an effective mechanism to sanction violations against IPR was one of the best incentives to attract talent. Without effective enforcement actions against patent infringements, I&T development (specifically the transfer of technology; talents; and resources) could be hampered. According to Guangzhou Daily Data Institute, the number of patents registered within the GBA was higher than that within the San Francisco Bay Area (Exhibits 4 and 5), although there was still a lot room for improvement in terms of the number of cited patents (an indicator of patent quality; Exhibit 6).\(^\text{31}\) The high number of patents registered within GBA was indicative of how important clear and effective processes were for IPR enforcement.

In Hong Kong, the Intellectual Property Department (IPD) was the main government body with the responsibility to:

“maintain the protection of intellectual property rights to the highest international standards...to provide high quality and responsive patent...services; and, to promote awareness of intellectual property rights of the individual, and respect for the rights of others.”\(^\text{32}\)

The IPD Director is the *ex officio* Registrar of Patents and administered the Patents Ordinance (Cap. 514). There were also collaborative arrangements between Guangdong Province and Hong Kong regarding the promotion and enforcement of IPR. Since 2003, the Guangdong-Hong Kong Expert Group on Intellectual Property Rights, jointly chaired by the Directors of the Guangdong Province Intellectual Property Office and of Hong Kong’s IPD, jointly organized seminars, talks, forums, and exchange programmes to help build closer cooperation and partnership between the
intellectual property-related authorities of both sides, as well as to provide training and enhance the public knowledge of IPR, particularly among the enterprises and intellectual property owners in the two cities.\textsuperscript{33}

The relevant government agencies of Guangdong Province, the IPD of Hong Kong, and the IPD of Macao jointly maintained an IP database for the three places. The database provided information on the IP regimes in the three cities including legislation, registration systems, and related government agencies.\textsuperscript{34}

Since 2016, 13 lawyers and other professionals from Hong Kong comprised part of the jury at the People’s Court in the Qianhai Special Economic Zone or Qianhai Shenzhen-Hong Kong Modern Service Industry Cooperation Zone.\textsuperscript{35} They assisted the chief judge in dealing with commercial litigations involving foreign companies. Moreover, with the agreement of both sides, Hong Kong laws could be used to resolve disputes and arbitrations. Such disputes would have included those related to IPR.

Government funding was also available for inventors applying for patents for the first time. Under the I&T Fund’s Patent Application Grant, the government provided financial assistance to sole inventors, any one of the co-inventors, or companies directly related to inventors applying for patents for the first time. The grant could cover up to 90 per cent of the total direct costs of patent application.\textsuperscript{36}

The above measures were meant to enhance the protection of inventions in order to provide foreign entrepreneurs and investors a sense of security to innovate and set up businesses in the GBA. Given the conventional image of China as a country with little regard for IPR,\textsuperscript{37} some argued that the presence of IP protection laws alone would be ineffective without robust enforcement measures.

**Summary**

Officially announced in 2016, the GBA project was a Chinese government initiative to create an economic megalopolis in southern China comprised of 9 cities in Guangdong and the 2 SARs of Hong Kong and Macao, based on a development model characterized by infrastructure integration, synergies in regional division of labour, free movement of the factors of production, competitive business environments, and innovation and technology as the new driver of economic growth. The Chinese government’s aim was to transform the GBA into a world-class metropolitan area comparable to other major bay areas around the world.
On 18th February 2019, the Central Government issued the Outline Development Plan for the GBA project to guide its development and current and future cooperation.

From the start, the Hong Kong government took an active part in the GBA project, embarking on infrastructure megaprojects such as the Hong Kong section of the Express Rail Link. The planned joint-project of the Shenzhen-Hong Kong Innovation and Technology Park was expected to create thousands of jobs for young people, especially those aspiring to I&T careers. The government also introduced various funding schemes to promote I&T development in both the public and private sectors in Hong Kong. Financing programmes targeted a variety of I&T projects for support, including the upgrading of business operations and the deployment of I&T products and services. Other programmes would subsidise rent and other R&D-related costs incurred by startups, fund the training of I&T talent, or matchmake innovators with industry partners.

Despite the potential economic benefits that the GBA project could bring to Hong Kong, there were doubts about how these were going to be materialized given the constraints under the ‘one country, two systems’ framework and other obstacles that could limit the GBA project’s contribution to I&T development in Hong Kong. These other factors consisted of ‘hardware’ and ‘software’ elements. While the hardware elements such as transport infrastructures, science parks, and so on were given priority, stakeholders argued that emphasis should also be placed on the software elements such as the rule of law, respect for and protection of IP, professional standards, mindsets, and other cultural values critical in attracting talent and enhancing the GBA’s globality.

Question for discussion:

- Given the enabling policies and incentives adopted so far, what other policy alternatives or policy paths would you suggest that could reduce uncertainties looming over the effectiveness of the GBA project overall as well as in maximizing its positive impact on Hong Kong?
**Exhibit 1: Comparison of Main Bay Areas**

<table>
<thead>
<tr>
<th></th>
<th>Guangdong-Hong Kong-Macao Bay Area</th>
<th>San Francisco Bay Area</th>
<th>New York Metropolitan Area</th>
<th>Greater Tokyo Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land area (sq. km.)</td>
<td>56,100</td>
<td>17,900</td>
<td>21,500</td>
<td>36,900</td>
</tr>
<tr>
<td>Population (million, USD)</td>
<td>68.0 (1)</td>
<td>7.7 (2)</td>
<td>20.2 (2)</td>
<td>44.0 (3)</td>
</tr>
<tr>
<td>GDP growth rate (%)</td>
<td>7.5 (1)</td>
<td>7.3 (2)</td>
<td>4.3 (2)</td>
<td>0.9 (2)</td>
</tr>
<tr>
<td>GDP (trillion, USD)</td>
<td>1.46</td>
<td>0.72</td>
<td>1.60</td>
<td>1.62</td>
</tr>
<tr>
<td>GDP per capita (USD)</td>
<td>21,400</td>
<td>93,800</td>
<td>79,300</td>
<td>36,700</td>
</tr>
<tr>
<td>Annual air passenger throughput (million, USD)</td>
<td>165</td>
<td>50</td>
<td>95</td>
<td>113</td>
</tr>
<tr>
<td>Annual air cargo throughput (million, metric tons)</td>
<td>7.0</td>
<td>0.4</td>
<td>1.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Annual container throughput</td>
<td>68.0</td>
<td>2.4</td>
<td>6.3</td>
<td>7.2</td>
</tr>
<tr>
<td>Tertiary industry as percentage of GDP (%)</td>
<td>65.3 (1)</td>
<td>71.7 (2)</td>
<td>83.1 (2)</td>
<td>76.3 (3)</td>
</tr>
</tbody>
</table>

(1) 2016
(2) 2015
(3) 2014

**Source:** Hong Kong Trade Development Council
Exhibit 2: The Concept of the “One Country, Two Systems” Framework

The ‘one country, two systems’ principle, enshrined in the Basic Law, the mini-constitution of Hong Kong, was elaborated by the Chinese government in Annex I the Joint Declaration signed in 1984 between Great Britain and the People’s Republic of China after it was decided that the sovereignty over the territory would be returned to China at midnight on June 30, 1997. The Joint Declaration set out the basic principles to guide the formulation of the future constitution of Hong Kong. Since it was agreed that the territory would be run differently from the Mainland, the guiding principle came to be known as ‘one country, two systems.’

The Basic Law was promulgated on April 4, 1990 by the National People’s Congress, and came into effect on July 1, 1997. The Preamble stated that:

“...under the principle of “one country, two systems”, the socialist system and policies will not be practised in Hong Kong. The basic policies of the People’s Republic of China regarding Hong Kong have been elaborated by the Chinese Government in the Sino-British Joint Declaration.”

Article 5 of the Basic Law also stated that:

“The socialist system and policies shall not be practised in the Hong Kong Special Administrative Region, and the previous capitalist system and way of life shall remain unchanged for 50 years.”

Ji Pengfei, Chairman of the Drafting Committee for the Basic Law, provided more details on the ‘one country, two systems’ principle in his address to the Seventh National People’s Congress on March 28, 1990:

“...Except for national defence and foreign affairs, which are to be administered by the Central Government, the Hong Kong Special Administrative Region will exercise a high degree of autonomy; no socialist system or policies will be practiced in the Region, the original capitalist society, economic system and way of life will remain unchanged and the laws previously in force in Hong Kong will remain basically the same; Hong Kong’s status as an international financial centre and free port will be maintained; and the economic interests of Britain and other countries in Hong Kong will be taken into consideration...The concept of “one country, two systems” and all the principles and policies regarding Hong Kong formulated on the basis of this
concept provide the fundamental guarantee for the resumption of China’s sovereignty over Hong Kong and the maintenance of Hong Kong’s stability and prosperity...”
(Source: “The Basic Law of the Hong Kong Special Administrative Region of the People’s Republic of China (Draft) and Its Related Documents,” addressed to the Third Session of the Seventh National People’s Congress, March 28, 1990)

The ‘one country, two systems’ framework not only governed the operations in Hong Kong but also influenced the relationship between Mainland China and Hong Kong.
Exhibit 3: Government-Established Science Parks

In the Boao Forum for Asia Annual Conference held in Hainan Province in April 2018, Governor of Guangdong Province Ma Xingrui pointed out that the weakness of the GBA compared to the other four bay areas was technological innovation, which should therefore be given priority. Shenzhen, being the leading Chinese city in terms of R&D spending (at 4.02 per cent of GDP, double the national average), would partner with Hong Kong to build a global technology and innovation hub in the GBA with the planned construction of the Shenzhen-Hong Kong Innovation and Technology Park covering 87 hectares of land along the border between the two cities (see below), as well as the development of the Qianhai Shenzhen-Hong Kong Youth Innovation and Entrepreneur Hub. In early 2018, the Director of Guangdong Development and Reform Commission He Ningke announced a plan for Guangdong, Hong Kong, and Macao to jointly build the Guangzhou-Shenzhen Science and Technology Innovation Corridor, encompassing approximately 11,000 square kilometres in Guangzhou, Shenzhen, and Dongguan.

In 2001, the Hong Kong government established the HKSTP Corporation as a public corporation with a mission to “connect stakeholders, facilitate knowledge transfer and nurture talents to accelerate technological innovation and commercialization.” Through its IndustryConnect Programme, HKSTP aimed to facilitate connections between innovators and public or private sources of funding, as well as between innovators and potential customers in Hong Kong or Mainland China. HKSTP also promoted collaboration between university/R&D institutions and industry, and provided a variety of technical management assistance to facilitate product commercialization. HKSTP directly implemented some of the funding schemes under the I&T Fund. For example, incubatees at the HKSTP could apply for funding to enable them to admit overseas and Mainland technology talent (cf. TechTas, footnote 23) or to hire local graduates as interns through the I&T Fund Internship Programme for R&D work. Aside from supporting startups with training and funding, the HKSTP also provided lab facilities equipped with advanced technologies and software platforms, as well as professional engineers to support R&D projects. Partner companies of HKSTP were given opportunities to tap on big data with industry partners. In addition, HKSTP offered training and coaching through workshops, conferences, and forums to startups and industry partners. As of late 2017, there were about 650 local, Mainland, and foreign technology companies based at the Park (about 300 of which were startups), employing a total of about 13,000 people, of whom about 9,000 people were involved in R&D.

HKSTP also managed InnoCentre, an incubator based in Kowloon Tong for emerging design companies, and also in 3 other industrial estates—Tai Po for a precision manufacturing, and Yuen Long and Tseung Kwan O for advanced manufacturing. The HKSTP focused on R&D, InnoCentre on design, with the industrial estates providing support and manufacturing services. The three-pronged scheme was inspired by Professor Tien Changlin, former chancellor of the University of...
California Berkeley, and the first Chairman of Innovation and Technology Committee set up in 1998 (the I&T Committee was replaced by the Advisory Committee on Innovation and Technology established in 2015, currently chaired by Mr. Nicholas Yang, the Secretary for Innovation and Technology).

In his Policy Address in January 2017, former Chief Executive Leung Chun-ying announced that HKSTP would establish a subsidiary company responsible for the construction, operation, maintenance, and management of a joint Shenzhen-Hong Kong Innovation and Technology Park.

Cyberport, a creative digital cluster managed by the government-owned Hong Kong Cyberport Management Company Limited, began operation in 2004. Its focus was on the following main clusters of digital technology: FinTech, eCommerce, IoT/Wearables, and Big Data/AI. Cyberport’s vision was:

“…to become a main force in developing the digital tech industry as a key economic driver of Hong Kong, Cyberport is committed to nurturing youth, start-ups and entrepreneurs to grow in the digital industry by connecting them to strategic partners and investors, driving collaboration with local and international business partners to create new opportunities, and accelerating digital adoption amongst corporates and SME.”

Cyberport offered funding, mentorship, and business advice; facilitated business development and investment connections to local and global business networks; and provided publicity and promotion services to boost industry take-up. Funding was provided for high potential digital technology start-up projects and business ideas through the Cyberport Creative Micro Fund. Local university students could receive training overseas either with a two to three month-internship programme in Silicon Valley, Shanghai, or Hong Kong through the Cyberport Digital Tech Internship Programme; or a FinTech-focused entrepreneurship programme in the U.S.A. (e.g. in Stanford University) through the Cyberport University Partnership Programme. Under these overseas programmes, University students would receive mentorship from industry elites and could pitch business ideas to potential investors.

Cyberport encouraged cross-border collaborations between talented youth from Guangdong and Hong Kong to develop digital technology projects through the Cyberport Creative Micro Fund Cross-boundary Programme. The University of Science and Technology’s university extension in Shenzhen was a co-organizer of this programme. Cyberport incubatees could apply for funding to develop digital technology-related products or solutions through the Cyberport Incubation Programme or to cover overhead expenses including office rental, employment of interns,
marketing and promotion of products, and so on through the Cyberport Accelerator Support Programme.

Cyberport had an investment fund for co-investing with third-party private and public investors into the digital tech projects called the Cyberport Macrofund. The amount received by each investee ranged from HK$1M to HK$20M.

The Hong Kong Applied Science and Technology Research Institute (ASTRI) was founded by the government in 2000 with the aim of enhancing Hong Kong’s capacity to compete in the area of technology-based industries through applied research. Since 2006, ASTRI was Hong Kong’s designated Research and Development Centre for Information and Communications Technology. After obtaining the approval of the State Ministry of Science and Technology in 2012, it set up the first Hong Kong Branch of the Chinese National Engineering Research Centre (CNERC) for Application Specific Integrated Circuits (ASICs) in collaboration with Southeast University in Nanjing.

ASTRI’s core R&D competence were organised into the seven areas of “Communications Technologies, Electronics Components, Mixed Signal Systems IC, Advanced Digital Systems, Optoelectronics, Security and Data Sciences, and Intelligent Software and Systems.” Its R&D strategic focus covered the five areas of applications of “Financial Technologies, Smart City, Intelligent Manufacturing, Next Generation Network and Health Technologies.”

One of ASTRI’s recent initiatives was to host the “Industry and University Collaboration Forum (IUCF) 2017” in the HKSTP to attract about 400 participants including industry and technology leaders, experts, entrepreneurs, academics, and government officials with the aim of exchanging views and insights about the latest I&T developments and about how Hong Kong could take advantage of the opportunities offered by the GBA project.
Exhibit 4

Number of invention patents: Guangdong-HK-Macao Greater Bay Area vs. San Francisco Bay Area

Source: Guangzhou Daily Data Institute, Guangdong-Hong Kong-Macao Greater Bay Area Synergy Innovation Development Report, July 21, 2017
**Exhibit 5**

Numbers of invention patents in different regions of the Guangdong-HK-Macao Greater Bay Area in 2012-2016

**Note:** The east coast cities refer to Shenzhen, Dongguan, and Huizhou; the west coast cities refer to Guangzhou, Zhuhai, Foshan, Zhongshan, Jiangmen, and Zhaoqing.

**Source:** Guangzhou Daily Data Institute, Guangdong-Hong Kong-Macao Greater Bay Area Synergy Innovation Development Report, July 21, 2017
Exhibit 6

Number of cited invention patents: Guangdong-HK-Macao Greater Bay Area vs. San Francisco Bay Area

Source: Guangzhou Daily Data Institute, Guangdong-Hong Kong-Macao Greater Bay Area Synergy Innovation Development Report, July 21, 2017
Endnotes


3 The NDRC is formerly the State Planning Commission founded in 1952 which is a macroeconomic management agency under the Chinese State Council.


8 “Belt and Road” is the short form of “Silk Road Economic Belt and 21st century Maritime Silk Road,” based on an ancient trade and cultural exchange land and sea route, initiated by China to promote development through economic cooperation, and to strengthen exchanges and mutual learning among the countries along the Belt and Road.


10 Hong Kong Institute of Certified Public Accountants, “Bay of Plenty,” A Plus, November 2017, 11.


12 The establishment came after so many filibusters and legislators raising controversial issues which lasted for several years (2012-2015), delaying the establishment and the approval of the budget proposal for the setting up of the bureau in the Finance Committee of the Legislative Council.


15 Hong Kong had been a British colony from 1843-1997. Before becoming a colony, Macao had seen Portuguese settlement since the 16th century, first as a trade base of the Portuguese (1558-1581), then as a leased territory (1582-1848). In 1999, the sovereignty over Macao was returned to China.


18 According to Professor Law Wing-sang of Lingnan University, the first wave of localism could be traced to the early 1970s which was characterized by the expression of affection for Hong Kong culture and values by those who were born and grew up in the city. The second wave emerged in the 80s and early 90s, the so-called transitional years, when Hongkongers felt a sense of crisis about the future of the city’s economic and political systems and way of life. The third and current wave rose after the handover in 1997, mainly led by the post-80s generation activists. (Minnie Wong, Howard Yang, and Vivienne Tsang, “From local identity to the pursuit of independence: The changing face of Hong Kong localism,” *Hong Kong Free Press*, November 11, 2016, https://www.hongkongfp.com/2016/11/11/from-local-identity-to-the-pursuit-of-independence-the-changing-face-of-hong-kong-localism/).


20 The allotment breakdown is as follows: HK$20 billion will be set aside for the construction, i.e., site formation, infrastructure, and superstructure works, of the Shenzhen-Hong Kong Innovation and Technology Park in Lok Ma Chau Loop, as well as its initial operational costs; HK$10 billion will be fed into the Innovation and Technology Fund (I&T Fund), administered by the Innovation and Technology Commission which is under ITB, to further support R&D and I&T projects in Hong Kong; HK$10 billion will be earmarked for the establishment of two research clusters in Hong Kong Science and Technology Park (HKSTP), involving robotics, AI, and healthcare technologies; HK$10 billion will be allotted to HKSTP for the construction of research infrastructure and facilities, as well as for providing support to tenants and incubatees; and, the rest of the funding will be allocated to Cyberport for enhanced support for startups, R&D, and the development of digital technology ecosystem particularly in the e-sports and digital entertainment industry. Moreover, to encourage private companies to increase investment in technological R&D, the government will provide super tax deduction for R&D related expenditures, that is, the first HK$2 million and the remainder will be granted a 300 per cent and 200 per cent tax deduction, respectively.

21 These refer to the three schemes of Teaching Company Scheme, Matching Grant for Joint Research, and Industrial Research Chair Scheme under the University-Industry Collaboration Programme. Another is the Research and Development Cash Rebate Scheme.


23 PricewaterhouseCoopers, New Opportunities for the Guangdong-Hong Kong-Macau Greater Bay Area, 2017.


26 Vigers Group, “Hong Kong’s challenges.”


30 Feng and Liang, “Four challenges.”

31 The Institute collected and analyzed data on four types of patents, namely, invention patent, cited patent, Patent Cooperation Treaty, and patent family. Of the four, only the invention patent and cited patent were mentioned above, because these suffice for the purposes of the study. The Patent Cooperation Treaty enables patent applicants to seek protection for an invention in a very large number of countries, and the patent family “is a set of patents taken in various countries and published in one language or different languages, to protect a single invention” (Guangzhou Daily Data Institute, 2017).


35 Qianhai Special Economic Zone, built almost entirely on reclaimed land and covering an area of about 15 square kilometres, was established in 2010 to serve as a pilot zone for innovative collaboration between the modern service industries of Guangdong and of Hong Kong.

36 For more details of the other related costs that can be subsidized under the I&TF, see https://www.itc.gov.hk/en/funding/pag.htm.


