Strategic Planning for Collaborative and Sustainable Development of Hong Kong and Shenzhen: HK2030+ Review

Final Report

May 2019
Executive Summary

Hong Kong is aspired to becoming the centre of innovation and technology (I&T) in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA). Due to Hong Kong’s global strengths in providing world-class research, sound legal and financial system, together with the location advantage of close proximity of Shenzhen - breeding ground of extensive I&T development; this report sees the potential in Hong Kong to capitalize on the comparative advantage from inter-city collaboration in order to diversify opportunities for its people and enterprises.

A spatial planning proposal is formulated with the following three strategic actions:

1. Develop I&T-oriented development clusters in the northern part of Hong Kong to strengthen cross-boundary collaboration with Shenzhen.
2. Strengthen the role and positioning of existing industrial estates as key supporting bases for I&T development and economic diversification.
3. Link up major business cores, new development areas and transport nodes with an integrated transport network.

A I&T development ring that comprises three conceptual corridors, namely the Collaborative I&T Corridor along the Hong Kong - Shenzhen boundary, the Knowledge and Technology Corridor along the eastern side of Hong Kong, and the International Economic Corridor that spans from western to southern Hong Kong were proposed to represent territorial-wide I&T development endeavours. The corridors connect the four different development clusters with specific roles and functions to augment opportunities in I&T development, providing comprehensive community and housing, as well as application of I&T solutions in other industries. Despite the comprehensive strategies formulated in this report, the development endeavours are not without constraints that require much scrutiny and targeted measures to alleviate potential impacts.

Policy support is also crucial to help realize timely and effective spatial planning strategies. A series of policies has been put forward in this report that focuses on talent attraction and retention, operation of science parks and cross-boundary governance. The combination of both spatial and non-spatial recommendations will derive major implications on various stakeholders involved in the I&T development, territorial and regional planning, education and research, together with cross boundary governance.

By grasping the opportunities from inter-city collaboration and reinforcing its global strengths, it is confident that Hong Kong will become a city that will excel in Asia, and to bring about diversified economy, high quality of living, and sustainable and technology-driven future for its citizens.
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List of Abbreviations or Acronym

AI       Artificial Intelligence
AMC   Advanced Manufacturing Centre
BCP     Boundary Control Points
C       Commercial Uses
C&C     Cultural and Creative
CBD     Central Business District
CBD1    Traditional Central Business District in Central
CBD2    Kowloon East Central Business District
CBD3    East Lantau Metropolis / The proposed artificial islands near Kau Yi Chau
CEDD    Civil Engineering and Development Department
CMAB    Constitutional and Mainland Affairs Bureau
CUHK    Chinese University of HK
DevB    Development Bureau
DT Hub  Data Technology Hub
ELM     East Lantau Metropolis
FinTech Financial Technology
GBA     Guangdong-Hong Kong-Macao Greater Bay Area
GDP     Gross Domestic Product
GFA     Gross Floor Area
GIC     Government, Institution and Community
HALOS   Hanseatic League of Science
High-tech High Technology
HK2030+ Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030
HKIA    Hong Kong International Airport
HKPC    Hong Kong Productivity Council
HKSAR   Hong Kong Special Administration Region
HKSTP   Hong Kong Science and Technology Park
HKSTPC  Hong Kong Science and Technology Parks Corporation
HKTDCC  Hong Kong Trade Development Council
HKU     University of Hong Kong
HKUST   Hong Kong University of Science & Technology
HKZMB   Hong Kong-Zhuhai-Macau Bridge
HLH Zone The Hung Lung Hang Residential Zone
HSK     Hung Shui Kiu
HSKNDA  Hung Shui Kiu New Development Area
HYWP    Heung Yuen Wai Enterprise and Logistic Park
I&T     Innovation and Technology
ICT     Information and Communications Technology
IoT     Internet-of-Things
ITB     I&T Bureau
ITC     Hong Kong Innovation and Technology Commission
KE      Kowloon East
KTN     Kwu Tung North
LandsD  Lands Department
LMC Loop Lok Ma Chau Loop
LT/HYW BCP Liantang Heung Yuen Wai Boundary Control Point
MICE    Meetings, incentives, conferencing, exhibitions
MTR     The Mass Transit Railway (Hong Kong)
NDA     New Development Area
NENT    Northeastern New Territories
NTN     New Territories North
NWNT  Northwestern New Territories
OU(Business)  Other Specified Uses (Business)
OU(E&TP)  Other Specified Uses (Enterprise and Technology Park)
OU(IE)  Other Specified Uses (Industrial Estate)
OU(LF)  Other Specified Uses (Logistic Facilities)
OU(PBU&SWU)  Other Specified Uses (Port Back-up, Storage and Workshop Uses)
OZP  Outline Zoning Plan
PC Zone  Ping Che Residential and Commercial Zone
PHI  Potential hazardous installation
PlanD  Planning Department
R&D  Research and Development
RODP  Recommended Outline Development Plan
SIAT  Shenzhen Institutes of Advanced Technology
SKL  State Key Laboratory
STEM  Science, technology, engineering and mathematics
SZ Bay BCP  Shenzhen Bay Boundary Control Point
TD  Transport Department
Tech park  Technology Park
TechTAS  Technology Talent Admission Scheme
THB  Transport & Housing Bureau
The Base  the Eastern Research and Education Base / TKO Data Support and Advanced Manufacturing Base / an International Business & I&T Development Support Base
(applicable for each individual cluster only)
The Centre  Precision Manufacturing Centre
The Committee  The Mainland/HK Science and Technology Co-operation Committee
The Cluster  Northeastern I&T Cluster
The HYW Park  The Heung Yuen Wai Enterprise and Logistic Park
The TKL Park  The Ta Kwu Ling Science and Advanced Industrial Park
TKO  Tseung Kwan O
TKO137  Tseung Kwan O Area 137
TKOIE  Tseung Kwan O Industrial Estate
TNE  Transnational Enterprises
TPIE  Tai Po Industrial Estates
UGC  University Grants Committee
WKHSR  West Kowloon High Speed Railway
YLIE  Yuen Long Industrial Estate
1. **Introduction**

1.1 **Study Background, Goal and Stages**

1.1.1 Lab Planning was commissioned to conduct a comprehensive study on the major strategic planning issues and implications on Hong Kong with close consideration of the development trends in Shenzhen in three phase - Inception Report, Sectoral Study and Final Report with DNA and Skyline Studio. Based upon careful examination of potentials and challenges, a set of spatial and non-spatial recommendations will be formulated to enrich current understanding of strategic planning framework to drive sustainable growth in Hong Kong.

1.1.2 **Overview**

1.1.2.1 The Guangdong-Hong Kong-Macao Greater Bay Area (GBA) has received much scrutiny since its launch on whether such enhanced collaboration between Hong Kong and other parts within the Guangdong will benefit our city, especially to accelerate the development of I&T sector. Our immediate neighbour, Shenzhen, has been observed with strong determination to propel I&T development, coupled with rigorous moves in land use intensification, economic restructuring, urban regeneration and livability enhancement.

1.1.2.2 With increasingly keen competition from Shenzhen, together with other cities in the GBA region, the desire of Hong Kong in becoming the centre of I&T is not without challenges, including its spatial constraints. The rapid development of I&T industry demands close collaboration and feedback with individual stages of the value chain to ensure sensitive response to the market. Encompassing the global strengths of delivering world-class research, eminent research and development (R&D) talents, sound legal and financial systems, together with the strategic proximity to Shenzhen; Hong Kong has high potential to reinforce its status as regional financial hub by diversifying economies through I&T development. Such potential can be further capitalized through a comprehensive planning for Hong Kong’s I&T industry in terms of land use and connectivity, as well as policy support.

1.1.2.3 This report is a combination of Inception Report and Sectoral Study which involve the examination of key strategic planning issues and current I&T development in both Hong Kong and Shenzhen, considerations of important stakeholders in advancing the I&T industry supported with relevant international examples and theories. This report comprises the final stage which focus on formulating spatial and policy implications to enrich the current strategic framework of Hong Kong - “Hong Kong 2030+ : Towards a Planning Vision and Strategy Transcending 2030” (HK2030+).

1.1.3 **Study Goal and Stages**

1.1.3.1 The overall study goal is to formulate strategic and spatial planning for land use and transportation development that would (1) benefit the development of I&T sector of Hong Kong in the context of the GBA and; (2) enrich the strategic framework set under HK2030+. 
1.1.4 Study Framework

Figure 1.1 below depicts the flow of the study.

Figure 1.1 Study Flow (Source: Study Team)
1.1.4.1 The study consists of 3 stages stated below. Stage 1 and 2 have been completed. Major findings from stage 1 and 2 have served as the foundation for stage 3 – the final stage of the study.

- Stage 1 - Contextual Study (Inception Report) (Completed)
- Stage 2 - Sectoral Study and International Review (Working Paper) (Completed)
- Stage 3 - Policy Recommendation (Final Report) (Current Stage)

1.1.4.2 This report represents Stage 3 - Recommendation that involves three tasks with the following main objectives:

- Vision Statement (Task 9) - Develop an instructive vision for the strategic planning and development of HK based on previous studies
- Recommended Spatial Strategy and Policy (Task 10) - Formulate spatial and non-spatial planning strategies and policies to achieve the planning vision for input into HK2030+
- Policy Implications on Stakeholders for Recommendations (Task 11) - Put forward the policy implications on different sectors in response to Task 9 and 10

1.2 Methodology

Understanding the holistic I&T and planning development of Hong Kong and Shenzhen laid an important foundation to substantiate the formulation of spatial and non-spatial recommendations. A series of quantitative and qualitative analysis were carried out through the following methodologies.

1.2.1 Desktop Research

Desktop study was carried out to obtain second-hand data and evaluate the different key aspects in I&T development, relevant policies in cross-boundary governance and talent attraction and retention, together with proposed plans in Hong Kong and Shenzhen. It also support the feasibility studies by reviewing current outline zoning plans (OZPs), documents and traffic statistics from different governmental departments.

1.2.2 Site Visits

Site visits to relevant I&T enterprises and institutions were carried out to obtain first-hand information. A 4-day study tour to Shenzhen was held from 4th to 7th March 2019 to deepen the understanding of current I&T development trends and efforts in Shenzhen and its implication to the territorial-wide planning of Hong Kong.

1.2.3 Interviews

Face-to-face interviews were carried out to collect views from stakeholders that reflect the actual need and consideration of I&T development in Hong Kong. The stakeholders are from diverse expertise, including I&T practitioners, scholars and planners. The interview notes are summarized in Appendix 5, which presented the individuals’ viewpoints and have contributed to the holistic
understanding of the current and future needs of I&T development. Their aspirations have been incorporated into the context of this report. In order to assure the confidentiality of individual interviewees, their actual identities have been intentionally kept undisclosed.

1.3 Report Structure

1.3.1 This report comprises of six chapters that covers the consolidated knowledge of the I&T development in two cities, the vision and the proposal for future development. The report structure is as follows:

- Chapter 1 – Introduction
- Chapter 2 – Vision
- Chapter 3 – Overview of the I&T Development in Hong Kong and Shenzhen
- Chapter 4 – Spatial Recommendations
- Chapter 5 – Policy and Implications
- Chapter 6 – Summary of Implications to Stakeholders
- Chapter 7 – Conclusion
2. Vision

2.1 Aspiration

2.1.1 Building on top of HK2030+, this report has undergone extensive research and investigation which supported the far-fetching vision that aims to harness Hong Kong’s global strength and locational advantages to propel diversified, knowledge-based and sustainable economy.

2.1.2 Globally renowned for strong technology foundation, world-class universities and eminent R&D talents, as well as an established legal system and robust protection for intellectual property; couple with its position as a "superconnector" between Mainland China and other parts of the world; Hong Kong presents the potential to lead the region’s transition towards a technology-driven and knowledge-based society. However, such potentials remain largely untapped. Hence Hong Kong should adopt a dual-pronged approach - upgrade existing infrastructure and explore new opportunities within the territory to diversify opportunities for all its people and enterprises, achieving high quality of life and leading the region towards a sustainable and technology-driven future.

2.2 Vision Statement

2.2.1 Hong Kong will excel among Asia’s cities - diversifying opportunities for all its people and enterprises, achieving high quality of life and leading the region towards a sustainable and technology-driven future.

2.3 Conceptual framework and building blocks of HK2030+

2.3.1 The three building blocks of the HK2030+ bolster the overarching planning goal and are translated into spatial terms in a conceptual spatial framework. The spatial recommendations suggested in the HK2030+ are largely concerned with the interventions within Hong Kong. From the previous studies, inter-city collaboration nonetheless marks new opportunities that will better harness the comparative advantages of Hong Kong and its immediate neighbours, and in turn foster sustainable growth of economy and society. Therefore, the recommendations presented in this study focus on how opportunities from inter-city collaboration will bring about new possibilities that enhance each building block by (1) diversifying opportunities for people and entrepreneurs; (2) ensuring high quality of life; and (3) leading towards a sustainable and technology-driven future, as shown in Figure 2.1 below.
Figure 2.1 Conceptual framework of vision and its relationship to HK2030+ (Source: Study Team)
3. Overview of the I&T Development in Hong Kong and Shenzhen

3.1 Comparative Advantage of Hong Kong

Hong Kong is considered to have an overwhelming comparative advantage in fundamental scientific research compared to Shenzhen. The University of Hong Kong (HKU) and Chinese University of Hong Kong (CUHK) incorporate the two world-top-rated medical schools in the field of clinical medicine. HK has also been a main clinic trial centre for drugs helping with the drug registration process in mainland China (Hong Kong Trade Development Council (HKTDC), 2018). In contrast, research institutes in Shenzhen are less competitive in making scientific breakthroughs. Existence of top research universities in Hong Kong already provides Hong Kong with the upper hand in terms of providing innovative research ideas that can be implemented in this sector. This contribution of research universities in Hong Kong can be capitalized by a closer collaboration among research institutes, I&T industry, and businesses.

3.1.2 The lessons from the International reviews from various cross border collaborations also highlight the need for leveraging the comparatively advantaged sector for inter-city I&T collaboration. The cases from the Tokyo Bay and the New York Bay also displayed the common approach of combining the I&T and other industries as a new sector of the economy. FinTech is one of the highlighted potential sectors for Hong Kong’s I&T development by the DNA team as Hong Kong provides a mature financial market.

3.1.3 Shenzhen has a slight advantage which can be capitalized through collaboration in terms of having greater availability of land resources which allows them to create supporting I&T infrastructures such as incubation infrastructures, R&D spaces, prototype production and testing grounds etc. This helps to provide greater agility that reduces time and transport cost of the overall products in the process. The scarcity of land in Hong Kong and the process of overall planning and allocation of resources take much longer than that in Shenzhen. Hence, a suitable method of cross boundary collaboration in terms of sharing resources especially land for various types of infrastructures allows Hong Kong to fulfil the gaps in its I&T growth. The same applies to the mass production sector as well, where Hong Kong can use its limited land resources in the Northern New Territories and optimize land uses in the highly developed areas. Whereas Shenzhen has the ability to allocate these uses in the Eastern part of Shenzhen comprising of advanced production and manufacturing. Advanced production bases in HK and Eastern Shenzhen can play a role in automatic or precision manufacturing of chips or components, while Huizhou and Shanwei are expected to work on the assembling, packaging and other processes that would require more labour-intensive efforts.
3.1.4 Hong Kong also has higher market coverage around the world than Shenzhen in terms of commercialization and export of products. Hong Kong has greater global connection and international linkages to various cities and their businesses around the world. Hong Kong is well connected to various parts of the world through continuous business interchange and trade. It provides a comparative advantage in commercializing relevant I&T research findings and products towards the foreign market. However, Shenzhen has the greater coverage and understanding of the mainland market. A close collaboration will allow commercialization of products in mainland as well as around the global market.

3.1.5 Hong Kong has the best among the best professional services in business, finance, legal and property rights consultations. In addition to that, Hong Kong is a base of international finance centre with a sounder legal system, free market economy and an overall environment for I&T businesses to grow as it increases the reach to international markets. The competence over the common law system and international practices of Hong Kong, as well as better regulations of market practices allow Shenzhen companies to establish their offices in Hong Kong.

3.1.6 Most stakeholders, especially planners, pinpointed the high potential of Northern Economic Belt and Western Hong Kong for high proximity to current I&T development in Shenzhen. Developing I&T sector in these areas not only could foster collaboration with Shenzhen, but it would also produce positive effect on the current job-housing imbalance problem. Further, stakeholders refer specifically to NDAs along the Northern Economic Belt proposed in HK2030+ as the potential growth area. For example, some suggested the possibility of having I&T sector development in Hung Shui Kiu NDA in response to the I&T development in the Western Shenzhen, such as the Qianhai area. Stakeholders also refer to brownfield sites near the NDAs as potential land resources for supporting further I&T development.

3.2 Opportunities from Shenzhen’s I&T Industry Positioning

3.2.1 The central and eastern regions of Shenzhen are positioned as an administrative, financial and C&C centre as well as a hub for eco-tourism and logistics respectively. Concurrently, the western region of Shenzhen including Nanshan, Baoan and Guangming districts serves as a core area for high-tech and R&D and focuses on the production of the I&T value chain (Shenzhen UPLRC, 2010). Many established companies have already been operating their main operations from their headquarters at western region of Shenzhen. Western region of Shenzhen places itself as the key centre of higher innovation with actively promoting autonomous innovations and nurturing talents through various incentives. Qianhai as the centre of innovation and creating pathway for excellence in I&T sector in the western part of Shenzhen can provide financial and technological support to Hong Kong in establishing Fintech development.

3.2.2 Longhua and Longgang are developing into mature advanced manufacturing bases while Futian and Luohu are positioned as the commercial service centres to commercialize the high-tech products while also to leverage their high-quality urban environment to generate high-end innovation. Hong Kong having the comparative advantage of competitive tertiary education and strong research base can contribute by supporting the overall I&T chain through its breakthrough research. In addition to that, there is an opportunity to re-industrialize the Hong Kong industrial sector into modern industries and capitalize on the prosperous advanced manufacturing and accelerating technological innovation.
in central Shenzhen. Due to the close proximity to the central Shenzhen from Northern Hong Kong, there are opportunities to develop Northern HK to foster I&T development.

3.2.3 Analysing Eastern Shenzhen from the perspective of industrial chain, the three districts play distinctive role in forming a complete industrial chain. Dapeng district could be a base for research and development of life science industries. Pingshan district provides solid support of headquarter economy and manufacturing with its strong industrial production tradition. Finally, Yantian district works as a connector to mainland, HK and even international markets with its locational advantages and well-established port development. It is envisioned that the Eastern Shenzhen, with close collaboration of the three districts, could build together the Shenzhen international Bio Valley. Despite the current relatively lagged development status of Eastern Shenzhen, the clear positioning amongst districts and government’s Go East Strategy proves the development potential of Eastern Shenzhen, which could be implications to HK’s strategic land use and transport planning for supporting I&T sector development. Along with the growth of I&T in the Northern parts of Hong Kong, there are opportunities to go beyond the administrative boundaries of Shenzhen towards east such as Huizhou.

3.2.4 In short, different districts in the three regions of Shenzhen has different positionings in terms of focused I&T industries and production chain functions (see figure 3.2.1 and 3.2.2). Cross-boundary collaboration between HK and Shenzhen should take into account their respective comparative advantages for achieving greater synergy effect and sustainable I&T oriented development.

![Figure 3.2.1 Positioning of different districts in Shenzhen in I&T production chain (Source: Study Team)](image-url)
3.3 The I&T Ecosystem

3.3.1 Riding on the growing momentum to develop I&T in Hong Kong, HKSTP is doubling down on its efforts to expand and empower the innovation and technology ecosystem through a series of targeted strategic initiatives (HKSTP Annual Report, 2017/18). The Hong Kong Science and Technology Park serves as a catalyst to the businesses and start-up in their attempt of expansion to the local and global market. The HKSTP helps bring together various stakeholders from educational institutes, government, R&D communities, business enterprises and start-ups to convert the cutting-edge research in this sector into commercialized and marketable products.

3.3.2 The six sectors of creating an I&T ecosystem are the (1) Investment in the private sectors, (2) providing policy support to the education and research, (3) infrastructure development, (4) talent support, (5) building an innovative culture and (6) adopting the I&T industry into the current system. The HKSTP has been continuously making effort in these sectors to create a sustainable I&T ecosystem in Hong Kong.
3.4 Land Use Requirements of the I&T Sector

3.4.1 From the study and researches on the different types of industries that are currently operating in Shenzhen, the I&T ecosystem or whole production chain in Shenzhen is more complete than that in Hong Kong. Hong Kong has been lacking in some of the sectors in completing the ecosystem such as infrastructure, talent and industry adoption. Among these, the most important is to provide further required infrastructure to support the growing I&T sector in Hong Kong. From the strong research and innovation breakthrough to the commercialized product, there are certain related infrastructural requirement of the I&T sector. In Hong Kong, the following types of industries have the greatest probabilities in light of the opportunities of collaboration with Shenzhen. Table 3.4.1 below discusses the various I&T industries and their land use requirements. It helps to identify the type of land that needs to be provided to support these industries through our spatial strategy. In addition to that, the table also highlights the need of each industry in terms of its locational characteristics.
<table>
<thead>
<tr>
<th>4 Areas of Strength of HK</th>
<th>Related I&amp;T infrastructure</th>
<th>Location requirement</th>
<th>Benefitting Services and Industries</th>
</tr>
</thead>
</table>
| AI and Robotics          | Labs and open testing areas, data centre, R&D and Office space, prototyping & production | • Low cost of rent  
• Proximity to existing communities with appropriate facilities  
• Good transport connection to marketing spaces  
• Proximity to data centre | Advanced manufacturing (Re-industrialization)  
Business development  
Smart City development  
Investment and banking services  
Food and life science, Medical and healthcare development |
| ICT, Electronics and software development | R&D and Office spaces, data centre, prototyping & production | • Good transport connection to business marketing spaces and CBD |                                                                                                    |
| FinTech                  | Office and Marketing spaces, prototyping & production            |                                                                                      |                                                                                                    |
| Biotech and Healthcare   | Clinical centers and labs, R&D and Office space, prototyping & production | • Proximity to hospitals, medical schools, research institutes                       |                                                                                                    |

Table 3.4.1 Facilities and locational requirements the I&T sector (Source: Study Team, consolidated from various sources)
4. Spatial Recommendation

4.1 Planning Principles

4.1.1 Building upon the proposed vision and the findings from the previous stages regarding the opportunities derived from cross-boundary collaboration between Hong Kong and Shenzhen in I&T sector development, the following lists the key planning principles that form the basis of the spatial recommendations provided in this report.

1. Harness the regional comparative advantage of HK with regard to opportunities from collaborating with Shenzhen in long run.
2. Harness and strengthen existing I&T land uses and actors; Provide value-adds to planned developments and policy initiatives; Recognize and explore other potential growth / support areas.
3. Maintain a comprehensive and efficient transport network to facilitate the connection among proposed clusters and with other key territorial development nodes.

4.2 Strategic Actions

4.2.1 Three strategic actions for formulation of spatial recommendations are listed below:

- Develop I&T-oriented development clusters in the northern part of Hong Kong to strengthen cross-boundary collaboration with Shenzhen.
- Strengthen the role and positioning of existing industrial estates as key supporting bases for I&T development and economic diversification.
- Link up major business cores, new development areas and transport nodes with an integrated transport network.
4.3 Spatial Analysis

4.3.1 Our vision of bringing about a sustainable and technology-driven future is supported by the spatial conceptual framework shown in figure 4.3.1 below, in which a ‘ring’ of I&T-oriented development comprised of four clusters and numbers of supporting nodes are proposed. It is believed that all clusters and nodes locating on the three corridors in Hong Kong, namely the Collaborative I&T Corridor in the north, Knowledge and Technology Corridor in the east and International Economic Corridor along the southern side, are connected spatially and able to create a synergy effect and build a sustainable and technology-driven future with provision of diversified employment opportunities and better living quality, also by grasping the collaboration opportunities with Shenzhen.

Figure 4.3.1 Conceptual Framework (Source: Study Team) [the enlarged version is available at Appendix 6]

4.3.2 In the conceptual spatial framework, nodes situated within clusters or along the corridors are either current or potential key development areas to support an I&T-oriented development. The four Clusters, namely Northwestern I&T and Business Cluster, Northern Research and Education Cluster, Northeastern I&T Cluster, and Bases, and Eastern Research and Education Base, are assembly of several key nodes that play complementary roles to one another. It is expected that the major functions of the I&T production chain, including R&D, manufacturing and commercialization, could be provided by nodes within clusters for achieving a certain degree of synergy within clusters. However, through understanding the comparative advantages of different clusters, complementary relationships between clusters and nodes could be highlighted and greater synergy effect could be achieved when connectivity between clusters is guaranteed with the provision of adequate transportation infrastructure (see figure 4.3.2).
4.3.3 For example, the Northern Research and Education Cluster, situating at the middle of the Collaborative I&T Corridor, is able to offer fundamental research support and talents to Northwestern I&T and Business Cluster and Northeastern I&T Cluster at its adjacent sides while these two clusters are providing start-up opportunities, commercial and professional services support accordingly.

4.3.4 On top of the more micro-level complementary relationships amongst clusters and nodes within specific Corridors, the three conceptual Corridors highlight a more macro-level synergy effect accomplished in the whole Hong Kong with Hong Kong-Shenzhen cross-boundary collaboration.

4.3.5 Locating adjacent to Shenzhen, the Collaborative I&T Corridor in the north is characterised by the collaborative development with different regions of Shenzhen and even other cities in GBA, such as Dongguan and Huizhou. The planned and potential new development areas, which have been put into three clusters, would be harnessed to encourage cross-boundary I&T collaboration and knowledge transfer with the provision of a variety of I&T-related infrastructures ranging from research and education base, advanced manufacturing, to business and commercial centre with comprehensive residential and community support.

4.3.6 On the other hand, the Knowledge and Technology Corridor in the East is characterised by the potential of harnessing existing strength of established research and education institutes, commercial centre and manufacturing base. Facilitation of knowledge transfer and encouragement of local research breakthroughs are achieved by better connecting mature research and education institutes to I&T incubators, and with support of advanced manufacturing and prototyping infrastructures, and commercialisation opportunities.
4.3.7 Further, the International Economic Corridor that connects Collaborative I&T Corridor and Knowledge and Technology Corridor is characterised by its role of being the international gateway. This Corridor brings local and cross-boundary collaboration synergies from I&T sector development to the international arena through further creating a pro-business environment for local and foreign enterprises, while maintaining efficient local, regional and global transport connection among current and future major development nodes.

4.3.8 To sum up, this 'ring' of spatial conceptual framework aims to create a sustainable and technology-driven future by driving cross-boundary I&T collaboration and harnessing existing global strength, both in terms of I&T and general economic development, of HK. The clear positioning of clusters and key nodes (figure 4.3.3) ensures the creation of synergy effect in the larger context.

4.3.9 In the following section, details of spatial recommendation, including potential impacts and expected phasing, as well as overall transport proposal would be discussed.

Figure 4.3.3 below shows the main roles of different clusters and development nodes.

Figure 4.3.3 Roles of different clusters and development nodes (Source: Study Team)

4.4 Northwestern I&T and Business Cluster

4.4.1 Overview

4.4.1.1 Locating at the joint of Collaborative I&T Corridor and the International Economic Corridor, the Northwestern I&T and Business Cluster signifies how cross-boundary collaboration could further enhance the synergy in I&T sector development across segments of production chain, ranging from
advanced manufacturing, R&D and commercialisation. This cluster is especially focused on the potential synergy between I&T sector development and business development for having the future territorial business centre and future close connection with Qianhai and Western Shenzhen.

4.4.1.2 The Northwestern I&T and Business Cluster comprises of two key nodes, namely the Hung Shui Kiu New Development Area (HSK NDA), and the Yuen Long Industrial Estate (YLIE) and planned extension in Wangchau (see figure 4.4.1).

Figure 4.4.1 Cluster map showing the area of each node and their related I&T industries
(Source: study team)

4.4.2 Role and positioning

4.4.2.1 With close proximity to the Shenzhen Bay Boundary Control Point (Shenzhen Bay BCP), the cluster is envisioned to be a facilitator in cross-boundary I&T collaboration with Western Shenzhen, especially Qianhai focusing on Fintech industry development. Acknowledging the fact that western Shenzhen is a critical innovation powerhouse in the context of GBA, as reflected by the GBA I&T Corridor (figure. 4.4.2) proposed by the People’s government of Guangdong Province; closer Hong
Kong-Shenzhen I&T collaboration could create a synergy in I&T development by allowing both sides to harness their comparative advantages in terms of positionings in the production chain. Nanshan District could provide applied research support, Guangming New District could provide advanced manufacturing support and the neighbouring city Dongguan could provide mass production support. Further, being strategically located near Shenzhen Bay BCP, a major node for cross-boundary traffic at the western Shenzhen under the “East in East out, West in West out” (東進東出，西進西出) principle proposed in the Shenzhen Comprehensive Plan (Planning Department (PlanD), 2003), closer cross-boundary collaboration could be better supported in the area.

![GBA I&T Corridor](Source: Newsgd.com, 2017)

**4.4.2.2** Apart from being a facilitator in cross-boundary I&T collaboration, this cluster plays the role of being the I&T and Business cluster that supports the Collaborative I&T Corridor with commercial and professional services and modern logistics services, and more importantly as a gateway to both mainland and international market by harnessing HK’s existing global connection and cross-boundary collaboration in commercialisation and access to mainland market.

**4.4.2.3** Considering the existing industry across the boundary and along the Collaborative I&T Corridor, the Northwestern I&T and Business Cluster would focus on Fintech and modern logistics industry, supported by other related I&T industries such as AI and robotics, Information, Communication and Technology (ICT), software development and big data to utilise its locational advantage on being the territorial business and commercial centre and regional distribution centre and logistics hub (Town
While most development would be taken place in the HSK NDA, the YLIE and future expansion in Wangchau could provide additional support in advanced manufacturing and prototyping, and to supplement the potential need on space for incubators of start-ups. Details of two nodes would be discussed below.

4.4.3 HSK NDA

4.4.3.1 Introduction
4.4.3.1.1 The total land area of HSK NDA is about 714 ha, with 441 ha being the development area for various land uses ranging from residential, commercial, industrial and special industrial uses to open space (PlanD & Civil Engineering and Development Department (CEDD), 2016).

4.4.3.1.2 HSK NDA, according to the OZP, is positioned to be the ‘Regional Economic and Civic Hub’ of the Northwestern New Territories (NWNT) region that provides commercial and economic land uses, coupled with a considerable amount of private and public housing supply from medium to high density residential development (TPB, 2018).

4.4.3.1.3 Apart from positioning itself as the commercial centre, another proposed development focus complement HK’s role of ‘Regional Distribution Centre and Logistics Hub’ with the locational advantage of HSK NDA, which is closely connected to the Shenzhen Bay BCP and Hong Kong International Airport (HKIA). A total of 33.34 ha land has been designated for the development of modern logistics facilities as ‘OU(LF)’ zone, and 24.80 ha of land has been designated for ‘Port Back-up, Storage and Workshop Uses’ for providing support to the development of logistics industry in the HSK NDA (PlanD & CEDD, 2016).

4.4.3.1.4 On the other hand, considering I&T sector development being the future driving force for a sustainable and diversified economy, 9.97ha land has been designated as for the development of enterprise and technology park that accommodate various innovation and technology uses such as research centre and data centre. Although the size of land is comparatively smaller than other land uses (see table 4.4.1) or other technology park in HK like HKSTP(33 ha), flexibility is allowed for accommodating innovation and technology uses in the ‘OU(LF)’ zone in response to the possible future increase in I&T land uses.

4.4.3.1.5 Further, an area of 15.07 ha has been designated as industrial land use for the development of production-oriented industries, information technology, and telecommunications industries. Table 4.4.1 below shows the breakdown of land uses under the approved OZP of HSK NDA.
Table 4.4.1 Breakdown of land uses under the approved OZP of HSK NDA

<table>
<thead>
<tr>
<th>Area</th>
<th>Breakdown of land uses under the Approved OZP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hung Shui Kiu and Ha Tsuen</td>
<td></td>
</tr>
<tr>
<td>(Approved OZP No. S/HSK/2)</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>24.12 ha</td>
</tr>
<tr>
<td>R(A)</td>
<td>69.44 ha</td>
</tr>
<tr>
<td>R(B)</td>
<td>18.10 ha</td>
</tr>
<tr>
<td>R(C)</td>
<td>0.40 ha</td>
</tr>
<tr>
<td>OU(Mixed Use)</td>
<td>13.34 ha</td>
</tr>
<tr>
<td>I</td>
<td>15.07 ha</td>
</tr>
<tr>
<td><strong>OU(E&amp;TP)</strong></td>
<td><strong>9.97 ha</strong></td>
</tr>
<tr>
<td><strong>OU (LF)</strong></td>
<td><strong>33.34 ha</strong></td>
</tr>
<tr>
<td>OU(PBU&amp;SWU)</td>
<td>24.80 ha</td>
</tr>
<tr>
<td>G/IC</td>
<td>68.52 ha</td>
</tr>
<tr>
<td>O</td>
<td>99.11 ha</td>
</tr>
</tbody>
</table>

Source: Study Team (consolidated from (Town Planning Board, 2018))

4.4.3.2 Role and Positioning

Within the comprehensive plan of the HSK NDA, this node is proposed to facilitate commercial and I&T collaboration and radiate the benefits of knowledge-driven economy to the NWNT region. Its major roles are summarised below:

a. As an international gateway of the cluster and the Collaborative I&T Corridor by being the regional commercial and business center, and providing logistics service to connect different markets (western Shenzhen and GBA, as well as international market)
b. As a facilitator to enhance cross-border collaboration, especially in terms of commercialisation and professional services
c. As an incubator and accelerator for I&T start-ups and firms, supported by a variety of housing options and amenities
4.4.3.3 Specific I&T industries, services and production

While it is stated in the OZP that Modern Logistics, which is to apply innovation and technology in the traditional logistics industry, would be one of the focused industries in the HSK NDA, other I&T industries have not been proposed despite a clear inclination to develop Fintech industry in the future territorial commercial and business centre. This is a list of specific I&T industries, services and production to be developed in the HSK NDA:

a. Fintech
   i. Harness the positioning of being the territorial commercial and business centre in the NWNT and comparative advantage of Qianhai in the well-established Fintech industry development.

b. Modern Logistics
   i. Support value-added logistics arrangement of high-end products to and from western Shenzhen, and western part of GBA.

c. Other supporting industries for better development of Fintech and Modern Logistics, including AI and robotics, and ICT, big data and software development, and advanced manufacturing

d. Commercialisation and professional services - provide services such as patent application and marketing and financial services for bringing R&D results to the markets

4.4.3.4 Evaluation of current OZP and proposed actions for improvement

4.4.3.4.1 Current OZP of HSK NDA offers a desirable mix of land uses for supporting I&T development with necessary services and production, with certain flexibility allowed in accommodating possible increase in I&T development in the future. For example, I&T uses such as 'Research, Design and Development Centre' and 'Creative Industries' are listed as 'Uses that may be permitted with or without conditions on application to the Town Planning Board' in the land use zoning of 'OU(LF)'. Although the comparatively small land size for enterprise and technology park could still be a possible development constraint in the HSK NDA, it is believed that more office space and other supporting facilities could be supplemented by the nearby YLIE and extension located within cluster, which would be discussed in the later sections.

4.4.3.4.2 Further, cross-boundary collaboration could be facilitated under the current plan as related I&T industries, such as Fintech to be developed with supporting industries within NDA and opportunities for exchange and collaboration with Qianhai. Different components of I&T production chain, ranging from R&D to production and commercialisation, locating in western Shenzhen and beyond could be utilised given the proximity to BCP.

4.4.3.4.3 One proposed action for improvement is to further enhance transportation connectivity between western Shenzhen with HSK NDA by providing a railway connection arriving at Shenzhen Bay to seamlessly connect to the Shenzhen metro for higher population mobility. This proposed action would be discussed in later part.
4.4.4 Yuen Long Industrial Estate and its extension in Wangchau

4.4.4.1 Introduction

4.4.4.1.1 The existing YLIE has approximately 67 ha (Legislative Council (LegCo), 2017), while the proposed YLIE extension in Wangchau has an approximate area of 15 ha (LegCo, 2018).

4.4.4.1.2 The existing YLIE is zoned as 'OU(Industrial Estate)' under current OZP (Town Planning Board, 2016). The occupancy rate of YLIE is over 90% with around 6% of land (4.35 ha) left vacant (LegCo, 2017). Majority of industries within the YLIE are biotechnology & pharmaceutical companies (17.5%) while other non-I&T industries such as food & beverages and printing & publishing are also common, as shown in Figure 4.4.3 (GovHK, 2017).

Figure 4.4.3 The distribution of selected industries and vacant sites within YLIE (Source: Study Team, consolidated from (HKSTP, 2018c))
4.4.4.2 **Role and Positioning**

Within an area of developed industrial infrastructure, YLIE and its extension are proposed to become a provider of prototyping and advanced manufacturing opportunities, both within cluster and across clusters, and an incubator for nurturing potential I&T start-ups.

4.4.4.3 **Specific I&T industries, service and production**

a. Advanced manufacturing and prototyping - transform research results into actual product, offer product design and prototyping services
b. Start-up facilities and incubators
c. Provide supporting services for applying I&T solutions to other industries that traditionally falling outside of I&T sector

4.4.4.4 **Proposed infrastructure or upgrade in existing infrastructure**

With an aim to foster smart production and supplement the HSK NDA I&T development, the YLIE is proposed to undergo major transformations:

- Utilising unused plot ratio for current I&T related industrial buildings: Currently only around 53% of current plot ratio (2.5) of YLIE is utilized. This suggests rooms for further development on the existing I&T related buildings, such as pharmaceutical industry, to accommodate more smart and advanced manufacturing facilities.

- Providing Start-up Facilities & Incubators: Understanding the possible land shortage in providing start-up facilities and incubators in the HSK NDA, it is expected that the YLIE extension, which is connected with direct railway by West Rail Line after the completion of HSK station, would supplement the shortage and thus better support a sustainable I&T development within the cluster with the advantage of advanced manufacturing and prototyping opportunities.

- Building Advanced Manufacturing Centres and I&T Solution Centre: Targeting at re-industrialisation, more support in terms of advanced manufacturing opportunities and I&T solutions for industries traditionally unrelated to I&T sector are needed. Seeing such need, it is proposed to utilise vacant sites located within existing YLIE in the short term, or the future YLIE extension in Wangchau for building these centres that offers office space and 'smart' manufacturing facilities for a better provision of technical support, commercialisation and professional services.

4.4.4.5 **Cluster-wide Accessibility**

4.4.4.5.1 **Current accessibility:** Currently, the nodes within the Northwestern I&T and Business Cluster is covered by comprehensive transportation network, both in terms of road and railway connections. For railway connection, the West Rail Line (Long Ping Station connecting YLIE) combined with light rail line (HSK Station connecting to Tin Shui Wai and Yuen Long West Rail Station). For road connections, major highways such as Yuen Long Highway and Castle Peak Road are linking the two nodes together with the support of other local distributors. A number of franchise buses and minibus routes cover the two nodes.

4.4.4.5.2 **Planned connection:** With the major anticipated source of increase in traffic demand coming from the increase of 218,000 population and 150,000 job opportunities in HSK NDA (PlanD & CEDD, 2016),
new Hung Shui Kiu West Rail Station locating between Tin Shui Wai and Siu Hong West Rail Stations would be built to cater the increase in traffic demand (figure 4.4.4).

4.4.4.5.3 **Proposed enhancement**: While the transportation connection amongst nodes and the greater NWNT region is considered to be adequate, additional railway linking HSK to Shenzhen Bay BCP is proposed as a further enhancement for facilitating cross-boundary collaboration. Previously reflected by an interviewed I&T entrepreneur that swift and seamless connection between Qianhai and Hong Kong is desirable, especially for start-up entrepreneurs who take advantage of lower operation costs across boundary and better professional services and other support in Hong Kong. Seeing closer cross-boundary collaboration as a major driving force for a knowledge-driven economy in Hong Kong, providing a seamless railway connection from HSK West Rail Station to Shenzhen Bay metro station is the way for creating greater synergy in terms of cross-boundary collaboration and development.

![Figure 4.4.4 Map showing existing and proposed traffic enhancement within and beyond Northwestern I&T Cluster (Source: Study Team)](image-url)
4.4.4.6 Development Issues

- Land acquisition could be a potential challenge as a number of brownfield sites is concerned.

- A certain proportion of space is needed to be dedicated to accommodating the existing brownfield uses, which gives lower flexibility in accommodating other uses that could better match the positioning of the cluster. For example, a large area in HSK NDA is dedicated to Logistics and other brownfield operations in the OZP for accommodating the existing brownfield operations.

- Current land use zonings of the YLIE extension in Wangchau are ‘Open Storage’ and ‘Green Belt’, which do not allow industrial use, and other I&T land uses.

4.4.4.7 Summary of nodes in Northwestern I&T and Business Cluster

4.4.4.7.1 The Northwestern I&T and Business Cluster focused on the potential synergy between I&T sector development and business development for having the future territorial business centre and future close connection with Qianhai and Western Shenzhen.

4.4.4.7.2 It is envisaged to be a facilitator in cross-boundary I&T collaboration with Western Shenzhen, especially Qianhai focusing on Fintech industry development.

4.4.4.7.3 By supporting the Collaborative I&T Corridor with commercial and professional services and modern logistics services, this cluster plays the role of being the I&T and Business cluster. More importantly, it acts as a gateway to both mainland and international market by harnessing HK’s existing global connection and cross-boundary collaboration in commercialisation and access to mainland market.
4.5 Northern research and education cluster

4.5.1 Overview

4.5.1.1 Locating in the middle of Collaborative I&T Corridor, the Northern Research and Education Cluster serves as an international research and education foundation for driving the I&T development of Hong Kong. Fundamental research, coupled with applied research and commercialisation and professional services for faster and better commercialisation of research and development (R&D) results, are the impetus for the I&T-oriented development. With proximity to I&T related development nodes in central Shenzhen and connections to other parts of Shenzhen and GBA, a larger synergy effect would be created in the northern research and education cluster by letting both cities to leverage on comparative advantages.

4.5.1.2 The Northern Research and Education Cluster comprises of one key node, the Hong Kong-Shenzhen Innovation and Technology Park (HSITP) developed at the Lok Ma Chau Loop (LMCL) area, and two supporting nodes, namely the Kwu Tung North (KTN) NDA, and the San Tin/Lok Ma Chau (ST/LMC) node (see figure 4.5.1)

Figure 4.5.1 Cluster map showing the area of each node and their related I&T industries (Source: study team)
4.5.2 **Role and Positioning**

4.5.2.1 The cluster is positioned to be the fundamental research base and source of innovation, as supported by top-tier higher education institutions, R&D institutions and mature enterprises in the cross-boundary collaboration platform. With the agreement on co-developing the ‘Shenzhen/Hong Kong Technology and Innovation Cooperation Zone’ (see figure 4.5.2), frequent and large-scale cross-boundary collaborations between Hong Kong and central Shenzhen is expected, resultant in cluster formation and synergy effects (Wang, 2017). Hong Kong - Shenzhen Innovation and Technology Park (HSITP) would be the major node in the cluster to harness the comparative advantages of both cities by establishing an inter-city cooperation platform.

4.5.2.2 On the other hand, the cluster is positioned to develop an integrated I&T ecosystem by adopting a triple-helix development approach that links academia, industry and government together in facilitating I&T development. While fundamental research is necessary for providing a foundation of I&T development, other components of the I&T production chain including prototyping and commercialisation of R&D results are also crucial for sustainable I&T development. Further, provision of residential units and favourable living environment is important for attraction and retention of I&T talents. It is hoped that the three nodes located within the cluster could formulate a small-scale, basic integrated system while larger synergy effect could be actualised with the inter-clusters and inter-corridors collaborations in Hong Kong, as well as cross-boundary collaborations between Hong Kong and Shenzhen. Details of the three nodes would be discussed below.

![Figure 4.5.2 Two IT Parks (Left: managed by Shenzhen; Right: managed by Hong Kong) in the Shenzhen/Hong Kong Technology and Innovation Cooperation Zone (Source: Study Team, consolidated from (PlanD and CEDD, 2017))](image-url)
4.5.3 Hong Kong-Shenzhen Innovation and Technology Park (HSITP)

4.5.3.1 Introduction

4.5.3.1.1 The total land area of HSITP is about 87.7 ha, with the provision of around 1.2 million square meter (sq.m.) maximum total gross floor area (GFA) for I&T uses, including 720,000 sq.m. GFA for higher education use and 411,000 sq.m. GFA for high-tech R&D and cultural and creative (C&C) use (PlanD and CEDD, 2017).

4.5.3.1.2 Under the current OZP, the HSITP is envisioned to be an ‘IT Park with a mix of R&D, higher education and C&C uses’ that supported by commercial, government, institution and community facilities (Town Planning Board, 2018). The three major land uses, namely R&D, education and C&C uses, are zoned under the same land use zoning of ‘OU(R&D, Education, and C&C Industries)’ for allowing greater flexibility in a total of 38.6 ha of land in the HSITP, and supporting facilities, including office and residential institution, would be provided within this zone. Despite the intended flexible arrangement, more land area would be dedicated for establishing a strong research base, which is better supported by higher education and research institutions but not I&T enterprises, as suggested by the ‘Memorandum of Understanding on Jointly Developing the Lok Ma Chau Loop by Hong Kong and Shenzhen’ signed between the Hong Kong and Shenzhen governments (GovHK, 2017).

4.5.3.1.3 Prototyping facilities or other industrial uses for supporting I&T development could be accommodated since ‘industrial use’ is listed as ‘Uses that may be permitted with or without conditions on application to the Town Planning Board’ under the ‘OU(R&D, Education, and C&C Industries)’ zoning.

Table 4.5.1 Breakdown of land uses under the Approved OZP of HSITP (as known as the LMCL area)

<table>
<thead>
<tr>
<th>Area</th>
<th>Breakdown of land uses under the Approved OZP</th>
</tr>
</thead>
</table>
| Lok Ma Chau Loop (HSITP as the IT park developed on this site) (Approved OZP No. S/LMCL/2) | C - 1.23 ha  
G/IC - 3.95 ha  
O - 18.18 ha  
**OU(R&D, Education, and C&C Industries)** - 38.6 ha  
OU(Ecological Area) - 12.8 ha  
CA - 16.34 ha |

Source: Study Team (consolidated from (Town Planning Board, 2018b))
4.5.3.2 **Role and Positioning**

4.5.3.2.1 Within the plan of HSITP, this node is proposed to facilitate cross-boundary I&T collaborations, which offer opportunities for harnessing comparative advantages of both cities, in purpose of encouraging the development of a knowledge-driven economy in Hong Kong and especially the northern region. Its major roles are summarised below:

1. As a fundamental research base and source of innovation, as supported by higher education, R&D and C&C uses in the HSITP

2. As a cross-boundary collaboration facilitator to encourage knowledge exchange for building a platform and foundation to gather innovations and nurture collaborative development

4.5.3.3 **Specific I&T industries and services**

4.5.3.3.1 Under current OZP, robotics, biomedicine, smart city and Fintech are listed as the potential areas for development considering existing research strengths and development needs of Hong Kong. On top of these potential areas, other branches of life science industry, such as biotechnology and healthcare, and ICT could be other potential areas for development considering the potential synergy in collaborating with the Shenzhen I&T park locating at adjacent location. Commercialisation and professional services, and prototyping facilities should be provided within the node in order to support commercialisation of R&D results.

4.5.3.4 **Proposed actions for improvement**

4.5.3.4.1 The current spatial planning for the development of HSITP could sufficiently support HSITP to fulfil its proposed role and become a strong I&T node to encourage I&T development. However, the potential synergy effect supposedly created with close collaboration in the Shenzhen/Hong Kong Technology and Innovation Cooperation Zone may not be actualised due to the differences in development pace. The Shenzhen I&T park has already confirmed the detailed design and a total of eleven I&T projects, including the establishment of some research centres and laboratories, which have been confirmed to be included in the Shenzhen I&T park development (Shenzhen Government Online, 2019). On the contrary, the HSITP is still undergoing the site formation process and expecting detailed design of the park be completed by the year 2023.

4.5.3.4.2 Seeing the difference in development pace of the two I&T parks, it is necessary for HSITP to review the current implementation schedule, at the same time coordinate with the Shenzhen government for having better cross-boundary collaboration in the Shenzhen/Hong Kong Technology and Innovation Cooperation Zone.
4.5.4 Hong Kong-Shenzhen Innovation and Technology Park (HSITP)

4.5.4.1 Introduction

4.5.4.1.1 The KTN NDA covers an area of 447 ha and would accommodate approximately 119,600 population and offer 33,300 employment opportunities upon full development (Development Bureau (DevB), 2014).

4.5.4.1.2 The KTN NDA is expected to be a ‘Mixed Development Node’ with a mix of residential, commercial and R&D uses, coupled with retail and services, community facilities and land for ecological conservation for improving liveability and environmental harmony.

4.5.4.1.3 Focusing on the economic development of KTN NDA, I&T sector is the key driver of the 11.7 ha Business and Technology Park locating at the southeastern part. It is positioned to be the key economic and employment node in the KTN NDA. Further, a piece of 5.8 ha ‘OU(R&D)’ land locating near the proposed Eastern Connection Road, which links from northern part of KTN NDA to southeastern part of LMCL, is expected to provide R&D support to the HSITP (TPB, 2015).

4.5.4.2 Role and Positioning

4.5.4.2.1 With close proximity to HSITP, I&T-oriented economic development is expected in the KTN NDA. While HSITP is positioned to be the research and education foundation that attracts top notched I&T enterprises, a potential shortage in land and facilities for incubating I&T startups is expected. KTN NDA could therefore be positioned as an incubator of I&T startups and supporter for R&D activities in the HSITP.

4.5.4.2.2 Further, the KTN NDA could provide different types of housing with desirable living environment that could supplement the HSITP in terms of housing supply for I&T talents when limited number of residential institutions would be provided in the HSITP.

4.5.4.3 Specific I&T industries and services

4.5.4.3.1 Positioned to be a supporting node to the HSITP, KTN NDA could provide R&D support, particularly in life science and application due to its vicinity to the abundant natural resources.

4.5.4.3.2 On the other hand, setting I&T start-up incubators and providing commercialisation and professional services in the Business and Technology Park are necessary for commercialisation of R&D results generated in the HSITP.
4.5.5 **San Tin/Lok Ma Chau (ST/LMC) Node**

4.5.5.1 **Overview**

4.5.5.1.1 The ST/LMC area, which covers an area of 175 ha, has a high redevelopment potential for the current 60 ha low value-added brownfield uses and proximity to LMC spur line and LMC BCP. Approximately 55,000 population and 80,000 employment opportunities could be created in the area if full redevelopment takes place (PlanD and CEDD, 2016).

4.5.5.1.2 Locating near the BCPs and Futian central district where strong financial development is found, ST/LMC node is expected to have cross-boundary business and commercial development coupled with the I&T development brought by the neighbouring HSITP.

4.5.5.2 **Role and Positioning**

4.5.5.2.1 ST/LMC node, with possibility of having strong cross-boundary business and commercial development, is positioned as a key provider in commercialisation and professional services, and an incubator of I&T start-ups within cluster to the HSITP.

4.5.5.2.2 On the other hand, ST/LMC node could provide housing to support the HSITP where limited number of residential options could be provided, also the node itself for better talent attraction and retention.

4.5.5.3 **Specific I&T industries and services**

- Offering general support to I&T industries, particularly Fintech, that are the development focuses of HSITP.
- Providing I&T startups incubation, coupled with commercialisation and professional services in the proposed enterprise and technology park are necessary for commercialisation of R&D results generated in the HSITP.

4.5.5.4 **Proposed infrastructure**

- An enterprise and technology park within the node could provide affordable office space for startup incubation as well as provision of commercialisation and professional services to support I&T development in the cluster

- A mix of public and private housing stock at different flat size to cater various housing needs
4.5.6  **Cluster-wide Accessibility**

4.5.6.1 **Current accessibility:** Currently the cluster is linked mainly by road network, with LMC spur line connecting LMC station to the existing East Rail Line. Public road transportation in forms of franchise bus and mini buses is available. The cluster is also linked to new towns in New Territories West with the provision of San Tin Highway. In general, the current level of accessibility is acceptable but rooms for improvement are observed, especially concerning the connection with LMCL area where more economic activities are expected to take place in the future.

4.5.6.2 **Planned Connection:** Considering the huge increase in traffic demand brought by the development of the three nodes, construction of Northern Link that connects West Rail Line from Kam Sheung Road to the cluster at San Tin and Kwu Tung stations, and connects to East Rail Line is planned. Further, the building of Eastern Connection Road linking HSITP and the KTN NDA and other improvement works on existing roads at the west of HSITP, could effectively improve connectivity between HSITP and other nodes.

4.5.6.3 The planned connection could be sufficient in handling the increase in traffic demand and there is no urgent need for building new road and railway for the cluster. However, shuttle bus service serving the entire cluster is considered important in order to facilitate population mobility within the area with the absence of railway station in the HSITP.
4.5.7 Development Issues

4.5.7.1 Land acquisition could be a potential challenge as a number of brownfield sites is concerned, especially in the ST/LMC area where 65 ha land area are brownfield sites for logistics industry (DevB, 2019).

4.5.7.2 A certain proportion of space is needed to be dedicated to accommodating the existing brownfield uses, which gives lower flexibility in accommodating other uses that could better match the positioning of the cluster. For example, in the ST/LMC area, existing brownfield uses for logistics should be provided in the ST/LMC area after redevelopment if current users are reluctant to move.

4.5.7.3 Strict building height and plot ratio requirements were set due to ecological concern, for the case of LMCL where HSITP located, potential difficulties in developing mixed use buildings is present and hence less GFA can be generated for supporting future development.
4.5.8 **Summary of nodes in Northern Research and Education Cluster**

4.5.8.1 With proximity to BCPs and convenient accesses to central Shenzhen, a collaborative I&T-oriented development could be actualised in the Northern research and education cluster and hence benefitting other parts of Hong Kong.

4.5.8.2 Over 113,000 employment opportunities of different natures could be provided in the northern part of Hong Kong, in which a more diversified economy and a more balanced job-housing mix could be achieved.

4.5.8.3 A considerable amount of over 170,000 public and private housings are provided in an area with good urban design and careful consideration to the natural environment, which helps bringing high quality living environment.
4.6 Northeastern I&T Cluster

4.6.1 Overview

4.6.1.1 Situating at the junction of the Collaborative I&T Corridor at the north of Hong Kong and the Knowledge and Technology Corridor along the eastern side of Hong Kong, the Northeastern I&T Cluster (the Cluster) represents how inter-city collaboration in I&T development will also propel advancement in research breakthroughs of Hong Kong.

4.6.1.2 The Northeastern I&T Cluster contains two key nodes - (1) Ta Kwu Ling Science and Advanced Industrial Park and (2) Heung Yuen Wai Enterprise and Logistic Park; and two supporting nodes - (1) Hung Lung Hang Residential Zone, (2) Ping Che Residential and Commercial Zone; as depicted in figure 4.6.1.

Figure 4.6.1 Cluster map showing the area of each node and their related I&T industries (Source: study team)
4.6.2 **Role and Positioning**

4.6.2.1 The cluster is in close proximity to the Liantang Heung Yuen Wai Boundary Control Point (LT/HYW BCP), which is about to commence in operation by the end of 2019. In addition, the Luohu District Government has put forward the idea of the Great Wutong Emerging Industry Belt (the Belt) that spans across from Futian and Yinhu at the west to Yantian at the east as shown in figure 4.6.2 (Shenzhen Luohu District Investment Promotion Bureau, 2018). The Innovative Enterprise Incubator Area in Liantang where the Shenzhen Internet Industrial Park and Luohu High-tech Industrial Park located, is a booming district that thrives start-ups that focus on e-commerce and Internet-of-Things (IoT). The close geographical distance between the LT/HYW BCP and the Innovation Valley along the Belt implied greater synergy between the Northeastern I&T Cluster and the I&T endeavors in eastern Shenzhen. The Cluster is also situated in a strategic location that corresponds to the “Go East Policy” and connects Hong Kong to beyond eastern Shenzhen - Huizhou and Shanwei, the ideal location for mass production within the I&T production chain.

![Figure 4.6.2 The Great Wutong Emerging Industry Belt](Source: modified from Shenzhen Luohu District Investment Promotion Bureau, 2018)

4.6.2.2 The major roles of this cluster are to (1) support I&T start-ups and the triple-helix development approach by providing an integrated eco-system and a combination of science park, advanced manufacturing industries and commercial opportunities that connect innovations to business solutions; as well as (2) harness the close proximity to Eastern and Central Shenzhen to collaborate on relevant I&T industry.

4.6.2.3 Taking into account the existing industry across the boundary and along the Collaborative I&T Corridor, the Northeastern I&T Cluster will be an incubator for start-ups that focuses on life science, IT and e-commerce; coupled with prototyping and advanced manufacturing to actualise research results. It is estimated that the development of the Cluster is able to bring about the creation of 350,000 population and 215,000 employment opportunities (Planning Department, 2018).
4.6.3 Ta Kwu Ling Science and Advanced Industrial Park

4.6.3.1 Overview

4.6.3.1.1 The Ta Kwu Ling Science and Advanced Industrial Park (the TKL Park) encompasses an approximate area of 120 ha. The Park lies partly on the adjacent side of the connecting road to LT/HYW BCP, bounded by the Northeastern New Territories (NENT) landfills area to the north, Shui Ngao Tso to the east, Pak Hok Shan to the south.

4.6.3.1.2 The suggested area of the TKL Park is currently a combination of different rural types land use, including mostly agricultural land, green belt, village type development and open storage. Under the OZP of Ta Kwu Ling, the “residential institutions” use is permitted in column 2 land use, in a form of student hostels and staff quarters (Town Planning Board, 2010). The surrounding villages demonstrate unique local natural characters, such as the mural village of Ping Yeung, Robin’s Nest country park attracts local weekend visitors and provide a pleasant living surroundings. The hilly terrain and the majority of land to the west of NENT landfills are government land, suggesting the land acquisition period may potentially be shorter and hence renders the development period more efficient.

4.6.3.2 Role and Positioning

4.6.3.2.1 Within an area of close proximity to the Innovation Valley in Liantang, Ta Kwu Ling Science and Advanced Industrial Park will serve the following roles:

i. A facilitator to enhance cross-boundary collaboration with eastern and central Shenzhen on IT development;

ii. An incubator to nurture potential I&T start-ups in an integrated community with all-rounded provision of R&D support and prototyping opportunities; and

iii. A leader of the cluster by driving R&D advancement and propel the development of other related industries such as advanced manufacturing and commercialisation

4.6.3.3 Specific I&T industries and production

i. Life science - harness the existing research strengths of Hong Kong and as the main I&T development pillar

ii. ICT - complement with the existing I&T development focus in Liantang, and support such development with advance research in Hong Kong

iii. E-commerce - facilitate cross-boundary economic activities and complement one of the I&T industry in Lowu

iv. Advanced manufacturing - actualise research results, offer product design and prototyping services

4.6.3.4 Proposed Infrastructure

4.6.3.4.1 Science Park - With an aim to propel scientific and research advancement on life science and biotechnology, a series of research and development infrastructure such as laboratories, clinical facilities will be incorporated in the TKL Park to house world-class research and development institutes and attract talents from and beyond Hong Kong and Shenzhen. In addition, incubator and
accelerator facilities, co-working space and offices are suggested to be provided to nurture start-ups and young entrepreneurs. MICE facilities will also be offered in the Park for start-ups to showcase their ideas and connect them to market solutions. Such provision is also a response to the shortage of MICE in Hong Kong (ICF International, 2017). With residential institutions being permitted under column 2 land use of current Ta Kwu Ling OZP, an appropriate amount of staff quarters will be incorporated in the TKL Park as a form of affordable talent housing.

4.6.3.4.2 **Advanced Industrial Park** - Apart from the research and development related infrastructure, a range of precision and automated manufacturing, as well as prototyping facilities will be available in the TKL Park that allows researchers and scientists to bring their idea into reality.

4.6.4 **Heung Yuen Wai Enterprise and Logistic Park**

4.6.4.1 **Overview**

4.6.4.1.1 The Heung Yuen Wai Enterprise and Logistic Park (the HYW Park) encompasses an approximate area of 50 ha. The HYW Park is located at the immediate vicinity to the Shenzhen river to the north and west, Ping Che Road to the south, connection link of HYW BCP to the east and Lo Shue Ling to the west.

4.6.4.1.2 The suggested area of the HYW Park is currently a combination of different rural type land use, including mostly agricultural land, village type development and recreation land use. Under the OZP of Ta Kwu Ling North, the “residential institutions” use is permitted in column 2 land use of recreation and village type development, therefore appropriate amount of housing stock can be implied in a form of student hostels and staff quarters (Town Planning Board, 2016).

4.6.4.2 **Role and Positioning**

4.6.4.2.1 Situated at the immediate proximity to the LT/HYW BCP and related industries (e.g. IT, software development) across the boundary, the HYW Park is positioned to act as a testing ground for cross-boundary synergy with the specific roles below:

i. Harness the close proximity to Shenzhen and different BCPs as a NTN logistics hub that serves as a connector that links northern part of Hong Kong to central and eastern Shenzhen

ii. Support the research results from the Ta Kwu Ling Science and Advanced Industrial Park with cross-border enterprise and commercialisation services

iii. Promote technology and high-value added services in logistics that target destinations in central and eastern Shenzhen, as well as the Eastern part of GBA (i.e. Huizhou and Shanwei)
4.6.3 **Specific I&T industries, services and production**

i. Cross-boundary enterprise and commercialisation services - provide professional services such as patent application, marketing and financial services, legal advice, insurance and other professional services, etc. to connect research and development breakthroughs to the market.

ii. Modern logistics - support value-added logistics arrangement of high-end products to and from central and eastern Shenzhen, and the Eastern part of GBA

4.6.4 **Proposed infrastructure**

4.6.4.1 A range of different serviced office space and commercial units is proposed in the HYW Park to support enterprises of various scales and nature. Combining a series of intermodal infrastructure and automated logistics facilities, the HYW Park can deliver high value-added and one-stop integrated services that support innovation and R&D advancement.

4.6.5 **Hung Lung Hang Residential Zone & Ping Che Residential and Commercial Zone**

4.6.5.1 **Overview**

4.6.5.1.1 The Hung Lung Hang Residential Zone (HLH Zone) encompasses an approximate area of 85 ha, situated at the south of the proposed Heung Yuen Wai Enterprise and Logistics Park, to the east of Kong Nga Po.

4.6.5.1.2 The Ping Che Residential and Commercial Zone (PC Zone) occupies an estimated area of 65 ha, located at the adjacent side of Ping Che Road, with Pak Hok Shan to the north, Ng Tung River and Hung Leng Tsuen to the south, Leng Tsai Tseun to the east.

4.6.5.1.3 The HLH Zone is situated within a area of green belt and agricultural land while the majority of land within the PC Zone is zoned as open storage, followed by green belt and agricultural land, under their respective OZPs (Town Planning Board, 2017). In addition, the planned Queen’s Hill Development Area is located at 1.5 km to the south of PC Zone.

4.6.5.2 **Role and Positioning**

4.6.5.2.1 The Hung Lung Hang Residential Zone and the Ping Che Residential and Commercial Zone will act together to perform the follow roles:

i. Provide comprehensive living environment with quality housing stock to support commercial and I&T sector development of the Northeastern I&T Cluster, as well as to satisfy the expected increase in housing demand

ii. Demonstrate an example of resilient, smart and livable community
4.6.5.3 **Proposed infrastructure**

i. Public and private housing stock at different flat size to accommodate various housing needs.

ii. Comprehensive community facilities with a focus to support local and overseas workers in Ta Kwu Ling Science and Advanced Industrial Park and Heung Yuen Wai Enterprise and Logistics Park, such as international schools, childcare centres, quality medical facilities, etc.

4.6.6 **Cluster-wide Accessibility**

4.6.6.1 **Current accessibility:** Poor transport connection is observed in vast area of the Northeastern I&T Cluster. No railway connection is extended to this region, the current accessibility within the cluster is based on road network. While a few franchised bus and minibus routes are serving the commuting from Ta Kwu Ling and Ping Che to Sheung Shui and Fanling MTR Station, Hung Lung Hang is not accessible by any means of public transport. In addition, the roads are mostly single-lane rural roads with poor maintenance and condition.

4.6.6.2 **Planned connection:** Due to the construction of the LT/HYW BCP, a new viaduct connection road that runs from the BCP to Fanling Highway will be in operation (CEDD, 2017a). Two interchanges along the connection road are proposed to connect the at-grade traffic - one situated in Lin Ma Hang Road, and another at Ping Yeung as shown in figure 4.6.3. The government has put forward suggestions to launch three new bus routes that serve the BCP to Tuen Mun, Yuen Long and Sheung Shui.
Proposed enhancement: Considering the drastic increase in number of residents (350,000) and workers (215,000) in the region, the existing and planned connections are inadequate to respond to such traffic demand. Therefore, it is suggested to include three railway stations that connect the BCP, the Ta Kwu Ling Science and Advanced Industrial Park and Ping Che Residential and Commercial Zone, as well as the Hung Lung Hang Commercial Zone. The new railway line will act as an extension of the proposed Northern Link and connect its final stop, Kwu Tong Station as shown in figure 4.6.4. Passengers will then be able to travel to other new towns in New Territories and urban areas of Hong Kong through the West Rail and the East Rail.

Apart from new railway stations, improving the road conditions is also important to enhancing the connectivity between the nodes. Other means of low-carbon transport can also be introduced to enhance accessibility from different nodes to the nearest railway station.
4.6.7 Development issues

i. **Natural environment protection** - Vast area in NENT is zoned as green belt and possesses high ecological value habitats, therefore any development attempts must take into account the impact towards the natural environment and its inhabitant species.

ii. **Preservation and integration of local characteristics** - The Northern I&T Cluster is situated in an area that houses local village, graveyards and historical buildings. Development plans should aim to reduce the impact of and integrate with existing rural environments.

iii. **Unfavourable environment condition** - The Northern I&T Cluster is in close proximity to NENT landfill and its planned extension area as shown in figure 4.6.4 which contains potential hazardous and nuisance generating facilities that demands further scrutiny and mitigation measures.
iv. **Unfavourable development control** - Certain areas of the Northern I&T Cluster possess strict building height and plot ratio requirements. Only minor relaxation of the restrictions is allowed; hence it gives rise to difficulties to develop as the area into mixed use R&D and education buildings.

4.6.8 **Summary of all nodes**

4.6.8.1 Situated near the BCP, together with eastern and central Shenzhen, the I&T focused development in NENT will drive further collaboration between the two cities.

4.6.8.2 By integrating different components for I&T production chain, namely R&D, prototyping, advanced production and commercialisation, it is estimated that 215,000 job opportunities at various entry levels, nature and functions can be provided and thus driving a diversified and dynamic economy not only in the northern part, but also in the rest of Hong Kong.

4.6.8.3 The proposed new residential zones have taken into account the elements of a resilient, smart and liveable community. It is expected that apart from offering quality housing stock for 350,000 population, a comprehensive neighbourhood with the provision of integrated community facilities and services will guarantee a high standards of living quality.

4.6.8.4 With railway network and other means of low-carbon transport modes being the backbone of connectivity enhancement within and beyond the Northeastern I&T Cluster, a environment-conscious society would be established to create capacity for sustainable growth.
4.7 Eastern Research and Education Base

4.7.1 Overview

4.7.1.1 Situating along the Knowledge and Technology Corridor at the eastern side of Hong Kong, the Eastern Research and Education Base (the Base) laid an important foundation to drive I&T development by harnessing the world-class research and education endeavours. The Base will continue to amplify its influence in propelling I&T development beyond the 4 main pillar industries, but also apply I&T solutions in other industries.

4.7.1.2 The Eastern Research and Education Base contains three key nodes - (1) Tai Po Industrial Estates, (2) Hong Kong Science and Technology Park (HKSTP), and (3) The Chinese University of Hong Kong (CUHK); as depicted in figure 4.7.1.

![Cluster map showing the area of each node and their related I&T industries (Source: Study Team)](image-url)
4.7.2 **Role and Positioning**

4.7.2.1 The major roles of this cluster are to (1) support I&T industry and the triple-helix development approach by providing an integrated eco-system and support the with a combination of science park, world class education and research institutions and manufacturing industries; as well as to (2) harness the existing mature and sophisticated research endeavours and connection between HKSTP and CUHK to facilitate I&T industry development.

4.7.2.2 Taking into account the proposed industry focus across the Knowledge and Technology Corridor and the research strengths of HKSTP and CUHK, together with the prototyping and advanced manufacturing capabilities of the Tai Po Industrial Estates, the Eastern Research and Education Base will be the core to demonstrate how the research efforts can be transformed into application in various industries. Complementing the research focus of HKSTP and CUHK, the major I&T related industries are life science, smart city, green technology, AI/robotics, electronics, advanced manufacturing.

4.7.3 **Tai Po Industrial Estates**

4.7.3.1 **Overview**

4.7.3.1.1 The Tai Po Industrial Estates (TPIE) encompasses an area of 75 ha, located along the Tolo Harbour, bounded by Ting Kok Road and Pat Sin Leng Country Park to the north, Golf Park Golfers Club to the east, Tai Po Waterfront Park to the south.

4.7.3.1.2 The area of TPIE is zoned as “other specified uses” under the current OZP (Town Planning Board, 2018). According to the latest survey on the tenant, the occupancy rate of TPIE has reached over 90%, only 3% of land (2.5 ha) in TPIE is vacant (Legislative Council, 2016). Majority of industries within the TPIE are food and beverages enterprise (20%), as shown in figure 4.7.2 (Legislative Council, 2018).
4.7.3.1.3 Among the current TPIE, one 4-storey building with a total GFA of 7,800 square meters has been refurbished into Precision Manufacturing Centre (the Centre) in 2017. So far, 4 enterprises with a focus on precision engineering, new material manufacturing, and advanced indoor hydroponic industries have moved into the Centre, occupying over 70% of the building (Legislative Council, 2018).

4.7.3.1.4 The surrounding Tai Po area is a well-developed new town with a range of different community facilities and housing supply. The proximity to the Tai Po Waterfront Park and Tolo Harbour has rendered a pleasant living and working environment.

4.7.3.1.5 Currently, a piece of Government, Institution and Community (GIC) land (6 ha) adjacent to the TPIE (as shown in figure 4.7.3) presents development potential for further exploration. It is now being used for a number of purposes, such as the training ground for Construction Industry Council, storage site for the contractors of Civil Engineering and Development Department, as well as the car parking space for New Territories East High-Speed Road Maintenance Centre under the Highways Department.
4.7.3.2 **Role and Positioning**
Within an area of developed industrial infrastructure, TPIE is proposed to become the supporting engine for realising I&T development by assisting other industries to undergo I&T transition.

4.7.3.3 **Specific I&T industries and production**

i. Advanced manufacturing - transform research results into actual product, offer product design and prototyping services.

ii. Provide supporting services for other industries to apply I&T solutions.

4.7.3.4 **Proposed infrastructure or upgrade in existing infrastructure**
With an aim to foster high-tech and smart production, the TPIE is proposed to undergo major transformations –

i. **Fully utilise the plot ratio for existing I&T related industrial buildings**: Around 50% of the current plot ratio of TPIE is under-utilised, suggesting that there are rooms for further development on the existing I&T related factories or buildings, so as to release more space for smart and advanced manufacturing purposes.

ii. **Redevelop the adjacent GIC land into “One-stop Advanced Manufacturing and I&T Solution Centre”**: Targeting the existing industries in TPIE and other industries in Hong Kong that does not fall into the 4 main categories of I&T pillar industry, the “One-stop Advanced Manufacturing and I&T Solution Centre” is positioned to provide technical support,
commercialisation and professional services for different industries to apply I&T solutions. Within the “One-stop Advanced Manufacturing and I&T Solution Centre”, office space, precision and automated manufacturing facilities will be offered at a one-stop basis to foster existing industries during the transition of into re-industrialisation.

4.7.4 Hong Kong Science and Technology Park

4.7.4.1 Overview
4.7.4.1.1 The HKSTP encompasses an area of 33 ha, delineated by the Tolo harbour and the Tolo Highway.

4.7.4.1.2 The area of HKSTP is zoned as “other specified uses” under the current OZP (Town Planning Board, 2014). The area is near high-value residential areas. Similar to TPIE, HKSTP is supported by a well-developed new town with a range of different community facilities and housing supply. The immediate Tolo Harbour provided a pleasant working and living environment.

4.7.4.2 Role and Positioning
Being the engine for innovation and R&D in Hong Kong since its early stages, the HKSTP is proposed to further I&T development with the roles:

i. Strengthen its pioneering role of I&T development in Hong Kong by enhancing its research and application capabilities
ii. Support new Science Parks development in terms of expertise sharing and management mechanism in other parts of Hong Kong
iii. Assist the transition towards re-industrialisation and precision manufacturing for the industrial estates in Hong Kong by offering professional and technology support

4.7.4.3 Specific I&T industries, services and production
Continue to strengthen existing R&D strengths in Biomedical Technology, Electronics, Green Technology, Information and Communications Technology, and Material and Precision Engineering
4.7.5 The Chinese University of Hong Kong

4.7.5.1 Overview

4.7.5.1.1 CUHK demonstrates exceptional research capabilities in areas of translational biomedicine, ICT, AI and robotics. It houses 4 out of 16 State Key Laboratories in Hong Kong, all of which engage research related to biotechnology. CUHK has established 2 research institutes, one branch institute and one co-working space named InnoHub in Shenzhen since 2006 to drive inter-city collaboration on I&T development (CUHK, 2019).

4.7.5.1.2 Table 4.7.1 below shows the research endeavours of CUHK in I&T related industries and collaboration with Shenzhen (Source: CUHK, 2019)

<table>
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<th>Aspects</th>
<th>Institutions</th>
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<tbody>
<tr>
<td>State Key Laboratories</td>
<td>1. State Key Laboratory of Translational Oncology</td>
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<td>2. State Key Laboratory of Agrobiotechnology</td>
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<td>3. State Key Laboratory of Research on Bioactivities and Clinical Applications of Medicinal Plants</td>
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<td>4. State Key Laboratory of Digestive Disease</td>
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<tr>
<td>Co-developed research institutes in Shenzhen</td>
<td>1. Shenzhen Institutes of Advanced Technology (SIAT) of the Chinese Academy of Science</td>
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<td></td>
<td>2. The Chinese University of Hong Kong Shenzhen Research Institute</td>
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<td></td>
<td>3. The Chinese University of Hong Kong (Shenzhen)</td>
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<tr>
<td></td>
<td>4. InnoHub</td>
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Source: Study Team, consolidated from (CUHK, 2019)

4.7.5.1.3 In terms of nurturing I&T talents, apart from the outstanding teaching quality and learning environments offered in Faculty of Science, Medicine and Engineering, CUHK has also spared no effort in nurturing prospective secondary school students through enhancing science, technology, engineering and mathematics (STEM) education (Faculty of Science, CUHK, 2019).

4.7.5.2 Role and positioning

In order to strengthen the education capacity within the Eastern Research and Education Base and beyond, CUHK is suggested to (1) continue to invest its research strengths especially on life science, AI and green technology that would complement the existing research focus of HKSTP; (2) encourage closer collaboration with Shenzhen research institutes to foster inter-city knowledge exchange; and (3) facilitate knowledge transfer and science popularisation education through STEM education.
4.7.6 Cluster-wide Accessibility

4.7.6.1 Current accessibility: The different nodes within and beyond the Eastern Research and Education Base is somewhat connected by bus network and served by two MTR stations along the East Rail Line, namely Tai Po Market and University Station. However, TPIE and HKSTP are not within walking distance to MTR station and hence shuttle bus services are provided for staff member to and from the nearest MTR stations and Tai Po Town Centre.

4.7.6.2 The three nodes are also supported by extensive bus network to Kowloon and other destination in Hong Kong. Apart from territorial-wide accessibility, the Eastern Research and Education Base is within 40 minutes distance on MTR to Lowu or Lok Ma Chau, where passenger can interchange there to access different parts of Shenzhen (HKSTP, 2018a). Regular staff shuttle bus services are also offered connecting HKSTP and CUHK to Futian Free Trade Zone, Shenzhen Bay BCP and Shenzhen High-tech Industrial Park (HKSTP, 2017).

4.7.6.3 Planned connection: The Transport Department has put forward proposals of enhancing efficiency and connection within the district (Transport Department, 2019):

i. Reroute several bus services between TPIE, HKSTP and CUHK (73K and 267A).

ii. Reconfigure bus schedule (73P evening route) to serve between TPIE north to HKSTP and CUHK.

iii. Introduce new bus routes that connect HKSTP to HK Island in Wan Chai and Admiralty.

4.7.6.4 Proposed enhancement: Taken into account the potential increase of 20,000 population residing in the Pak She Kok area, together with the expected increment in staff transfer between Tai Po Industrial Estates and HKSTP; connection between the different nodes within the cluster has to be strengthened to accommodate the traffic demand. However, the increase in personnel transfer between the nodes is likely to happen during working hours and hence the clash with the peak hour traffic flow can be avoided by staggering travel times. Consequently, improved accessibility between the nodes can be enhanced through provision of staff shuttle services or bus line rerouting.

4.7.7 Development Issues

i. Incompatibility with advance broadband services - The Eastern Research and Education Base is located within the restricted zone of first batch 5G mobile service, in order to avoid radio interference with the existing earth stations. The restricted zone covers the entirety of Tai Po District, HKSTP and CUHK (HKSAR, 2018). Therefore, future development in the area must take into account the potential delay in the provision of 5G services.

ii. Existing development control - Maximum GFA restriction (not in excess of 2,023,274m²) is imposed on TPIE and hence any development planning or utilisation of remaining plot ratio have to consider the restriction.

iii. Unfavourable environmental condition - the presence of an existing potential hazardous installation (PHI) (i.e. the Towngas Plant) is the major reason that hinders the development of the GIC land to the adjacent of TPIE. Impact assessment could be carried out to evaluation potential influence on the neighbourhood before commencement of the development.
Otherwise, relocation of PHI could be considered under detailed study.

4.7.8 Summary of all nodes

4.7.8.1 By integrating different components for I&T production chain, namely education, R&D, prototyping, advanced production and commercialisation, the Eastern Research and Education Base is able to drive further advancement in I&T development and thus contributing to a more diversified and dynamic economy of Hong Kong.

4.7.8.2 The existing accessibility to Shenzhen and close collaboration initiated between research and education institutes across the boundary will continue to foster inter-city relationship in I&T development.

4.7.8.3 With HKSTP being the pioneer of Hong Kong’s I&T advancement, its role as the supporter and leader of re-industrialisation would be strengthened to assist other industry to implement I&T solutions.
4.8 TKO Data Support and Advanced Manufacturing Base (Supporting Node 1)

4.8.1 Overview

4.8.1.1 The TKO Data Support and Advanced Manufacturing Base is positioned to act as a supporting node of the 4 proposed development clusters.

4.8.1.2 Situating at the southeastern part of Hong Kong at junction of the Knowledge and Technology Corridor and International Economic Corridor, the TKO Data Support and Advanced Manufacturing Base (the Base) aims to enhance the local competitiveness of Hong Kong through providing world-class I&T-related supporting infrastructure that supports Hong Kong to maintain as an international pro-business and pro-I&T development environment. This Base is established through further developing the southeast TKO area with robust data centre infrastructure and related supporting facilities, advanced production facilities, and a quality living and working community that attract talents and enterprises from local, mainland China and other parts of the world.

4.8.1.3 The Base comprises the Tseung Kwan O Industrial Estate (TKOIE) and Tseung Kwan O Area 137 (TKO137), with the Hong Kong University of Science & Technology (HKUST) as the "off-base" research support engine, as depicted in figure 4.8.1 below.

Figure 4.8.1 Location of the TKO Data Support and Advanced Manufacturing Base (Source: Study Team)
4.8.2 Role and Positioning

4.8.2.1 The Base is envisioned to be a support node providing data-intensive I&T industries with comprehensive infrastructural support, realizing local and cross-boundary I&T development synergies, and rendering I&T practitioners a pleasant community that promotes quality living, working and learning. The locational strengths, rooms for enhancement in the existing infrastructure, as well as future new development potentials of the area will be fully harnessed to exploit the area’s potential.

Why data-intensive industries

4.8.2.2 Data centre is a critical IT infrastructure supporting the fundamental operation of business enterprises. It provides a centralized storage and maintenance location for servers, database, access networks and storage systems. The provision of scalable, secure, up-to-standard and efficient data centres helps to provide an attractive business environment to enterprises working in data-intensive industries which highly demands round-the-clock access to relevant data information (Wilson, 2012). Data centre also provides indispensable support to the development of data-intensive I&T industries, including software development, big data analytics, AI & Robotics, smart city development and fintech. Advanced/smart manufacturing which demands programme-based operation instead of labour-intensive operation also requires data centre and live monitoring systems to support its operation. This demonstrates how research endeavours and supporting infrastructures for data-intensive industries can infiltrate and contribute to all business sectors and sustainable development of Hong Kong.

4.8.2.3 Moreover, the strict requirements of data centre infrastructure in terms of physical infrastructure design, maintenance of interior environmental conditions, as well as high standards required for external utilities imply the need for agglomeration of data centres to achieve higher cost-effectiveness in their long-term operation. The requirements range from sufficient ceiling height and floor loading capacity, maintenance of interior air ventilation, humidity and temperature, to adequate external voltage level supply and stable connection to the internet. Apart from physical infrastructure, data centres also require round-the-clock technical support by relevant technical support specialists and information systems engineers to provide efficient emergency support for the data centre services (Office of the Chief Government Officer, 2016 & Wilson, 2012). This further implies the need for appropriate community support providing residential units and other community facilities that are well-connected to the data centres to accommodate both day- and night-shift workers.

Future Enhanced Transport Accessibility

4.8.2.4 The Base is located at the southeastern part of the TKO area with its boundary to the west facing the Junk Bay. To its north is the maturely developed TKO New Town which houses a population of 368,000; demonstrating the existence of a comprehensive community in the vicinity of the TKOIE.

4.8.2.5 Regarding transport connectivity, though the TKOIE and TKO137 are not located at a strategic location in close distance to Shenzhen, the commissioning of Expressway Route 6 and Cross Bay Link that provides direct road connection from West Kowloon to Wan Po Road in TKO Area 86 (i.e. Direct north of TKOIE) in 2021, will greatly enhance the Base’s connectivity with major transport
and development nodes in future, facilitating a within-15 minutes’ drive from the West Kowloon High Speed Rail Station to the TKO New Town and TKOIE. The distance between the Kowloon East Central Business Core (aka. CBD2) and the TKOIE will also be shortened to a mere 5-min. drive (CEDD, 2012 & Highways Department, 2018).

4.8.2.6 Figure 4.8.2 below shows the location and connection of Route 6 to be commissioned in 2021.

![Schematic Alignment of Route 6 and Cross Bay Link](source)

4.8.2.7 Given the aforementioned requirements for data centre establishments, the location of the proposed Base (i.e. TKO) is demonstrated as the best location to accommodate the future rising demand for data centre infrastructure and their related services, given its mature foundation in providing data centre services, locational advantage, government policy initiatives and future development potentials. The rationales will be discussed in the following sections together with proposed recommendations of each component within the TKO Data Support and Advanced Manufacturing Base.
4.8.3 **HKUST as a Supporting Research Engine**

4.8.3.1 The HKUST ranks the 3rd top university in Asia in recent release of Times Higher Education 2019 Asia University Rankings, with R&D, knowledge transfer and international outlook as the main competitive edges of the university (THE, 2019). Located at Clear Water Bay 1.5 km away from the TKO Town Centre and 4.5 km away from the existing TKOIE, the HKUST is suggested to act as a fundamental research engine supporting the TKO Data Support and Advanced Manufacturing Base. Through harnessing its existing research and education strengths in the fields of Big Data and Robotics, Advanced Design and Manufacturing, and Biomedical Science and technology, the HKUST is suggested to continue nurturing technology breakthroughs and I&T-related talents to support I&T development of Hong Kong.

4.8.3.2 Table 4.8.1 below summarizes the key research strengths of the HKUST in relation to I&T development.

<table>
<thead>
<tr>
<th>School / Consortiums</th>
<th>Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>School of Science</td>
<td>Biomedical Systems &amp; Science</td>
</tr>
<tr>
<td></td>
<td>• State Key Laboratory (SKL) of Molecular</td>
</tr>
<tr>
<td></td>
<td>Neuroscience</td>
</tr>
<tr>
<td></td>
<td>• Stem Cell biology and human disorders</td>
</tr>
<tr>
<td></td>
<td>research</td>
</tr>
<tr>
<td>School of Engineering</td>
<td>Electronics &amp; Robotics</td>
</tr>
<tr>
<td></td>
<td>• State Key Laboratory of Advanced Displays</td>
</tr>
<tr>
<td></td>
<td>and Optoelectronics Technologies</td>
</tr>
<tr>
<td></td>
<td>• Robotics Institute for Smart Driving,</td>
</tr>
<tr>
<td></td>
<td>Smart Construction and Smart Manufacturing</td>
</tr>
<tr>
<td></td>
<td>• Energy Institute</td>
</tr>
<tr>
<td></td>
<td>• Healthcare robotics technologies</td>
</tr>
<tr>
<td>HKUST MIT Research 2018 Consortium</td>
<td>Data Analytics</td>
</tr>
<tr>
<td></td>
<td>• Big Data</td>
</tr>
<tr>
<td></td>
<td>• Machine Learning and Cognitive Reasonings</td>
</tr>
<tr>
<td></td>
<td>Advanced Manufacturing</td>
</tr>
<tr>
<td></td>
<td>• Nanosystem Fabrication</td>
</tr>
<tr>
<td></td>
<td>Key Areas of Collaboration</td>
</tr>
<tr>
<td></td>
<td>• IoT for Intelligent Buildings &amp;</td>
</tr>
<tr>
<td></td>
<td>Transportation</td>
</tr>
<tr>
<td></td>
<td>• Data Science and E-learning Research</td>
</tr>
<tr>
<td></td>
<td>• Advanced Manufacturing</td>
</tr>
<tr>
<td></td>
<td>• Biomedical Systems</td>
</tr>
</tbody>
</table>

Source: Study Team, consolidated from (HKUST, 2018)
4.8.4 TKOIE as an Advanced IT Support, Application and Training Centre

4.8.4.1 Existing and Planned Development

4.8.4.1.1 The TKOIE encompasses an area of 75 ha housing 32 enterprises with data centres, ICT/Telecommunication and creative media as the three major uses. It currently houses the largest data centre cluster of Hong Kong and the Asia Pacific, with 11 high-tier data centres set up by various transnational enterprises (TNEs) (LegCo, 2017). The area is also equipped with an "unparalleled 150 MVA electricity substation" and strong international telecommunication connectivity and security, making it a prime location fitting the technical requirements for housing data centres. The existing mature development of data centre support services also provide a strong basis for accommodating the rising data centre demand in future derived from increasing local I&T development and cross-boundary I&T collaboration between Hong Kong and Shenzhen in the context of the GBA.

4.8.4.1.2 Table 4.8.2 below shows the existing tenants of data centres in the TKOIE, demonstrating the strong foundation and international attractiveness of the TKOIE in providing centralized data centre services to local, mainland and foreign enterprises from various sectors.

Table 4.8.2 Major Data centre / Telecommunication infrastructure in TKOIE

<table>
<thead>
<tr>
<th>Major Data centre / Telecommunication infrastructure in TKOIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. HSBC Regional Data Centre</td>
</tr>
<tr>
<td>2. Hong Kong Exchange and Clearing Limited - Trading and Clearing Data Centre</td>
</tr>
<tr>
<td>3. NTT Com Asia Limited - Financial Data Centre</td>
</tr>
<tr>
<td>4. China Mobile International - Global Network Centre (first base station outside mainland China)</td>
</tr>
<tr>
<td>5. China Unicom (Hong Kong) Global Data Centre</td>
</tr>
<tr>
<td>6. Towngas Telecommunications Fixed Network</td>
</tr>
<tr>
<td>7. HKCOLO Data Centres</td>
</tr>
<tr>
<td>8. Technoform</td>
</tr>
<tr>
<td>9. Avery Dennnison Data Centre</td>
</tr>
<tr>
<td>10. Telstra Global Data Centres</td>
</tr>
</tbody>
</table>

Source: Study Team, consolidated from various sources

4.8.4.1.3 On the other hand, the TKOIE is also designated as one of the key nodes to embark on the "Reindustrialization" initiative put forward by the Hong Kong Government in its 2016 Policy Address. The policy initiative considers promoting Hong Kong as a base for advanced manufacturing of high-end and high value-added products will contribute to diversifying the local economy.

4.8.4.1.4 As advanced manufacturing relies significantly on IT and software technologies to achieve programmised mode of operation, 2 pilot projects have been launched by the HKSTP in the TKOIE, including (1) a Data Technology Hub (DT Hub) with GFA of around 27,015 m² on a 0.54 ha site, and (2) Advanced Manufacturing Centre (AMC) with GFA of around 108,588 m² on a 2.71 ha site. The DT Hub is positioned to attract data centre suppliers, IT and financial service enterprises or start-ups to support its adjacent AMC, creating around 900 middle-to-high added-value employment
opportunities. The AMC is positioned to attract design-led enterprises specializing in high value-added production to provide prototyping and mass production grounds for IT and healthcare-related products, providing around 250,000 high added-value employment opportunities (LegCo, 2016).

4.8.4.2 Future Development Potentials

4.8.4.2.1 The key future development potential of the TKOIE comes from the under-utilized average plot ratio of the site. The TKOIE is zoned as OU (Industrial Estates) under the "approved Tseung Kwan O Outline Zoning Plan No. S/TKO/26" (approved OZP) with a maximum allowed plot ratio of 2.5.

4.8.4.2.2 Despite the high occupancy rate of the TKOIE (>90%), the average plot ratios of existing buildings in the site only constitute 53% of the maximum allowed plot ratio, implying potentials for providing additional floor space through redevelopment. Besides, apart from the aforementioned 2 pilot projects, there has been ongoing efforts by the HKSTP in reprocessing under-utilized premises within the TKOIE to facilitate redevelopment. Up to March 2016, 6 land plots with a total area of 9.86 ha are vacant and ready for development, which are shown in red in figure 4.8.3 below (LegCo, 2016 & LegCo, 2017).
4.8.4.3 **Role and Positioning**

4.8.4.3.1 Given the existing strengths and development potentials of the TKOIE, it is positioned to be an Advanced IT Support, Application and Training Centre of the territory with specific roles stated below:

i. Harness the existing strengths and locational advantage of the TKOIE to strengthen IT, software and data analytics-related development of Hong Kong through providing sound, centralized and well-managed supporting infrastructure, as well as an integrated training and practising ground for related technical experts engaging in data centre management.

ii. Harness the comparative advantages of Hong Kong in view of cross-boundary I&T collaboration in Shenzhen- mature international network and renown international reputation, to allow local and mainland enterprises to realize their R&D endeavours through efficient and quality advanced manufacturing technologies, which further strengthens the reputation of "Made in Hong Kong" Brand in the international arena.
iii. Act as the essential foundation for mainland businesses to expedite to the international market through providing a world-class data centre hub allowing secure, unrestricted and efficient access to data and servers. In another way round, it also acts as the foundation for foreign businesses to expedite to the Hong Kong and mainland China market.

4.8.4.4 Specific I&T Industries

The following list shows the recommended I&T industries to be supported by the TKOIE –

a. Data-intensive industries
   i. Big data analytics
   ii. Smart City and Software development
   iii. AI & Robotics
   iv. Fintech

b. Advanced Manufacturing industries to realize R&D results mainly from local development and cross-boundary collaboration.

4.8.4.5 Proposed Infrastructure

4.8.4.5.1 Apart from the DH Hub and AMC to be completed, the following lists the recommended infrastructure and service that could be provided in accordance to the recommended specific I&T industries above, through utilizing the potential additional floor space in future generated from redevelopment or developing the existing vacant sites.

i. Data centres providing a variety of rental sizes, design standards, and "qualities" in terms of management and range of available support facilities and services, to accommodate the varying needs and financial capability of local, mainland and foreign enterprises from different fields.

ii. Integrated Data Support and Business Complex providing a mix of data & server rooms, ancillary office spaces, business meeting rooms and showcasing centres (similar to the DH Hub), to accommodate particularly start-ups and SMEs working on data-intensive industries which require timely monitoring and access to their data and server rooms for problem-fixing, in order to facilitate effective knowledge transfer and exchange.

iii. Practical training ground for technicians and experts to provide professional data centre and Advanced Manufacturing supporting services and management, including technical support analysts, Help Desk Engineers, Information Support Specialists etc. Lecture rooms, stimulation data centres for practical problem-solving, repair and maintenance practices can be provided within data centres and support buildings recommended in (a) and (b) above to maintain a sufficient pool of IT supporting experts to ensure the efficient operation of data centres and advanced manufacturing centres of Hong Kong in long run.
4.8.4.6 Development Issues

According to the Schedule of Notes of the approved OZP, uses such as "Research, Design and Development Centre", "Information Technology and Telecommunications Industries", "Training Centre", "Office" and "Industrial Uses" are always permitted. It is considered that the recommended infrastructure proposed above would be able to be provided efficiently without needing to go through planning applications which often take years to complete. While it takes time for the HKSTP to liaise with tenants to surrender their un-utilized plot ratios and encourage redevelopment, the existing vacant sites are able to provide short-term immediate land supply for enhancing the role of TKOIE in fostering I&T development of Hong Kong.

4.8.5 TKO137 as a Quality Living cum Technology Development Community

4.8.5.1 Introduction

The TKO137 is located at the direct south of the TKOIE, spanning a total area of 99 ha. While the SENT Landfill is located at the northeast of the site, TKO137 was designated as a temporary Public Fill Bank in 2002 for the stockpiling and transfer of construction materials and waste, in order to supplement the projected shortfall in the territory-wide public filling capacity. 13 ha of land in northeastern TKO137 was also designated as the extension of the SENT Landfill in 2011. With the decommissioning of its functions as a Public Fill Bank and extension of the SENT Landfill in 2023, 80 ha of TKO137 would be available for re-planning. A Planning and Engineering Study examining the feasibility of developing the area for residential, commercial and other development purposes is being conducted by the Planning Department and CEDD. The study is expected to be completed in late 2019 (CEDD, 2017b).

4.8.5.2 Role and Positioning

With its close proximity to the TKOIE and well transport connection to the HKUST, the TKO137 is positioned to become a mixed-use community providing quality living and supporting technology development of data-driven I&T industries. It will bridge the gap in the I&T production chain within the TKO Data Support and Advanced Manufacturing Base, in terms of technology application and supporting facilities for the available employment opportunities.

4.8.5.2.2 It will serve the following roles:

a. Provide a medium-density residential community with a quality living environment, comprehensive community support and employment opportunities.

b. Provide a technology application ground for R&D endeavours generated from the HKUST and research institutes to complement the function of the TKOIE.

c. As a testing ground for Smart City initiatives which further provides a smart living and intellectually stimulating environment for residents.
4.8.5.2.3 Figure 4.8.4 below illustrates how TKO137 can help bridge the gap within the I&T production chain in the TKO Data Support and Advanced Manufacturing Base.

**I&T Production Chain within TKO Data Support and Advanced Manufacturing Base**

![Diagram](image)

Figure 4.8.4 Role of TKO137 (Source: Study Team)

4.8.5.3 **Specific I&T Industries**

As the main role of TKO137 is to complement the development of the TKOIE, its specific I&T industries are recommended to be similar to those of TKOIE, which are listed below:

- Data-intensive industries including
  - Big data analytics
  - Smart City and Software development
  - AI & Robotics
  - Fintech

4.8.5.4 **Proposed Infrastructure**

- Private medium-density residential housing providing around 30,000 units (half of the scale of LOHAS Park and assuming an average plot ratio of 3) - majority of the expected residents are recommended to be workers of the TKOIE, as data centres require 24-hour stand-by and monitoring, which hence requires workers to work shift. Proximity or convenient connection between the living and working places of these workers would better retain these valuable experts. Other expected residents also include workers from the proposed Tech Park within the community, as well as other citizens working in nearby development nodes including the Kowloon East CBD2, Quarry Bay Business Core etc.

- A Tech Park of around 30ha providing R&D spaces, incubation ground and in-campus accommodation for data-intensive I&T start-ups, as a convenient ground for technology application in close proximity to data & server support, as well as prototyping, testing and production facilities in the TKOIE.

- A STEM Education cum Research Institute within the proposed Tech Park for teenager-nurturing and professional development and networking, to provide opportunities for knowledge transfer and business development.
• Sufficient community support facilities e.g. child day-care centres, community centres, parks and open space, medical and educational facilities etc. to provide comprehensive community support.

4.8.5.5 Development Issues
Given that the majority of land of TKO137 is currently zoned as "OU(Deep Waterfront Industry)", whose planning intention is not in line with residential uses and does not permit so in the Schedules of Notes in the approved OZP, comprehensive planning and rezoning of the whole site would be required. Embarking on the planning process as soon as possible in short run following the completion of the Planning and Engineering Study, if the Study demonstrates that the site is feasible for residential development purpose, will help achieve the aforesaid recommendations for TKO137 to complement the development of the TKOIE.

4.8.6 Accessibility and Connection of the Base

4.8.6.1 Currently, there is no railway connection to the TKOIE or TKO137. The TKOIE is well connected by public road transport, with 3 bus routes connecting to/from Hang Hau MTR Station, TKO MTR station, as well as Sha Tin New Town. The Wan Po Road connecting the TKOIE with TKO Town Centre is a 2-way dual lane, and is expected to be able to accommodate future new developments in TKOIE and TKO137.

4.8.6.2 Regarding TKO137, there is no public road connection to the area, neither from TKO Town Centre nor TKOIE as it is currently a restricted public fillbank site. Given the recommended future positioning of TKO137 to become a residential community for nearby workers within the TKO area, overwhelming additional traffic burden on the current MTR Tseung Kwan O Line is not anticipated. Yet, given TKO137's close proximity to the Quarry Bay Business Core across the harbour, and the potential demand for harbour-crossing by residents, it is recommended that providing ferry or water taxi service connecting TKO137 to Sai Wan Ho Ferry Pier can be further investigated to provide the TKO137 with more direct connection to other development nodes. Road enhancement, as well as better public transport services between TKO137 and TKO Town Centre would also help strengthen the connectivity between the TKO Data Support and Advanced Manufacturing Base with other parts of the territory.

4.8.6.3 Figure 4.8.5 below shows the recommended transport connection between TKO Data Support and Advanced Manufacturing Base with its nearby development nodes.
4.8.7 Summary

4.8.7.1 The TKO Data Support and Advanced Manufacturing Base comprising the existing TKOIE and New Development Area TKO137 is envisioned to provide a strong foundation for I&T development of Hong Kong through the provision of fundamental IT infrastructure that support the R&D process and realization of R&D endeavours (advanced manufacturing). A smart community providing a quality living environment will be able to accommodate the housing needs derived from the generation of additional I&T-related employments. With the anticipated increasing collaboration between Hong Kong and Shenzhen in I&T development, the Base will act as one of the stepping stones for mainland enterprises to expedite to the Hong Kong, Asia and international market, while Hong Kong will benefit from the new business opportunities and opportunities to further enhance its role as a "superconnector" and stand out among other Asian cities.
4.9 **International Economic Corridor**

4.9.1 Encompassing the southern and southwestern part of Hong Kong, the International Economic Corridor connects to the Collaborative I&T Corridor and Knowledge and Technology Corridor and is characterised by its role of being the international gateway. It aims to bring local and cross-boundary collaboration synergies from I&T sector development to the international arena through connecting existing major business development nodes, transport hubs and potential future development areas with efficient transport connection.

4.9.2 The key nodes involved in the International Economic Corridor span from the aforementioned TKO Data Support and Advanced Manufacturing Base towards the west to Quarry Bay Business Core, Kowloon East CBD2, traditional CBD1 (Central & Wanchai), Cyberport, potential future CBD3 ("Lantau Tomorrow Vision" ("ELM" in HK2030+)). To the further west are the international and regional transport hubs - Hong Kong International Airport (HKIA) and Hong Kong Port of the Hong Kong Zhuhai-Macau Bridge (HKZMB) respectively. Then, through the Yuen Mun-Chek Lap Kok Link in which construction is in near completion, the Corridor links back to the Northwestern I&T and Business Cluster in HSK and connects to the further Northwest towards Qianhai in Western Shenzhen. The locations of the aforesaid nodes are shown in figure 4.9.1 below.

![Figure 4.9.1 Business (Yellow), I&T (Green) and Transport (Grey) Nodes along the International Economic Corridor (Source: Study Team)](image-url)
4.10 Kowloon East Business and I&T Development Support Base (CBD2) (Supporting Node 2)

4.10.1 Background of the development

4.10.1.1 The Kowloon East (KE) area incorporates the Kai Tak Development Area, Kowloon Bay Business Area, Kwun Tong Business Area, and the San Po Kong Business Area, with a total area of 514 ha (Development Bureau, 2019). In light of the future growing local and cross-boundary collaboration between Hong Kong and Shenzhen in the I&T sector, the KE CBD2 is positioned as an International Business & I&T Development Support Base (the Base), to support post-production commercialization, professional support and financial services for local and mainland I&T enterprises to leverage their business development endeavours to the international market.

4.10.1.2 The KE area was formerly a thriving industrial base propelling the manufacturing industries of Hong Kong in the 1950s to 1980s. With the major economic restructuring of deindustrialization since the 1980s, a huge stock of industrial buildings in Kwun Tong and Kowloon Bay became under-utilized. The former Kai Tak Airport area had also been subject to re-planning to accommodate more compatible uses. (Development Bureau, 2012)

4.10.1.3 Since 2001, all industrial land in Kowloon Bay and Kwun Tong has been rezoned to "OU(Business)" use, in order to facilitate the conversion of aged or un-utilized industrial buildings to commercial/office use, or through redevelopment to generate new supply of grade A office buildings. Industrial Building Revitalization Policy was introduced in 2010 to further facilitate the industrial building redevelopment in the KE area. Up till 2018, around 2 million m² of industrial floor space has been converted to commercial/ office uses (Development Bureau, 2012).

4.10.1.4 In 2012, the HKSAR government embarked on the Energizing Kowloon East initiatives with the aim to transform the KE area into a Smart City District, which would in turn facilitate the area to transform into the second CBD of Hong Kong (CBD2) (Development Bureau, 2019).

4.10.1.5 Figure 4.10.1 below shows the location and boundary of the KE CBD2 area.
4.10.1.6 Figure 4.10.2 below shows the location of the Base in relation to the surrounding developed and planned nodes. It is seen that the base is in close proximity and well-connected to existing major regional transport node - the West Kowloon High Speed Rail Station, major business cores including the traditional CBD in Central (CBD1), Quarry Bay Business Core, as well as the proposed TKO Data Support and Advanced Manufacturing Base via the expressway Route 6 to be commissioned in 2021.

![Figure 4.10.2 Location of the KE CBD2 area in relation to the surrounding developed and planned nodes. (Source: Study Team)](image)

4.10.2 **Current Land Use Characteristics**

4.10.2.1 The majority of land uses in the Kwun Tong, Kowloon Bay and San Po Kong Business areas are designated as "OU(Business)" use with a high maximum allowed plot ratio of 12, with the aim to facilitate the redevelopment or conversion of existing under-utilized industrial buildings to office/commercial, Research Centres and IT/Telecommunication uses, in order to accommodate new floor space demand from higher value-added industries in future including the I&T sector. The planning intention of the OU(Business) zone is primarily for general business uses, whereas a mix of IT and telecommunications industries, non-polluting industrial, office and other commercial uses are always permitted in newly developed “business” buildings, providing great flexibility for accommodating a variety of land uses.

4.10.2.2 Table 4.10.1 below shows the breakdown of land use zonings, and the reflected potential land use typologies that would be generated as development and redevelopment proceeds in CBD2 according to their respective approved OZPs.
### Table 4.10.1 Breakdown of land use zonings within the 4 Business or Development Areas in KE CBD2

<table>
<thead>
<tr>
<th>Area</th>
<th>Breakdown of land uses under the Approved OZPs</th>
<th>Planning intention and allowed uses for specific zonings</th>
</tr>
</thead>
</table>
| Kwun Tong Business Area (Approved OZP No. S/K14S/22) | C - 1.21 ha  
OU(Business) - 45.57 ha  
R(A) - 137.73 ha  
GIC - 44.93 ha  
O - 41.43 ha  
Other OU - 1.25 ha  
GB - 28.50 ha | Commercial (C) - "primarily for commercial developments..... usually are major employment nodes"; Provision of Grade A offices *  
OU(Business) - "primarily for general business uses*. A mix of information technology and telecommunications industries, non-polluting industrial, office and other commercial uses are always permitted in new “business” buildings *General business uses - Non-grade A offices mainly in Industrial/Industrial-Office (I/O) buildings; activities are usually sensitive to accommodation cost. |
| Kowloon Bay Business Area (Approved OZP No. S/K13/29) | C - 2.42 ha  
OU(Business) - 22.40 ha  
R(A) - 66.80 ha  
R(B) - 4.74 ha  
GIC - 49.62 ha  
O - 48.33 ha  
Other OU - 21.88 ha  
GB - 52.63 ha |                                                                                                                     |
| San Po Kong Business Area (Approved OZP No. S/K11/29) | OU(Business) - 10.96 ha |                                                                                                                     |
| Kai Tak Development Area (Approved OZP No. S/K22/6) | C - 16.22 ha  
OU(Trade Mart and Commercial Development) - Total floor area of 11,825 m²  
CDA - 9.62 ha  
R(A) - 15.26 ha  
R(B) - 26.65 ha  
GIC - 37 ha  
O - 98.18 ha  
OU - 53.81 ha | Commercial (C) - "primarily for commercial developments..... usually are major employment nodes"; Provision of Grade A offices *  
OU(Trade Mart and Commercial Development) - for display, exhibition and wholesale trade of manufactured goods. |

Source: Study Team, consolidated from various sources

Table 4.10.2 below shows the major planned positioning and existing land uses in the Business/Development areas in KE CBD2. The positioning and development plans of individual Business Areas put forward by the HKSAR Government reflect that the KE CBD2 is planned to provide a vast amount of potential commercial, office and event space supply in future.
<table>
<thead>
<tr>
<th>Area within KE CBD2</th>
<th>Government Positioning and Major Land Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kai Tak Development area</td>
<td><strong>Positioning:</strong> A mixed residential community and a welcoming destination for international business tourism, entertainment and networking</td>
</tr>
<tr>
<td></td>
<td><strong>Land use and floor spaces</strong></td>
</tr>
<tr>
<td></td>
<td>● Existing - 2.6 million m² of commercial/office floor space</td>
</tr>
<tr>
<td></td>
<td>● Future - A total of 7 million m² commercial/office floor spaces to be provided</td>
</tr>
<tr>
<td></td>
<td><strong>Major Buildings and Infrastructures</strong></td>
</tr>
<tr>
<td></td>
<td>● Trade and Industry Tower (Government Use)</td>
</tr>
<tr>
<td></td>
<td>● Government offices within Inland Revenue Tower in Wan Chai to be relocated to the area in future</td>
</tr>
<tr>
<td></td>
<td><strong>Community facility support</strong></td>
</tr>
<tr>
<td></td>
<td>● 49,900 public and private housing units</td>
</tr>
<tr>
<td></td>
<td>● Kai Tak Cruise terminal providing 11,825 m² &quot;MICE&quot;* floor spaces</td>
</tr>
<tr>
<td></td>
<td>● Sports and tourism facilities</td>
</tr>
<tr>
<td></td>
<td>● Children Hospital</td>
</tr>
<tr>
<td>*MICE - Meetings, incentives, conferencing, exhibitions</td>
<td></td>
</tr>
<tr>
<td>Kwun Tong and Kowloon Bay Business Areas</td>
<td><strong>Positioning:</strong> To be a major commercial hub (CBD2) through facilitating revitalization of the area and provide additional grade A and non-grade A commercial and office buildings to accommodate the long-term shortage of office spaces in existing business cores.</td>
</tr>
<tr>
<td>San Po Kong Business Area</td>
<td><strong>Positioning:</strong> To provide commercial floor spaces through redeveloping or conversion of existing industrial buildings</td>
</tr>
<tr>
<td>Source: Study Team, consolidated from various sources</td>
<td></td>
</tr>
</tbody>
</table>

4.10.3 **Role and Positioning**

4.10.3.1 The planned positioning of the KE CBD2 area by the Hong Kong Government demonstrates additional potential for the area to complement with the future anticipated increasing local I&T development in Hong Kong, through providing customized services including post-production commercialization, professional services e.g. legal, patent application, Intellectual Property Consultancy etc., as well as financial services for local and mainland I&T enterprises to leverage
their business development endeavours to the international market. The close proximity and good connectivity between the KE CBD2 area and the proposed I&T development nodes, regional transport hub and business cores further support the proposed positioning of the KE CBD2 area as an International Business and I&T Development Support Base, with the specific roles are stated below:

i. To provide middle-to-high-end I&T-related comprehensive business support services (including import/export distributing, business agency services, patent application, legal, financial and marketing consultation services etc.), given the future land use typologies in the area will mainly be General Business uses offering relatively lower rent compared to those in CBD1 or future CBD3.

ii. To bring local and regional I&T development endeavours to the international arena through providing world-class meeting and business event venues.

iii. To develop as a world-class International Business Core and global destination for Business tourism, through the provision of a quality and responsive living and working environment through Smart City Development.

iv. As a testing ground for Smart City Development-related I&T endeavours to support the local and cross-boundary I&T development.

4.10.4 Development & Implementation Issues

4.10.4.1 It shall be noted that the pace of development and industry functions to be provided in CBD2 in future is largely private sector-driven and dependent on market preference and performance across time, as the industrial buildings within the area is predominantly privately owned. In other words, unlike NDA or Science Park Development, the Hong Kong Government does not have strong power of control over the development of the CBD2. Yet, despite this issue, land use zoning has been one of the tools that the Hong Kong Government had utilized effectively to foster the development process of the area (through applying the OU(Business) zoning to all industrial land).

4.10.4.2 Apart from exercising development control through land use zoning, the Hong Kong Government can also harness on the existing Industrial Buildings Revitalization Policy to provide incentives for owners of industrial premises to rent their premises for I&T-related development and services uses after redevelopment. The Chief Executive’s 2018 Policy Address on Revitalisation of Industrial Buildings proposed incorporating a new condition that "the applicant should designate 10% of the floor area for specific uses prescribed by the Government" upon completion of redevelopment, in order to allow for related waiver-fee exemption. This policy is considered as another effective means of achieving the proposed positioning of the CBD2 through designating the "specific uses prescribed by the Government" as I&T-related functions, e.g. R&D spaces, Intellectual Property Advisory Uses etc., in accordance to the prevailing market need and stakeholders’ aspirations. Hence, it is recommended that the policy suggested in the Policy Address is worth implementing to allow the government to exercise more influence on the direction of development of the CBD2, and strengthen the role of play of the CBD2 in facilitating I&T development of Hong Kong with regard to its strategic location to the international market.
4.11 Future Potential "Lantau Tomorrow" Development as “CBD3”

4.11.1 Background of Development

4.11.1.1 In HK2030+, the concept of developing the "East Lantau Metropolis" (ELM) has been put forward to develop a new artificial island as the third CBD (CBD3) of Hong Kong, through reclamation of about 1000 ha around the Kau Yi Chau in the Central Waters. In late 2018, the Chief Executive further put forward the "Lantau Tomorrow Vision", proposing the ELM to be expanded to 1700 ha encompassing the Kau Yi Chau and Hei Ling Chau. The preliminary land uses and development concepts of the ELM and "Lantau Tomorrow Vision" are stated and compared in table 4.11.1 below:

Table 4.11.1 Comparison of Planning Parameters of ELM and "Lantau Tomorrow Vision"

<table>
<thead>
<tr>
<th></th>
<th>ELM</th>
<th>Lantau Tomorrow Vision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>1000 ha</td>
<td>1700 ha</td>
</tr>
<tr>
<td>Positioning</td>
<td>CBD3</td>
<td>CBD3</td>
</tr>
<tr>
<td>Major developments,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated number of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housing and Employments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Population - 400,000</td>
<td></td>
<td>● Population - 700,000 to 1,100,000</td>
</tr>
<tr>
<td>to 700,000</td>
<td></td>
<td>● Housing units - no estimation</td>
</tr>
<tr>
<td>● Housing units - no</td>
<td></td>
<td>● Housing units - 260 000 to 400 000 – 70%</td>
</tr>
<tr>
<td>estimation</td>
<td></td>
<td>of units as public housing</td>
</tr>
<tr>
<td>● Commercial office GFA</td>
<td></td>
<td>● Commercial office GFA - 4 million m²</td>
</tr>
<tr>
<td>- no estimation</td>
<td></td>
<td>● 340 000 jobs</td>
</tr>
<tr>
<td>● 200,000 jobs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport network</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Outlined possible</td>
<td></td>
<td>● Priority Transport Network: Railway and</td>
</tr>
<tr>
<td>connections between</td>
<td></td>
<td>road connection to Western Hong Kong Island,</td>
</tr>
<tr>
<td>ELM and the Western</td>
<td></td>
<td>northeastern Lantau Island, Western New</td>
</tr>
<tr>
<td>Hong Kong Island,</td>
<td></td>
<td>Territories, Hong Kong International</td>
</tr>
<tr>
<td>northeastern Lantau</td>
<td></td>
<td>Airport, and West Kowloon</td>
</tr>
<tr>
<td>Island, Western New</td>
<td></td>
<td>● Other Possible Links: Railway connection</td>
</tr>
<tr>
<td>Territories, Hong Kong</td>
<td></td>
<td>to West Kowloon; railway and road connection</td>
</tr>
<tr>
<td>International Airport,</td>
<td></td>
<td>to the HKZMB Artificial Island and Western</td>
</tr>
<tr>
<td>and West Kowloon</td>
<td></td>
<td>New Territories and Tuen Mun West</td>
</tr>
<tr>
<td>● No specific connection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>means (i.e. railway /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>road) was proposed.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Study Team, consolidated from (Development Bureau, 2018)
4.11.1.2 Figure 4.11.1 below shows the preliminary conceptual Development and Strategic Transport Plan of the "Lantau Tomorrow Vision".

![Conceptual Development and Strategic Transport Plan of "Lantau Tomorrow Vision"](image)

**Figure 4.11.1 Conceptual Development and Strategic Transport Plan of "Lantau Tomorrow Vision" (Source: Development Bureau, 2018)**

4.11.1.3 Compared to the ELM concept proposed in the HK2030+, the "Lantau Tomorrow Vision" proposes a greater scale of development and a more detailed strategic transport plan connecting the development effectively and comprehensively to the existing business core (CBD1) to achieve its development objective of having a complementary role with CBD1 to tackle the projected shortage of CBD Grade A office in future (ICF International, 2017). The close proximity between the proposed development and the regional and global transport nodes - the HZMB Hong Kong Section and Hong Kong International Airport respectively, also constitute to the enormous potential of the proposed development of being a regional and international business development node and gateway. The proposed strategic transport plan is considered to be referenceable to enrich the HK2030+ long term planning strategy.
4.11.2 **Role and Positioning**

4.11.2.1 The "Lantau Tomorrow Vision" is considered as a positive engine driving the local and cross-boundary I&T collaboration between Hong Kong and Shenzhen, through harnessing the stronger financial, legal and business development foundation of Hong Kong compared to Shenzhen and other cities in the GBA, to act as an international business gateway for medium-to-large enterprises to expand their businesses to the international market. The detailed roles of the development are stated below:

i. As the third CBD of the territory complementing the functions of CBD1, with high-end grade A offices and regional headquarters of TNEs offering business, legal, financial and other professional services.

ii. As an application ground for fintech and Smart City Development results; As an international demonstration platform of local and regional I&T development successes.

iii. As a regional business gateway that facilitate cross-boundary collaboration and business development to be leveraged to the Greater China and international context, through taking advantage to its future efficient connection to the Northwestern I&T cluster with direct connection to Western Shenzhen, as well as the regional and global transport nodes of the territory.

4.11.2.2 It is noted that the planning of "Lantau Tomorrow Vision" development is at a very preliminary stage. Further planning and engineering feasibility studies would need to be conducted to come up with solid figures of planning and development parameters, such as plot ratio, population and employment opportunities etc. It shall be considered as a long-term development, with the expected commissioning to be nearly the last compared to other proposed clusters and supporting nodes in this report.
4.12 Implications of the Spatial Recommendations to the Territorial Transport Network and Job-housing distribution

4.12.1 The above sections have presented a detailed overview of the proposed clusters and supporting nodes along the Collaborative I&T Corridor, Knowledge and Technology Corridor, and International Economic Corridor. To recap, the 3 proposed corridors have different positionings - (1) the Collaborative I&T Corridor as the main engine to foster cross-boundary I&T collaboration synergies between Hong Kong and Shenzhen; (2) the Knowledge and Technology Corridor as the engine to harness existing strengths of established research and education institutes and I&T supporting infrastructure, while connecting to the Northeastern I&T Cluster as a gateway to Shenzhen to capture cross-boundary collaboration opportunities; and lastly (3) the International Economic Corridor as a global business and transport gateway providing I&T-related professional services and business venues.

4.12.2 Individual nodes within clusters, and individual clusters along the 3 corridors have interrelationship and require collaboration with each other to generate synergy to achieve the strategic vision. Hence, development clusters and node should be spatially connected with each other efficiently through comprehensive and integrated local and regional transport network. Evaluation and related recommendation on transport connection for each cluster and support nodes have been stated within the section of individual clusters. Figure 4.12.1 below shows an overall plan outlining the major transport corridors connecting individual clusters with each other and with Shenzhen, together with the implications of the proposed clusters and nodes on the distribution of housing and employment opportunities in Hong Kong.

Figure 4.12.1 Major Existing and Proposed Transport Networks (Source: Study Team)
4.12.3 Along the Collaborative I&T Corridor along northern New Territories, the Northwestern I&T and Business Cluster and Northern Research and Education Engine will be connected with existing trunk roads and the planned railway line extension - Northern Link proposed in the Railway Development Strategy 2014. They are also situated close to the Hong Kong-Shenzhen boundary with BCPs in close proximity with each cluster. A railway line connecting the HSK NDA within the Northwestern I&T and Business Cluster to Western Shenzhen and Qianhai is also proposed to capitalize on their complementary role in future to foster efficient knowledge transfer and business activities to be carried out.

4.12.4 For the proposed Northeastern I&T Cluster, currently adequate road connection and railway connection is absent. With the view of its large scale of development with a significant number of populations, employment and cross-boundary collaborative activities to be generated in future, an additional railway line connecting to the Kwu Tung station is proposed. The station would act as a major railway interchange station, converging the Northern Link (i.e. extension of the current West Rail line) and the current East rail line. Further detailed feasibility study is undoubtedly needed to look for the best way for connecting the proposed Northeastern I&T Cluster with the existing railway network and review the carrying capacity and look for appropriate mitigation measures if necessary. Apart from local connection, the future LT/HYW BCP will be the gateway for the Northeastern I&T Cluster to facilitate the collaboration between the cluster with Central and Eastern Shenzhen and other cities in the GBA to capture the opportunities from Shenzhen and beyond.

4.12.5 Other major transport implications include the adoption of the strategic transport network proposed in the "Lantau Tomorrow Vision", which provides the International Economic Corridor in southern and western Hong Kong with sufficient transport linkages among the CBDs, major transport nodes and back to the Northwestern I&T and Business Cluster. Existing and proposed clusters and nodes form a connected loop with shortcuts among the clusters via the existing transport network.

4.12.6 With the proposed development clusters supported by an integrated transport network, it is envisioned that a balanced spatial distribution of housing and jobs across the territory would be achieved, with significant increase in both housing and jobs in the northern and northwestern New Territories, and moderate increases in the existing I&T-related developments including the Science Park and Tai Po / TKO Industrial Estates. In long run, the southern part of Hong Kong housing the CBD3 will also help alleviate the current overwhelming concentration of jobs in the traditional CBD (CBD1) and metro area. Congestion along existing key commute corridors is anticipated to be relieved. Shortened commute time and distance would lead to a higher quality of life and make Hong Kong a more welcoming city for both local citizens and foreign workers. The upholding of the "Railway as the backbone" strategy in deriving transport strategies would also contribute to a low-carbon economy.
4.13 Overall Impacts of Spatial Recommendations

4.13.1 The discussed spatial recommendations will not only facilitate better utilisation of existing infrastructure, but also explore new opportunities within the territory to diversify opportunities for all its people and enterprises, achieving high quality of life and leading the region towards a sustainable and technology-driven future.

4.13.2 Diversifying economic opportunities for all industries
Through enhancing inter-city collaboration and reinforce existing global strengths, Hong Kong is able to establish a comprehensive I&T production chain that encompasses different industries, namely R&D, prototyping, advanced production and commercialisation. Apart from strengthening the existing pillar I&T industries in Hong Kong, supporting other industries to implement I&T solutions and assisting traditional manufacturing industries to undergo re-industrialisation will also contribute to sustainable economic growth at different sectors and markets. More job opportunities at various entry levels, nature and functions can be created and thus driving a diversified and dynamic economy in Hong Kong.

4.13.3 Ensuring high quality of living for all walks of life
Residential areas that offer comprehensive community facilities, quality housing stock and connected neighbourhoods are reserved in nearly all clusters. These residential areas will incorporate elements of a resilient, smart and liveable community which will house more population. Job-housing discrepancies will potentially be reduced due to the increase in job opportunities within the development clusters and are close to residential areas.

4.13.4 Creating capacity of sustainable growth for all generations to come
With railway network and other means of low-carbon transport modes being the backbone of connectivity enhancement within and beyond different clusters, an environment-conscious society would be established to create capacity for sustainable growth. With green technology and smart city being two of the strategic areas of research in Hong Kong, more technology application is anticipated in transforming Hong Kong to a smart, resilient and climate-ready society.
4.14 Development Phasing

4.14.1 The proposed development phasing for the spatial recommendations is formulated based on 3 major criteria stated below:

4.14.2 Ongoing stage of development
For some development nodes such as the HSK and KTN NDAs and LMC Loop development, related planning and pre-construction works have been ongoing by the Hong Kong Government. With the view of the already present concurrent development progress for some recommended nodes, it would be easier for the Hong Kong Government to take advantage of the concurrent development progress and incorporate the potential improvements recommended in this report into the development scheme.

4.14.3 Interrelationship of individual clusters and nodes
Some development nodes or clusters exhibit a strong connection and need for collaboration in terms of their functions and locational characteristics. For instance, the commissioning of nodes providing advanced manufacturing services are better to complement with the commissioning of related tech parks, so as to minimize the timing mismatch in the provision of the interrelated functions with clusters and along the strategic corridors.

4.14.4 Technical considerations
Factors including the availability of land, scale and scope of development, the need for land resumption/land formation, the need for constructing relevant transport or other supporting utility infrastructures etc. all affect the cost and time required before the development can be kicked off and completed. To ensure the developments to be financially viable, and the government to be "financially stable or healthy" across the development process, appropriate prioritization of developments is needed to avoid making huge investment on the development projects at the same time, leading to the huge risk involved in the infrastructural investment by the government under the uncertain future local or global market condition.
4.14.5 Figure 4.14.1 below shows the recommended development phasing of the proposed spatial recommendations.

![Figure 4.14.1 Proposed Development Phasing](image)

4.14.6 Regarding "Cluster 1", the "enterprise" land uses in the HSK NDA are dedicated to be developed in Phase 3 of the NDA development process. Considering that the advanced manufacturing functions to be provided in the YLIE at its proximity would support the R&D activities within the "enterprise" land uses in the HSK NDA, it is recommended that planning works for YLIE redevelopment and expansion to be kicked off in short term to allow the YLIE to have sufficient capacity to serve the R&D activities in HSK NDA.

4.14.7 Regarding the TPIE and TKOIE, the sites are positioned as the engines driving re-industrialization of Hong Kong. With the anticipated increasing demand for local prototyping and advanced production services derived from the increase in local I&T development and cross-boundary I&T collaboration, the HKSTP is suggested to start planning for development of the existing vacant or resumed sites within the IEs, to timely provide relevant facilities to support the anticipated arising short-run demand. In medium run, parallel efforts of liaising with existing tenants to provide their un-utilized plot ratios, and redevelopment of the provided premises are expected.
4.14.8 Regarding developments positioned to be implemented in long-run, including the development of San Tin and the Northern I&T cluster, the rationale behind is that a long period of time is expected to be needed to carry out land resumption, as well as undergoing detailed planning and engineering feasibility studies, especially for the huge development scale of the northern I&T cluster.

4.14.9 Finally, regarding the supporting nodes of the Kowloon East Business, I&T Development Zone (CBD2) and "Lantau Tomorrow Vision", the former is recommended to encompass the short, medium and long term of the phasing plan as the pace of development is largely market driven. Yet, the Hong Kong Government is highly recommended to provide relevant appropriate policy incentives in short run to encourage efficient development of the area. For the "Lantau Tomorrow Vision", given that the "Vision" is still at a very preliminary stage, the feasibility (financial, technical and political) needs further investigation due to the large development scale, it is considered that the development would be carried out in a rather long-term horizon.
5. Policy Recommendations and Implications

5.1 Development Issues and Implications

5.1.1 Acquisition of brownfield sites

5.1.1.1 One of the major limitations to proposing cluster development is the scarcity of land in that area. In our clusters, mostly along the Collaborative I&T corridor, majority of the land available is brownfield. In Hong Kong, the majority of the brownfield sites under private ownership and occupies relatively flat areas in the New Territories is the prime sites for development. Since these brownfield sites are privately owned and currently used for various purposes that would require large piece of land for relocation it will be a difficult and challenging task for the government to acquire these brownfield sites and utilize them for the planned infrastructure development to support I&T development.

5.1.1.2 The major hindrance in this course would be to bring the land owners to an agreement to sell the land as this land acquisition process could take a very long time and become a rigorous process. These issues are mostly evident in Northwestern I&T Business Cluster, Northern Research and Education Cluster and Northeastern I&T Cluster. Within Hung Shui Kiu NDA, 65 out of 190 hectares of brownfield sites have been allocated for private business operators, therefore similar or equivalent amount of alternative have to be provided for them to sustain their current works that support Hong Kong’s economy to some respect. The major implication for the government in this case would be to invest more resources in acquiring these brownfield sites which could include sufficient compensation, meticulous planning and human resources as well.

5.1.2 Preservation of local and natural characteristics

5.1.2.1 Along with brownfield sites there are other development restriction such as ecological sites and small village type development. Along the Collaborative I&T Corridor there are many natural reserves and country parks such as Hong Kong Wetland Park and the Mai Po Nature Reserve. Extensive care and planning must be done while developing areas near these natural and high ecological value sites. In addition, some small village development in these clusters must be accommodated in such a way by the government that they do not lose their indigenous character and support the I&T growth in the area. In some proposed clusters there might be potential hazardous or nuisance generating facility nearby which might need to be shifted somewhere else such as the Towngas plant installation in Tai Po and the NENT landfills. Similar hazardous facilities installations could become hindrance and non-conforming to the related I&T land uses.

5.1.2.2 Consequently, detailed study of the development impacts to its neighbouring regions must be carried out to reduce possible hindrance to community and the living quality. Community planning and thorough consultation with the affected communities are also important to raise awareness and to build consensus during development.
5.1.3 **Relieving development control**

5.1.3.1 **The related infrastructure and facilities needed by various I&T related industries demand development control flexibility.** The current development control parameters especially for buildings are through plot ratio and building height restrictions. With scarce land resources and limitations to build in lesser space, the government needs to allow more flexibility in creating more Gross Floor Area (GFA) by increasing the plot ratio and loosening building height restrictions. Further incentives might need to be given to attract private sector investment in building required infrastructures through easier land leasing process, initial tax waiver or exemption and other attractive benefits to attract various private sector businesses to the area.

5.2 **Talent Attraction, Retention and Support**

5.2.1 **The need to attract young and well-educated talents**

5.2.1.1 **Hong Kong is moving towards a knowledge-based economy,** given that a highly productive and competitive region requires a higher share of educated and high-skilled workforce, attracting foreign talents helps to foster knowledge and technology transfer with locals and nurture breakthroughs. Furthermore, Hong Kong needs professionals in the certain I&T fields to diversify economic base, and these I&T professionals are now short in supply in Hong Kong, such as Fintech Professionals, Data Scientists & Cyber Security Specialists, Innovation and Technology Experts, as listed out in the (TalentListHK, 2019).

5.2.1.2 **Compared to mature talents, young and well-educated talents tend to look for a variety of job opportunities in dynamic industries, cultural experiences and leisure opportunities.** Also, they help to sustain the population of talent pool to diversify knowledge in the region. Considering talent attraction and retention, young and well-educated talents primarily include (i) local undergraduates, (ii) recent university graduates and (iii) young families. Different groups of talents have their respective considerations in deciding whether they would like to work, in short and long terms, in a region. These sets of considerations should be taken into account when formulating talent policies for effective talent attraction and retention.

5.2.2 **The need to attract young and well-educated talents**

5.2.2.1 **Amenities, housing affordability, family support, public transportation accessibility and networking opportunity,** etc. are examples of talents’ considerations of living and working destinations. Different groups of talents prioritise different considerations in deciding their living and working destinations.

5.2.2.2 **For local under undergraduates, networking opportunity is the top consideration as the provision of platforms for knowledge and information exchange could help them better understand their career pathways and thus having greater confidence in staying.**
5.2.2.3 For recent university graduates, amenities for the after-work leisure, nightlife and good public transportation connections are their top considerations. Further, these graduates desire lower living and housing costs. Taking into account these considerations, living in smaller flat units with a co-living environment could be an attractive option for keeping a manageable housing cost if sufficient amenities and good public transportation connections are provided.

5.2.2.4 For young families, the most crucial considerations are housing affordability and family support. For housing affordability, since shared co-living spaces is not an available option for lowering housing cost, young families may need extra aid in lowering housing costs or finding suitable housing option that could satisfy the need of the family. A variety of family supporting facilities and services, ranging from day-care services, medical services to options of schools, are needed in order to create an attractive living environment for young family.

![Figure 5.2.1 Considerations of talents in choosing living and working destinations (Source: Study Team, consolidated from Lake, et al., 2014)]
5.3 Policy Recommendation on Talent Attraction and Retention

5.3.1 Technology Talent Admission Scheme

5.3.1.1 Concerning talent policies, an issue to be addressed is the inadequacy of current policies, especially to young talents. Despite the current TechTAS implemented by the Hong Kong Government for admitting foreign talents offers a more convenient and efficient application procedures, the Scheme is relatively less favourable to young foreign talents because it sets the same selection requirements for talents of all age groups. In other words, foreign young talents seeking to join the scheme and work in Hong Kong need to compete with senior talents under the same scheme. For Shenzhen, there is a separate scheme targeting foreign young talents, which ensures different types of talents can be attracted to the region.

5.3.1.2 Therefore, a “levelled structure of talent schemes” is recommended to be introduced in Hong Kong to attract talents at different skill-levels (TechTAS, 2018). The “China Work Permit Point Scoring System” adopted in mainland China is an example of a “levelled structure of talent scheme”. It provides scores with weightings on candidates’ qualification, such as educational qualifications, work experience, language proficiency etc, and then categorizes them into Tier A, B & C with a certain amount of quotas for each tier. Hence, the opportunity for young candidates to join the scheme is enhanced, while the city will be able to sustain a diversified talent pool (China Briefing, 2018). Although Hong Kong has a large pool of I&T talents nurtured by the tertiary education sector, it is still essential for the Hong Kong Government to review the current talent attracting policies, in order to attract I&T young talents in the long run.

5.3.2 Talent affordable housing and housing subsidy

5.3.2.1 For talent retention policies, a major issue that the government offers little support regarding the high living cost in HK to local and foreign talent groups, such as recent graduates, couples and families. For recent graduates, smaller flats and co-living spaces can be option for them to better manage their living cost. The provision of talent housing within Tech Parks can also provide young talents with a co-living and co-working environment that encourages knowledge transfer and networking. Recently, the HKSTP has planned to provide talent housing with 500 units (InnoCell) within the HKSTP, which will be commissioned in 2020. There is no further plan for the government or HKSTP to provide talent housing units in future (LegCo, 2018).

5.3.2.2 Unlike recent graduates, couples and families are concerned more about privacy of their living environment and the availability of community supporting services nearby. Granting housing subsidies for these talent groups to rent private housing in accordance to their family sizes is a better option than providing them with talent housing, as it provides flexibility for young families to choose their preferred location of living, where different types of community support facilities are available in different districts. Currently, the "HKSTP Accommodation Support Scheme" is the only policy that is linked to the TechTAS policy. It provides a monthly housing subsidy of $10,000 for each candidate under the TechTAS for a maximum of 1 year only. No further allowance will be granted to candidates after they have stayed for 1 year in Hong Kong (HKSTP, 2019).
5.3.2.3 Given the high housing and living cost of Hong Kong is a big obstacle that deteriorate Hong Kong’s competitiveness in retaining foreign talents, a more holistic approach from the Hong Kong Government is needed to provide adequate support. Regarding foreign talents of specific I&T sectors, one policy recommendation is that the government can reserve a certain amount of land within its future planned Tech Parks for talent housing uses, one similar to the approach of the "InnoCell". The talent housing can provide transitional small units and co-living spaces to provide more units with limited land and floorspace, as well as provide platforms for interactions and entertainment for young talents.

5.3.2.4 Apart from talent housing, the Hong Kong Government is also recommended to instil more financial resources, as well as provide a more sustainable subsidizing policy for aiding other talent groups to rent a place in the private housing market. The amount of housing allowance can be adjusted according to the number of family members of individual applicants, and the subsidizing period (current maximum 1 year) should at least cover the whole period of the talent admission programme (2 years), in order to provide foreign talents with a stable living and working environment.

5.3.2.5 Consequently, streamlining current work permit application procedures for employment opportunities in both Hong Kong and Shenzhen is required to diversify the pool of talents and expertise.

5.3.3 Work permit and immigration policy

5.3.3.1 Convenient visa and immigration arrangement will undoubtedly facilitate flow of overseas talents to work in both Shenzhen and Hong Kong, and in turn contributing to better international outlook and connection to foreign markets. However, the current TechTAS scheme only allow eligible candidates to work and stay in Hong Kong only. In other words, they are required to apply for working permit in Shenzhen should they wish to work in both cities. The application of working permit often involves repeated submissions of documents at different stages, namely the Employment License application, Z Visa application, physical examination, etc. (China Best Freight, 2019). Such arrangement would potentially hinder the desire of foreign talents to work in both cities.
5.4 Operation mode of Tech Parks and Science Parks

5.4.1 From our spatial strategy and recommendations, four I&T development cluster areas have been proposed. In each of these clusters, there are various infrastructural requirements and facilities that need to be set up according to the purpose of the cluster such as I&T business and start-up hub, education and research base or data centre. All these need to be operated or managed by an organization through a proper management structure. Currently in Hong Kong, the Hong Kong Science and Technology Park Corporation is tasked with the objectives to establish or develop premises in support of technology-based companies and activities; to facilitate R&D and application of technologies; and to support the development, transfer and use of advanced technologies in Hong Kong. In these terms, HKSTP has been working with the government on development of I&T industries through collaboration and allocating land resources for these specific I&T related industries. Various land uses inside industrial estates have already been introduced such as Data and Technology Hub and Advanced Manufacturing Centre.

5.4.2 As the number of technology and science park inside Hong Kong is expected to rise in the future as the Hong Kong Government is looking to establish a strong base for I&T development, the management of all tech parks inside Hong Kong solely by HKSTP can be a challenging task. One possible recommendation is to decentralize the power and management structure of future science and tech parks. As stated in the HKSTP Ordinance Cap. 565 (4) (b), HKSTP is allowed to establish a subsidiary company to facilitate the R&D and application of technology in manufacturing and service industries. The Hong Kong – Shenzhen Innovation and Technology Park in Lok Ma Chau Loop established by HKSTP under this ordinance is wholly-owned subsidiary company which has been vested with the responsibility to build the superstructure of the Park, as well as to operate, maintain and manage the same.

5.4.3 The proposed four spatial clusters also include tech parks to attract business and talents in Hong Kong. All these clusters play different roles in contributing to the overall I&T ecosystem and each tech park within these clusters may need different infrastructure thus requires diverse management setups. Should HKSTP be continuing to take the lead to manage the operation of tech parks and the more to come, different subsidiary companies similar to Hong Kong – Shenzhen Innovation and Technology Park should be set up in each cluster under HKSTP Ordinance Cap. 565 4(b). Each of these subsidiary companies should have full responsibility to construct, operate, maintain and manage the tech parks without owning any rights to sell or lease any property. The company should act only as a supporting body to the HKSTP and all rights must be reserved with the HKSTP.
5.5 Cross Boundary Governance

5.5.1 Cross Boundary arrangement is a major concern for various stakeholders as that is one of the crucial factors that affect the decision of whether or not, and how frequent people would engage in cross-boundary movements. To facilitate a seamless movement of people between Hong Kong and Shenzhen, especially within the Collaborative I&T Corridor that has been proposed in Chapter 4, lesser time spending on boundary control points through Advanced Joint Boundary Clearance System needs to be created for convenient crossing, and thus encourage cross-boundary movements.

5.5.2 Other Besides the existing Shenzhen Bay BCP, both Lok Ma Chau Loop BCP and LT/HYW BCP will be completed and come in operation soon. Co-location arrangements, which is to allow travellers to receive travel documents checking by officers from both cities at the same place, have been proposed in both LT/HYW and Lok Ma Chau Loop BCPs. There are two major benefits of co-location arrangements which are: saves the time of travellers who have to go through the same boundary control arrangements twice at different places and improves the security for the destination jurisdiction as the latter can decide on the threat before arrival which highly depends on the information sharing capability. While co-location arrangement has already been implemented in the Shenzhen Bay BCP, it is not as efficient as in the cases of Changi International Airport Singapore and Macau Zhuhai Boundary Control Point where Advanced Joint Boundary Control Systems (Automated systems) for identity checking and verification are used for more efficient and seamless boundary-crossing experience. Automated systems allow seamless boundary crossing with minimal time expenditure on the procedure. In the initial stages, dedicated identity cards can be issued for daily travelers and people working in this field. These dedicated identity cards should facilitate minimal procedures and should not be complicated.

5.5.3 An important role of the government to drive I&T development is to create flexibility and opportunities for companies and institutions to undergo innovation collaboration. Cross-boundary linkage is emphasized to increase the innovation potential of the area through additional access to technology and innovation sources. Learning from the international best practices in Oresund region, the education platform HALOS (Hanseatic League of Science) (HALOS, 2019), a centre for integrated world-leading Life Science Innovation and research was established. This platform helps bring together the best researchers in the region from various universities and around the world to work on the world leading Life-Science and research.

5.5.4 Currently, Hong Kong Innovation and Technology Bureau (ITB) and Hong Kong Innovation and Technology Commission (ITC) have been working on the collaboration with the Mainland I&T industries, academia and businesses through various platforms, such as the Mainland/Hong Kong Science and Technology Co-operation Committee (the Committee). Consisting of representatives from the governments, research and education institutions, and other I&T related industries from both Mainland China and Hong Kong, the Committee has been effective to expedite I&T advancement through governmental collaboration and agreements, for example to select outstanding Hong Kong laboratories to be approved as Partner State Key Laboratories and admit Hong Kong talents to the National Science and Technology Programmes Expert Database (ITC, 2017) [detailed list of ITC membership is available in Appendix 4]. In addition, to further enhance the contribution of research and innovation to the Hong Kong I&T sector, an institution solely focused on collaborating with universities from Shenzhen and Hong Kong along with overseas on applied
research breakthroughs can be established. This institution can be managed by the Hong Kong SAR government but nonetheless must contribute to the overall development of I&T sector everywhere.
6. Summary of Implications to Stakeholders

6.1 Key stakeholders involved

6.1.1 The rich number and scope of the proposed spatial and policy recommendations stated in Chapter 4 and 5 implies a concerted effort from a variety of stakeholders to be needed to realize the benefits and synergies that are envisioned to be generated by the recommendations. To achieve the vision of maintaining Hong Kong as a global technology-driven city rendering a wide range of economic opportunities and high quality of life, it is important for the Hong Kong Government to have a clear direction and framework in mind, regarding the actions from different government departments, institutions and organizations required in short and long run. The following section highlights the implications of each aspect involved in fostering I&T development and cross-boundary collaboration to different stakeholders. Table 5.6.1 below shows the list of related stakeholders.

Table 5.6.1 List of Potential Stakeholders (Source: Study Team)

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>I&amp;T development (Management and coordination)</td>
<td>• Innovation and Technology Bureau (ITB)</td>
</tr>
<tr>
<td></td>
<td>• Innovation and Technology Committee (ITC)</td>
</tr>
<tr>
<td></td>
<td>• Hong Kong Science and Technology Park Corporation (HKSTP)</td>
</tr>
<tr>
<td></td>
<td>• Hong Kong Cyberport Management Company Limited</td>
</tr>
<tr>
<td></td>
<td>• Hong Kong Productivity Council (HKPC)</td>
</tr>
<tr>
<td></td>
<td>• Hong Kong Trade Development Council (HKTDC)</td>
</tr>
<tr>
<td>I&amp;T development (Research and education)</td>
<td>• Education Bureau</td>
</tr>
<tr>
<td></td>
<td>• University Grants Committee (UGC) funded universities and other private universities</td>
</tr>
<tr>
<td></td>
<td>• Hong Kong Applied Science and Technology Research Institute</td>
</tr>
<tr>
<td></td>
<td>• Hong Kong Automotive Parts and Accessory Systems R&amp;D Centre</td>
</tr>
<tr>
<td></td>
<td>• Hong Kong R&amp;D Centre for Logistics and Supply Chain Management Enabling Technologies</td>
</tr>
<tr>
<td></td>
<td>• Hong Kong Research Institute of Textiles and Apparel</td>
</tr>
<tr>
<td></td>
<td>• Nano and Advanced Materials Institute Limited</td>
</tr>
<tr>
<td>Planning and Development</td>
<td>• Transport &amp; Housing Bureau (THB)</td>
</tr>
<tr>
<td></td>
<td>• Planning Department (PlanD)</td>
</tr>
<tr>
<td></td>
<td>• Civil Engineering and Development Department (CEDD)</td>
</tr>
<tr>
<td></td>
<td>• Transport Department (TD)</td>
</tr>
<tr>
<td></td>
<td>• Housing Department</td>
</tr>
<tr>
<td></td>
<td>• Highways Department</td>
</tr>
<tr>
<td></td>
<td>• Lands Department (LandsD)</td>
</tr>
<tr>
<td>Cross-boundary Governance and Talent Policy</td>
<td>• Constitutional and Mainland Affairs Bureau (CMAB)</td>
</tr>
<tr>
<td></td>
<td>• Immigration Department</td>
</tr>
</tbody>
</table>
6.2 Implications to Stakeholder Groups

6.2.1 I&T development (Management and coordination)

6.2.1.1 If the spatial recommendations proposed in this report are adopted, more tech parks would be planned and built in the development clusters as the engines to nurture I&T development endeavours. It implies the Hong Kong Government would need to allocate more financial resources to the management bodies of those tech parks. The ITB should take a more proactive role in monitoring and supporting the development and management of the tech parks, as well as cooperating with relevant government departments to conduct regular reviews on the talent attraction and retention policies according to the prevailing needs of Hong Kong and market condition. More communications among government departments, tech park management corporations and related public bodies of Hong Kong and Shenzhen would also help the Hong Kong Government to formulate timely policies that are kept up with the latest market trend or policy directions which might affect Hong Kong from Shenzhen.

6.2.2 I&T development (Research and education)

6.2.2.1 While Hong Kong is positioned as a knowledge-based and technology-driven economy in future, with future increasing business opportunities in the I&T sector derived from cross-boundary collaboration, encouraging local primary and secondary schools, as well as universities to provide more “STEM” education-related courses and workshops to their students by the Government (Education Bureau) would help nurture more local I&T talents. It can also promote the popularization of science and increase the awareness of technology application and innovation in society.

6.2.2.2 Providing more UGC-funded postgraduate research degree on I&T-related subjects would also encourage more students to develop their career in the I&T sector and demonstrate the Government’s emphasis and determination in supporting I&T development. As a result, it implies that more financial resources for supporting course fundings and expansion of existing Science Buildings within local universities or existing Research Institutes are recommended to be instilled by the government to promote long-term nurturing of talents in the I&T sector.

6.2.3 Planning and Development

6.2.3.1 A number of development and infrastructural projects are anticipated to be commenced given the spatial recommendations. Planning and feasibility studies would need to be jointly conducted by the PlanD, CEDD, Highways Department etc. to examine and formulate technically, legally and financially viable and sustainable plans. The LandsD shall also embark on efficient land resumption works for developments involving private land or occupied land, especially for developments in the Northern New Territories. The PlanD shall also conduct reviews on the current development controls on land use zonings intended for / allow I&T-related uses, to look for opportunities to achieve more efficient use of the scarce land resources to provide more floor-space for I&T-related uses, while minimizing the impacts on the surrounding environment and related stakeholders.

6.2.4 Cross-boundary Governance and Talent Policy

6.2.4.1 Review on the current provision of boundary-crossing facilities shall be required to be done by the collaborative effort between the Hong Kong and Shenzhen Municipal Government to investigate on further enhancing the efficiency of boundary-crossing shall be needed in wake of the anticipated increase in cross-boundary commute and activities in future. Sufficient fundings shall be provided
by the Government to establish new and more efficient boundary-crossing gates, if applicable. The Immigration Department of Hong Kong shall also liaise and work with relevant Shenzhen’s authorities, as well as collect opinions from overseas talents in Hong Kong to build a better understanding of their concerns and recommendations in terms of talent attraction and retention policies.
7. Conclusion

7.1 Under the overarching vision of enhancing Hong Kong’s excellence among other Asian cities by diversifying opportunities for all its people and enterprises, achieving high quality of life and leading the region towards a sustainable and technology-driven future; a series of spatial and non-spatial policy have been put forward to bring Hong Kong’s I&T and societal development to the next level.

7.2 Various I&T development clusters and transport enhancements are proposed to harness locational proximity to Shenzhen for greater inter-city collaboration and synergy; and to strengthen the existing global strengths of Hong Kong to foster sustainable growth with the following key strategies:

- Strengthen inter-city collaboration by incorporating I&T-oriented development clusters in the northern part of Hong Kong, as well as assisting other industries to apply I&T solutions to diversify economic opportunities
- Realise triple-helix development approach by enhancing closer collaboration between government, research and development institute and industry
- Achieve higher quality of living through enhancing the functions of comprehensive new development areas that take into account quality housing supply and liveability
- Provide a comprehensive I&T production chain within the territory with efficient local and regional transport connection.

7.3 Despite the fervent wish to heighten Hong Kong’s competitiveness through diversifying economy, such spatial proposals are without its development constraints that require much scrutiny and policy support. Talent attraction and retention measures in a form of appropriate talent housing, improvement in visa and work permit application are required to encourage flow of different expertise and talents. Facilitating cross-boundary collaboration between research institutions and optimising management mechanism of future tech park are also important to stimulate research breakthroughs and coordination, and subsequently add to the capacity of Hong Kong in becoming a sustainable and technology-driven city.
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Strategic planning for Collaborative and Sustainable Development of Hong Kong and Shenzhen: HK2030+ review
Final Report


## Appendix 1 – Table 1 I&T Industrial positioning in Western Shenzhen

<table>
<thead>
<tr>
<th>Districts</th>
<th>Regional Positioning</th>
<th>District Positioning</th>
<th>Industrial Positioning</th>
<th>Production Chain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nanshan</strong></td>
<td>Important node of Guangzhou-Shenzhen-Hong Kong-Macau I&amp;T Corridor, especially in connection with Hong Kong and Macau</td>
<td>A world-class district of innovation</td>
<td>Strategic emerging industries • Internet, big data, cloud computing and AI • I&amp;T headquarters</td>
<td>Applied research (innovation)</td>
</tr>
<tr>
<td><strong>Bao’an</strong></td>
<td>Important node of Guangzhou-Shenzhen-Hong Kong-Macau I&amp;T Corridor, Shenzhen • Key Transportation Hub</td>
<td>A modern and international coastal district for innovation</td>
<td>Strategic emerging industries • Modern logistic</td>
<td>Advanced manufacturing (smart production; AI/robotics; internet + manufacturing)</td>
</tr>
<tr>
<td><strong>Guangming</strong></td>
<td>Important hub for the integration of Shenzhen and Dongguan</td>
<td>Industrial base for I&amp;T development</td>
<td>Strategic emerging industries • Medicine</td>
<td>advanced manufacturing + mass production</td>
</tr>
</tbody>
</table>
### Appendix 2 – I&T Industrial positioning in Central Shenzhen

<table>
<thead>
<tr>
<th>Districts</th>
<th>Industrial Positioning</th>
<th>Production Chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Futian</td>
<td>AI, corporate headquarters services, electronics R&amp;D, fintech</td>
<td>High-end innovation, headquarter function &amp; production-related services (commercialisation)</td>
</tr>
<tr>
<td>Luohu</td>
<td>AI, IT, life Science, internet application, software development, e-commerce</td>
<td>Production-related services (commercialisation)</td>
</tr>
<tr>
<td>Longhua</td>
<td>Electronics manufacturing, high-end automobile and equipment manufacturing, new energy, biomedicine, creative design</td>
<td>Manufacturing Commercialization</td>
</tr>
<tr>
<td>Longgang</td>
<td>Electronics and robotics manufacturing, new materials research, aerospace industry (drones and GPS), low-carbon technology</td>
<td>High-end innovation, academic innovation, manufacturing, production-related services (commercialization)</td>
</tr>
</tbody>
</table>
Table 3 I&T industry positioning in Eastern Shenzhen

<table>
<thead>
<tr>
<th>Districts</th>
<th>Industrial Positioning</th>
<th>Production Chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dapeng</td>
<td>Biotechnology</td>
<td>Innovation (R&amp;D)</td>
</tr>
<tr>
<td></td>
<td>Marine industry</td>
<td>Applied research &amp; commercialization</td>
</tr>
<tr>
<td></td>
<td>Tourism</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yantian</td>
<td>Logistics</td>
<td>Technology application and talent incubation</td>
</tr>
<tr>
<td></td>
<td>Tourism</td>
<td>Logistics: port &amp; export</td>
</tr>
<tr>
<td></td>
<td>Biotechnology</td>
<td>Commercialisation</td>
</tr>
<tr>
<td></td>
<td>Artificial intelligence</td>
<td></td>
</tr>
<tr>
<td>Pingshan</td>
<td>Biotechnology</td>
<td>Innovation</td>
</tr>
<tr>
<td></td>
<td>New energy vehicles</td>
<td>Applied research</td>
</tr>
<tr>
<td></td>
<td>Information technology</td>
<td>Advanced manufacturing</td>
</tr>
<tr>
<td></td>
<td>Intelligent manufacturing</td>
<td>Commercialization</td>
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</table>
### Appendix 4 – Members of the Mainland/Hong Kong Science and Technology Co-operation Committee

<table>
<thead>
<tr>
<th>Mainland Members</th>
<th>Hong Kong Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hong Kong and Macao Affairs Office of the State Council</td>
<td>Innovation and Technology Bureau</td>
</tr>
<tr>
<td>2 Liaison Office of the Central People's Government in the Hong Kong Special Administrative Region</td>
<td>Innovation and Technology Commission</td>
</tr>
<tr>
<td>3 Chinese Academy of Sciences</td>
<td>Office of the Government Chief Information Officer</td>
</tr>
<tr>
<td>4 National Natural Science Foundation of China</td>
<td>City University of Hong Kong</td>
</tr>
<tr>
<td>5 China Association for Science and Technology</td>
<td>Hong Kong Baptist University</td>
</tr>
<tr>
<td>6 Guangdong Provincial Department of Science and Technology</td>
<td>Chinese University of Hong Kong</td>
</tr>
<tr>
<td>7 Science and Technology Innovation Commission of Shenzhen Municipality</td>
<td>Hong Kong Polytechnic University</td>
</tr>
<tr>
<td>8</td>
<td>Hong Kong University of Science and Technology</td>
</tr>
<tr>
<td>9</td>
<td>University of Hong Kong</td>
</tr>
<tr>
<td>10</td>
<td>Hong KongSTPC</td>
</tr>
<tr>
<td>11</td>
<td>Hong Kong Cyberport Management Company Limited</td>
</tr>
<tr>
<td>12</td>
<td>Hong Kong Productivity Council</td>
</tr>
<tr>
<td>13</td>
<td>Hong Kong Applied Science and Technology Research Institute</td>
</tr>
<tr>
<td>14</td>
<td>Hong Kong Automotive Parts and Accessory Systems R&amp;D Centre</td>
</tr>
<tr>
<td>15</td>
<td>Hong Kong R&amp;D Centre for Logistics and Supply Chain Management Enabling Technologies</td>
</tr>
<tr>
<td>16</td>
<td>Hong Kong Research Institute of Textiles and Apparel</td>
</tr>
<tr>
<td>17</td>
<td>Nano and Advanced Materials Institute Limited</td>
</tr>
</tbody>
</table>
### Appendix 5 - Interview Notes

<table>
<thead>
<tr>
<th>#</th>
<th>Interviewee Background</th>
<th>Date</th>
<th>Time</th>
<th>Key Field(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A member from Hong Kong Institute of Planners</td>
<td>6/3/2019</td>
<td>21:45</td>
<td>Urban planning and strategic planning for I&amp;T development</td>
</tr>
<tr>
<td>2</td>
<td>A I&amp;T practitioner</td>
<td>11/3/2019</td>
<td>16:00</td>
<td>Financial technology development in Hong Kong</td>
</tr>
<tr>
<td>3</td>
<td>An urban planner from China Academy of Urban Planning &amp; Design, Shenzhen</td>
<td>14/3/2019</td>
<td>16:30</td>
<td>Urban planning and strategic planning in Shenzhen</td>
</tr>
<tr>
<td>4</td>
<td>An urban planner from private sector</td>
<td>16/3/2019</td>
<td>14:00</td>
<td>Urban planning and strategic planning for I&amp;T development in Shenzhen and Hong Kong</td>
</tr>
<tr>
<td>5</td>
<td>A I&amp;T entrepreneur</td>
<td>17/3/2019</td>
<td>20:30</td>
<td>I&amp;T development in Hong Kong and Shenzhen</td>
</tr>
<tr>
<td>6</td>
<td>A scholar from University of Hong Kong</td>
<td>20/3/2019</td>
<td>14:15</td>
<td>Cross boundary development, urban and regional planning and governance</td>
</tr>
<tr>
<td>7</td>
<td>An urban planner from Hong Kong SAR government</td>
<td>20/3/2019</td>
<td>18:15</td>
<td>Brownfield sites (and urban and regional planning for Hong Kong I&amp;T development?)</td>
</tr>
<tr>
<td>8</td>
<td>A former and retired urban planner from Hong Kong SAR government</td>
<td>20/3/2019</td>
<td>19:00</td>
<td>Urban planning and strategic planning in Hong Kong</td>
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<td>9</td>
<td>Representative from Cyberport</td>
<td>27/3/2019</td>
<td>16:30</td>
<td>I&amp;T development in Hong Kong</td>
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<td>10</td>
<td>A member from Hong Kong Institute of Planners</td>
<td>27/3/2019</td>
<td>18:00</td>
<td>Mainland studies and urban planning in Shenzhen and Hong Kong</td>
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</tbody>
</table>
Interview 1

Interviewee: A member from Hong Kong Institute of Planners

Date: 6/3/2019

Time: 21:45-23:15

Key Notes:

- **Strategic planning for I&T development in Hong Kong**
  - Hong Kong’s I&T development is too piecemeal.
  - Hong Kong government does not have a strategic planning or enough policy support for Hong Kong’s I&T development.
  - The western corridor of Hong Kong does not suggest I&T development as a potential activity.
  - I&T development is less important than real estate development.
  - Shortage of land/offices for I&T development; NDA should reserve lands for I&T.

- **Talent Attraction to Hong Kong**
  - Transportation is important
  - Hong Kong has enough demand of I&T enterprises, probably because of subsidies
  - Living environment and high living cost in Hong Kong is not ideal

- **Institutional support**
  - Lack of communication between government departments and public institutions
  - Lack of motivation from Hong Kong government to promote I&T development; stop at the discussion phase
  - Only have short-term liaisons
  - Hong Kong Science Park is not financially independent

- **Shenzhen-Hong Kong cooperation**
  - Competition is inevitable, competition and cooperation is mutually dependent; benefits for Hong Kong overweight cons; without collaboration, Hong Kong will be left behind
  - Hong Kong’s I&T development is too far behind from Shenzhen, especially hardware
  - Hong Kong’s manufacturing industry is declining, Hong Kong’s high value-added industry is falling behind Shenzhen

- **Hong Kong’s specialized I&T sub-sector**
  - Bio-tech; but Hong Kong is not capable of commercializing their products

- **Factors of promoting I&T development in Hong Kong**
  - 1st priority: the proximity to mass transit system is important.
  - Proximity to educational institutions. Universities focus on research. I&T sector focuses on innovation. The closer linkage can save resources of attracting talents. Education + Culture & Creative + Technology & Innovation should be integrated.
  - a core zone / corridor for industrial cluster is important to pool resources
  - mixed use development can promote community vibrancy, which can converge people
  - Incentive scheme e.g. financial support, one-stop service
  - Leisure and recreational activities e.g. eco-tourism
## Interview 2

**Interviewee:** A I&T practitioner  
**Date:** 11/3/2019  
**Time:** 16:00 – 17:15

<table>
<thead>
<tr>
<th><strong>Key Notes:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hong Kong I&amp;T positioning</strong></td>
</tr>
<tr>
<td>o Current IT and financial services in Hong Kong is focusing on AI and big data. Shenzhen is the national leader in technology industry and Hong Kong is the leader of I&amp;T and Fintech.</td>
</tr>
<tr>
<td>o Hong Kong’s traditional infrastructure is good; but current jurisdiction does not allow free flow of information</td>
</tr>
<tr>
<td>o An acknowledged Electric ID system is vital if Hong Kong aims to be a super connector between China and the western world</td>
</tr>
<tr>
<td>o Hong Kong should be the Intermediary between Chinese and Western world through electronic professional service and develop itself as a data terminal</td>
</tr>
<tr>
<td>o Hong Kong should expand its advantage as Renminbi offshore business center with the utilization of big data</td>
</tr>
<tr>
<td><strong>Policy support for I&amp;T development</strong></td>
</tr>
<tr>
<td>o To formulate efficient plans, Hong Kong SAR government should start from the details</td>
</tr>
<tr>
<td>o Innovation and Technology Bureau does not have enough authority</td>
</tr>
<tr>
<td>o Hong Kong SAR needs to take more calculated risks</td>
</tr>
<tr>
<td>o Promotion of open data</td>
</tr>
<tr>
<td><strong>Hong Kong-Shenzhen collaboration</strong></td>
</tr>
<tr>
<td>o There are barriers in terms of legal system, culture, language between Hong Kong and Shenzhen</td>
</tr>
<tr>
<td>o Open banking</td>
</tr>
<tr>
<td>o Integration of education of Hong Kong and Shenzhen</td>
</tr>
</tbody>
</table>

### Interview 3

<table>
<thead>
<tr>
<th>Interviewee:</th>
<th>An urban planner from China Academy of Urban Planning &amp; Design, Shenzhen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>14/3/2019</td>
</tr>
<tr>
<td>Time:</td>
<td>16:30 – 17:45</td>
</tr>
</tbody>
</table>

#### Key Notes:

- **Development of Shenzhen’s regions**
  - Cluster development reconstruct the network and functions of a city.
  - Through industrial cluster, advance the internal function of each cluster in the city.
  - The city uses convenient transportation linkage to connect clusters.

- **Competition between Hong Kong and Shenzhen**
  - Even the regions in Shenzhen are competing with each other; however, a division of labour can minimize the negative impacts.
  - Through inevitable competition, the cities can identify their own shortcoming and strengths and eventually specializations.
  - If you narrow the details of an industry, there are different sections within an industry. For Fintech, Hong Kong got an international platform. And Shenzhen has a better linkage between downstream and manufacturing. It will take a long time for Shenzhen to catch up the advantages of Hong Kong’s financing platform and free flow of information.
  - Through Hong Kong-Shenzhen collaboration, the market will expand and the competition will not be fierce.
  - Zero competition is impossible and not beneficial. Industry competitions are acceptable as long as it does not sacrifice certain areas such as natural habitat.

- **Government approaches towards competitions**
  - Shenzhen government is using top-down approach to support each industry and provides freedom for the private sector through market competition. The government provides all necessary hardware for the market.
  - Shenzhen Investment Holdings Co., Ltd. Is a private company but the government is biggest shareholder. Hong Kong government only provides subsidies while Shenzhen government would actually invest in those companies.
  - The government needs to take more risks and try more. Shenzhen has been learning from its mistakes throughout last decade.

- **Cross-boundary**
  - It will take time to solve the legal system difference. Co-location arrangement has been implemented in Shenzhen Bay and West Kowloon, which both work either in Shenzhen or in Hong Kong. Maybe the technology advancement in the future will solve the cross-boundary issues.
  - It is all about the flow of people. High-tech industry relies on talents. Good transportation linkage and custom control is essential for people commuting.

- **I&T development led by education**
  - The GBA economy should be led by I&T development. It is because not only Hong Kong got many good universities, but also easier to
promote collaboration. That’s exactly why LMCL choose education eventually. Education is less controversial and easy to get consensus.

- **Eastern region of Shenzhen**
  - The underdevelopment of eastern Shenzhen is due to the reservation of ecosystem diversity. Further development of eastern Shenzhen will not bring significant economic growth.
  
  Because of shortage of lands, Shenzhen will prudently explore eastern region via the Go East Strategy without creating adverse impacts to the nature.
### Interview 4

<table>
<thead>
<tr>
<th>Interviewee:</th>
<th>An urban planner from private sector</th>
</tr>
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<tbody>
<tr>
<td>Date:</td>
<td>16/3/2019</td>
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<td>Time:</td>
<td>14:00 – 16:00</td>
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<table>
<thead>
<tr>
<th>Key Notes:</th>
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| • Hong Kong-Shenzhen collaboration  
  o Hong Kong and Shenzhen can achieve synergy compared to the competitions between Shenzhen’s districts.  
  o Hong Kong and Shenzhen can complement each other. For example, legal protection and fundamental research is Hong Kong’s advantage  
  o It will mutually benefit both cities by expanding the market  
| • There should be new performance indicators to evaluate the development of cities to avoid negative competition. |
| • I&T positioning of cities in GBA  
  o The market will decide the positioning of each district. This will be an evolutionary process  
| • The benefit of Hong Kong I&T development under GBA context  
  o Agile is vital for I&T development.  
  o 5 flows: Flows of people, vehicle, capital, information and goods. The more intensive the flow, the closer relationship we have. For example, if Highspeed railway has the frequency of MTR, then the scene may change. |
| • The conductor of GBA collaboration  
  o Private sector should lead because it is less sensitive  
  o Government provide necessary support. In addition to traditional infrastructure, a virtuous cycle is required. Government cannot subsidize businesses forever. |
| • Regional Value Chain  
  o There will not be an absolute division of labour between cities. There will be some overlapping chain between cities more or less. |
| • Talent attraction  
  o Cultural characteristics of a city will be one of the determinants of attracting talents.  
  o It is almost impossible for Hong Kong to develop talent housing policy because Hong Kong cannot even meet the demand of local people.  
  o Hong Kong shall reserve flexibility for talents importing; maybe exercise short term talents importing for specific sectors |
| • The influence of US-CN trade war on Hong Kong’s development  
  o The embargo of Chinese projects may benefit smaller player like Hong Kong  
  o Hong Kong might have less financial resources to invest in I&T development. |
| • Competition within GBA  
  o Qianhai is not as competitive as Hong Kong in certain areas. Qianhai will mainly serves the market of mainland China while Hong Kong still has advantages in international market  
  o There will be dominant players for sure but secondary players will survive as well. If Hong Kong no longer has any more advantages, Hong Kong will have time to explore new advantages |
<table>
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<tr>
<th>The government should have a strategic mindset for city development.</th>
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<td>A regional governance/ political entity may be required for practical coordination.</td>
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<td>Interview 5</td>
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<tr>
<td><strong>Interviewee:</strong> A I&amp;T entrepreneur</td>
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<td><strong>Date:</strong> 17/3/2019</td>
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**Key Notes:**
- **Hong Kong I&T ecosystem compared to Shenzhen**
  - Hong Kong does not have a complete industry chain or supply chain. Hong Kong is lack of factories, such as Electronics production, plastic and metal machining, etc. The mall or large quantity order is not affordable and too time-consuming.
  - Shenzhen’s industry chain has a good balance in terms of production time, quality and cost.
  - Even though the capitalist market in Hong Kong is active with plenty of funding resources, investors are mostly interested in mature I&T firms. It is hard to get funding for young I&T enterprises.
  - It is easier to conduct high-level scientific research in Hong Kong because there are more educational institutions with higher world ranking. But the designers and engineers in Shenzhen are more experienced in product commercialization and communications with factories.
  - Hong Kong’s B2B market is bigger because there are more western companies in Hong Kong. They collect orders in Hong Kong and have their ODM and OEM process in Shenzhen. In Shenzhen, they main work with suppliers and foundries.
- **Hong Kong incubator environment compared to Shenzhen**
  - The incubation program in Hong Kong is as attractive as those in Shenzhen. However, they tend to help the businesses at the early stage more.
- **The difficulty of attracting talents from Hong Kong, Shenzhen and foreign countries**
  - Hong Kong and foreign job applicants mostly evaluate the terms of the offer. Hong Kong people prefers well-known companies instead of start-ups. With the same terms of offer, applicants from mainland China would also look into the company’s vision and background.
- **The necessity of having educational institutions in the vicinity of incubation centre**
  - Educational institutions may put their graduate research centre near incubation centre. However, in Shenzhen virtual University Park, it is most likely that the educational institutions initiate the collaboration with the I&T firms. If they can find common interests, they will start working together.
  - Currently, universities have a variety of resources supporting entrepreneurship in the pre-incubation stage;
  - however, there is no enough resources for graduated students to transition their entrepreneurship from universities to incubation center such as Hong Kong Science Park
- **The necessity of integrated support from the government within the incubation center**
All these supporting services that see I&T firms as their target market will move into the incubation center with or without the help of the government.

The Hong Kong SAR or Shenzhen government would not provide any technical or facility support to the I&T firms.

Currently, all the governments can provide is funding. Government only provide financial support such as reimbursement of lab equipment, office space.

- **Hong Kong SAR government**’s efforts in promoting I&T development
  - The Hong Kong SAR government has double or even treble the budget of I&T industry, which is really exciting.
  - However, reindustrialization in Hong Kong is really difficult. It is difficult to make Hong Kong’s Manufacturing become mature because it relies on land supply. The limitation of lands restricts Hong Kong to develop the entire industry chain or supply chain.
  - Take advantage of not only Shenzhen, but also GBA for supporting facilities. Shenzhen’s chain actually move from Nanshan to longgon. Battery and factories that are environmentally unfriendly has been moving to Dongguan.

- **Cross-boundary infrastructure**
  - There are enough availability of transit modes in Shenzhen Bay custom. However, the metro linkage between Shenzhen bay and other areas in Shenzhen is not well connected.
  - Hong Kong should explore Tuen Mun or Tsuen Wan West for I&T development because of livability and affordability. The closer proximity to QianHai is more beneficial for Hong Kong’s I&T sector.
  - Lok Ma Chau Loop development maybe a bit too late for Hong Kong’s I&T development. Even though it is situated at the best strategic location, it will take years to develop and cannot bring immediate benefits to Hong Kong I&T entrepreneurs.

- **Hong Kong-Shenzhen collaboration**
  - Two cities should complement each other. The two cities’ shortcomings are obvious and there is no way for one to catch the other.

Hong Kong’s finance industry is undefeatable because of free economy, “One Country, Two Systems” and the taxation structure. No matter how good the Shenzhen economy is, foreign entrepreneurs will always establish businesses in Hong Kong.
### Interview 6

**Interviewee:** A professor from University of Hong Kong  

**Date:** 20/3/2019  

**Time:** 14:15 – 16:30

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<th>Key Notes:</th>
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| • Successful factors of Cross-boundary regional planning  
  o Efficient and convenient mobility such as seamless boundary control points and transit linkage  
  o Heterogeneous flow of capital and information  
  o The top down approach of decision making from the central government also makes an impact  
  o Security of capital and information is one of the reasons that make Hong Kong and Macau successful  
  o Local authorities may not step aside and make policies to upgrade them  |
| • Positioning of Hong Kong and Shenzhen’s I&T industry  
  o Hong Kong lost the boat to focus and develop I&T sector in the last two decades. Yet, it is also uncommon that Hong Kong successfully transition from a manufacturing centre to service business and financial centre  
  o Shenzhen has a sense of urgency because of the intercity competition in mainland China.  
  o Hong Kong may not have a lot of bargaining advantage but physical infrastructure and talent pool will help Eastern Knowledge and Technology corridor in promoting I&T development  |
| • Regional economic development in GBA  
  o Development strategies cannot incorporate the economic development. It is more or less market oriented.  
  o Population structure or occupation opportunity defines success of economy in a city. It is important to keep the demographic profile to support the future economy.  
  o Alignment of infrastructures would be better connect the cities and advocates collaboration  |
| • Regional governance to facilitate collaborative development in I&T sector  
  o Internal governance restructuring in Hong Kong may not be necessary but government departments should be open to making changes to support I&T development  
  o Collaboration and cooperation are required on only specific topics such as infrastructure development  |
| • Implications of QianHai to planning of Hong Kong  
  o There is a need to improve on connectivity.  
  o Not only infrastructure but also must have policy prerogative  |
| • The influence of US-CN trade war on Hong Kong’s development  
  o China is predominantly dependent on exporting large amount to North America. Although, the economic projection has been projected to decline how is it still higher than the projected.  
  o USA seems comfortable for the negotiations  |
<p>| • Case studies of Oresund  |</p>
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<td>o A good example of cross-boundary collaboration because it is education-driven.</td>
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<td>o The strategic functioning of Oresund’s regional committee is authoritative in decision-making.</td>
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<td>Central government will not intervene when two cities are in competition for government resources. Collaboration may not always be the key when you have all your resources. Maybe Hong Kong needs to focus on itself and create policies that need to elevate itself.</td>
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### Interview 7

**Interviewee:** An urban planner from Hong Kong SAR government  
**Date:** 20/3/2019  
**Time:** 18:15 – 19:15

**Key Notes:**

- **Land Use planning in Hong Kong for I&T development**
  - Hong Kong 2030+ laid groundwork for Hong Kong’s I&T development.
  - More detailed approaches to strengthen the connection between clusters along the corridor.
  - Planning integrate the implications of socio-economic factors, land use, transportation, environmental factors. Space is the most important factor.
  - Land use-transport integration is the priority.

- **Hong Kong-Shenzhen collaboration**
  - Hong Kong has a great capacity of attracting foreign talents. Local talents require a certain level of international experience.
  - Hong Kong’s R&D can complement Shenzhen’s high-ended I&T sector.
  - Educational institutions can pool resources from Hong Kong and Shenzhen.
  - Currently there is no integrated planning between Hong Kong and Shenzhen.

- **NDAs**
  - NDAs can provide more employment opportunities. Hung Shui Kiu can be the new regional economic hub with an emphasis in office/commercial and logistics.
  - Provide enough infrastructure for flexibility to develop I&T sector.
  - Western Railway network capacity is almost full.
  - NDAs can address spatial mismatch of homes and jobs.
  - Long term strategy is to put more employment opportunities.
## Interview 8

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<tr>
<th>Interviewee:</th>
<th>A former and retired urban planner from Hong Kong SAR government</th>
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<td>Time:</td>
<td>19:00 – 20:30</td>
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### Key Notes:

- **Planning of Hong Kong under the context of GBA**
  - The Development Reform Commission of the state council picked the lead and consulted all these cities in GBA.
  - Make use of GBA to our own benefits. Sustain Hong Kong’s economic development by creating high quality jobs in Northern economic belt. And to create economic force, make Shenzhen as the economic magnet.
  - Other cities support Hong Kong for stability and prosperity, and then make use of Hong Kong’s advantage to develop their own cities.
  - It is not adequate for Hong Kong just function as a connector. We must have our intrinsic value. Hong Kong needs to create our own capacity of value for sustainable growth.

- **The influence of US-CN trade war on Hong Kong’s development**
  - The power struggle will last for a long time; China aims to avoid zero-sum game.

- **Planning in Hong Kong for I&T sector**
  - Livability: proximity between homes and jobs.
  - Let the market drive where the jobs will be created. As spatial planner, we don’t know, we create the spatial framework which will be able to accommodate various types of jobs.
  - To produce developable lands: transform Brownfield sites in the forms of NDAs and land reclamations outside the Victoria Harbour.
  - The government does not know the future of I&T development. Things can change very rapidly. Planning is a tool for uncertainty.
  - Preserve the flexibility for the provision of a railway link between Hung Shui Kiu and QianHai. Stations are the most important part of transportation network.
  - Sha Tin, Tsuen Kwan O does not have any capacity for further development. Tsuen Wan, Kwai Chung has large amount of industrial buildings. We can rezone them to OU for I&T development.

- **Hung Shui Kiu development**
  - A strong advocacy from the logistic industry requesting more lands.
  - Flexibility for railway link has been preserved.
  - Hong Kong can still be a logistics hub because Hong Kong does not have import tax.

- **Integrated governance between Hong Kong and Shenzhen**
  - Complicated because of One country two system, 3 currencies, 3 tariff regions, 3 legal systems, 3 cultures, 3 different mindsets.
  - Shenzhen has cooperative private sector and efficient governance.
  - The most efficient way to collaborate is joint-planning projects.
  - There should not be integrated governance but merely collaboration between cities.
  - There should be a more convenient flow of people, capital and goods.
- **The I&T development in NDAs**
  - Ku Tung North NDAs preserve a lot of land for OU/IE uses with low density, comparable to Science Park. Park carries the connotation this economic area with a park environment. Should create a contrast to Central area and Tsuen Wan area.
  - Low density, greening, nice outside environment to attract I&T firms, which requires creativity and innovation in general norm. Low density is because those I&T firms like to have their own premises because of intellectual property protection.
- **Residential development for I&T workers**
  - Whether the residential development within the park accommodate only for those talents. It is the mechanism on how allocate the target market. But we cannot have it in a market economy system.
- **Potential of lands around Boundary control point (BCP)**
  - The higher volume of cross-boundary workers, the more important the BCP
  - Bring public transport as close to the BCP as possible
- **The importance of I&T development**
  - Technology-driven, innovation-driven economy has become a global megatrend.

I&T development will propel the four major pillars of Hong Kong
### Interview 9

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<tr>
<th>Interviewee:</th>
<th>Representative from Cyberport</th>
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#### Key Notes:

- **Cyberport’s efforts for I&T development**
  - Lower entry requirement and increase survival rates of start-ups
  - Networking with foreign I&T firms, investors, local non-I&T major enterprises and universities such as large events for summit, investment matching, investors-oriented venture forum
  - Financing platforms, investments and funding for I&T start-ups
  - Incubation programmes and marketing
  - I&T industry support services
  - Subsidies for talent recruitment
  - Facilities expansion in Cyberport
  - Investments in E-sports promotion

- **Attraction of foreign I&T talents and enterprises**
  - Foreign talent importing with prerequisite of nurturing local talents
  - Attract foreign enterprises to bring talents and advanced technologies to Hong Kong

- **Collaboration with GBA**
  - Outline Development Plan is just recently published
  - Cyberport provides bootcamps to encourage interaction between university students from Hong Kong and GBA cities

- **Competitions of I&T industry under the context of GBA**
  - Needs to identify the niche of Hong Kong
  - Even with overlapping roles of cities, businesses always localization and customization
  - Important to keep the core of business in Hong Kong and especially talents which is the most important added value in I&T production chain.

- **Advantages of Hong Kong’s I&T industry in GBA**
  - Huge potential of Fintech industry.
  - Hong Kong’s financial industry is strong not only because of the strong stock market, but Hong Kong also has an globally recognized standard of financial regulation and monitoring system.
  - Free flow of information is an advantage of Hong Kong
  - Higher adaptability with foreign culture and value, which may be important in I&T business
  - Strong ICT infrastructure
  - There is some concerns regarding a shortage of talents in Hong Kong

- **Co-working space in Tsuen Wan**
  - The location of Cyberport may be a bit too far for some people
  - The financial support and networking from Cyberport is not location specific
  - Follow Hong Kong SAR’s Space Sharing Scheme for Youth as Tsuen Wan is an ideal location for employment due to large residential population in Northwestern Hong Kong
Interview 10

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<th>Interviewee:</th>
<th>A member from Hong Kong Institute of Planners</th>
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**Key Notes:**

- **The inter-city governance**
  - Hong Kong and Macau directly communicate with Guangdong province
  - Shenzhen has envisioning before actions
  - There is merely information exchange instead of integrated planning
  - There will be no competition as each city’s shortcoming is outcompeted by others
  - It is already difficult for inter-departmental cooperation

- **Hong Kong-Shenzhen collaboration**
  - Hong Kong’s recognition with world branding is attractive for talents
  - Mainland China is also learning from Hong Kong’s legal system such as intellectual rights protection

- **Eastern corridor**
  - Limited potential in eastern region of Shenzhen
  - Too many uncertainties in future development, further studies are required
  - Traffic demand maybe diverted upon completion of the northern link and ELM and golf court Fanling
  - Doubts in expanding transit network in eastern Hong Kong unless there will be a significant increase of employment opportunities

- **Western corridor**
  - There are obstacles of connecting Hong Kong to Qianhai due to insufficient power for the government to allocate specific land use
  - Land owners determines the land use of future I&T development
  - Needs to reserve space for railway development to minimize the impacts
  - A network between transit modes is needed for one-hour living circle
  - Hong Kong is only good at Finance and Freight financing but there is not enough railway network connecting to the port.

- **Comments on taxation initiative of high-end talents**
  - Needs to ensure constant flow of people with the supply of housing
  - Increasing competition of highly skilled labour due to aging population
  - Shenzhen attracts talents from mainland China while Hong Kong attracts talents from the world
  - Labour pool of Hong Kong: finance and technology; Labour pool of Shenzhen: technology