Developing Kowloon East into a Smart City District – Feasibility Study

Stage 1 Public Engagement

Executive Summary

1. Background

Kowloon East (KE) is an area comprising the former Kai Tak Airport, Kwun Tong Business Area (KTBA) and Kowloon Bay Business Area (KBBA). In the 2015 Policy Address, the Chief Executive announced that KE would be used as a pilot area to explore the feasibility of developing a smart city. Energizing Kowloon East Office, Development Bureau of the HKSAR (EKEO) commissioned Ove Arup and Partners Hong Kong Limited (Arup) in February 2016 to undertake the "Developing Kowloon East into a Smart City District – Feasibility Study" (the Study). In this Study, we will formulate a smart city framework and an advocacy statement for KE, propose smart city initiatives and their implementation strategy, and conduct Proof of Concept (PoC) trials.

2. Stage 1 Public Engagement

Aiming to collect views and suggestions from the public and relevant stakeholder on developing KE into a smart city district, public engagement (PE) exercise will be conducted in two stages. Stage 1 PE of the Study was conducted between 7 November 2016 and 6 January 2017 to gauge the public view on the proposed framework and advocacy statement, as well as solicit ideas for PoC trials and the planning of future smart city proposals.

A number of events were held during this period. Three focus group meetings (FGMs) and one consultation meeting were held on 7, 8 and 10 November 2016 and 15 December 2016 respectively to collect views from district councils of Kwun Tong, Wong Tai Sin and Kowloon City, research institutes, academia, professional bodies and concern groups. A community workshop was also organized on 12 November 2016 at Energizing Kowloon East Office which 66 participants attended to share their views on the smart city district development for KE. With the support from the ICT industry, EKEO organized a Smart City Exhibition during the Smart City Week of 7 – 13 November 2016 to showcase exemplar smart city technology and applications. Besides, roving and mobile exhibitions were held at 10 locations around KE, namely Fly the Flyover 01, Kwun Tong Promenade, Kai Tak Runway Park, Lam Fook Street Sitting-out Area, Open Area Outside Ngau Tau Kok MTR Station, Kowloon Bay Park, Kai Ching Estate, Kowloon City Ferry Pier, Kwun Tong MTR Station Public Transport Interchange and Trademart Drive outside Kowloonbay International Trade and Exhibition Centre.

There were in total 81 comments received from various channels during Stage 1 PE period, including 16 written submissions, 17 comment cards collected during Smart City Week and, as of 6 January 2017, 48 comments received through the online interactive map.

3. Key Comments

During Stage 1 PE, most of the participants concurred with the challenges and constraints of KE identified for this Study and supported the proposed vision and smart city framework. Major comments received are summarized as follows:

Key Challenges and Constraints

- Traffic congestion was highlighted as a key challenge in KE, especially Kwun Tong and Kowloon Bay. There were concerns that the future surge in number of visitors, workers and residents may worsen the situation.

- Some expressed that the existing pedestrian infrastructure was insufficient to accommodate pedestrian flows, and the conflicts between vehicles and pedestrians were exacerbated by other issues such as kerbside loading/unloading activities. Hoi Yuen Road and areas adjacent to Kowloon Bay MTR station pedestrian walkways were of particular concern.

- Concerns about the air quality, especially near Yue Man Square, and water pollution at Kwun Tong Typhoon Shelter area were received.

- Some expressed that there was not enough greening and open space in KE.

- Some comments pointed out that KE was a blend of old and new buildings. There may be difficulties when retrofitting various smart systems into existing buildings, or the capacity of infrastructures and internet in KE may be insufficient to support the application of smart city technologies.

Vision, Smart City Framework and Advocacy Statement

- The proposed vision and smart city framework were generally supported. "Mobility and Walkability" and "Resources Management and Urban Environment" were identified as themes of high priority.

- It is commented that the Government should be open and flexible in adopting innovations and carry out different types of smart city initiatives in KE. The system built for smart city should be able to learn and adapt to future changes.

- Many people agreed to use people-centric approach for smart city development. The needs of users and citizens should be considered as priority when making decisions on deploying any technological solutions. Some pointed out that innovation-oriented platform was key to the success of smart city development.

- Different comments were received for the role of ICT. While some comments stated the scope of this study should be beyond urban planning and the development of ICT should be emphasized, some expressed that concerns about over-emphasis on ICT and mobile apps.

- Many comments suggested that the Government should take the lead in driving smart city development and lining up different parties, including private sector, government bureaux and departments and the public, for collaboration. Implementation model such as public-private partnership and provision of financial and non-financial incentives could be considered.

- General public, research institutes, ICT industry, private sector, non-governmental organisations, green groups, local organisations should be engaged in the smart city development process.

- Support for younger generation to involve and be prepared for smart city development should be provided, such as review of the existing ICT education policies, provision of in-depth training scheme for engineering and research students, and offer of business opportunities and platform.

PoC Trials

- Support towards the four proposed PoC trials was received. There were requests to redeploy Smart Crowd Management System and Kerbside Loading/Unloading Bay

Monitoring System upon successful implementation of the PoC trials. However, concerns about data security and privacy were also received for these two PoC trials.

- Some pointed out that Water Quality Prediction System and Smart Tree Management may not be able to meet people's need.

- Supports were received towards the dissemination of Real-time Road Works Information.

- While there were supports towards Multi-purpose Post System, some people expressed concerns about the implementation timeline as the process of dealing with Government B/Ds for changes in use of lamp posts may take long time.

Other Comments

- Learning from overseas smart city development experiences and alignment of smart city development proposals with international standards and trends were recommended.

- Coverage of this Study could be extended to the residential area in Kwun Tong to benefit more people.

- Implementation programme, roadmap and strategies should be devised to outline the short, medium and long term plan. Priorities of PoC trials implementation should also be provided.

4. Major Smart Idea Recommendations

Innovation–oriented Platform

- It is commented that a platform could be set up for the government to disseminate information, for the public to submit their views and for both parties to exchange smart ideas and reach consensus.

Governance and Socio-economic Vibrancy

- It is commented that a government department/authority should be dedicated to oversee and coordinate the development of smart city.

- Measures for social and digital inclusion to cater for the needs of people of all age groups, ethnicities and income classes, including the elderly and the disabled were proposed.

- Sharing of resources, such as cars, accommodation and office space to optimize resources utilization were suggested.

Mobility and Walkability

- Public transport services in KE should be enhanced via means such as rationalization of bus routes, provision of shuttle bus services in Kwun Tong and Kowloon Bay Business Areas, ferry services and a new mass transit system.

- Sharing of real-time vacant parking lots information covering carparks in peripheral area as well as core commercial and industrial areas were proposed. Provision of such data could be included as a mandatory requirement for all new land leases.

- Strengthening the functions of on-street parking facilities was suggested.

- Promoting electric vehicles (EV) and enhancing the provision of EV charging facilities in KE were suggested. Dissemination of availability of EV charging facilities and reservation services were also suggested.

- Enhancing the pedestrian network in KE, such as provision of comprehensive pedestrian walkway, footbridge network, underground walkway and moving walkway to reduce the conflicts between vehicles and pedestrians and improve walkability were proposed. Suggested locations include areas near those MTR stations, Kwun Tong and Kowloon Bay Business Areas, Tsui Ping South Estate and area between Manulife Financial Centre and Kwun Tong Ferry Pier, etc.

- Roadside signage indicating directions to building or streets should be enhanced to cater for the needs of the elderly and people with disabilities who may not be familiar with smartphone apps.

- Provision of cycling track, automatic bike rental and sharing facilities and bike parking spaces with security features was suggested.

- Adoption of smart traffic light system, which can detect the presence/ volume of pedestrians waiting for crossing the road or detect the volume of traffic to automatically optimize the traffic light changing frequency and duration, was suggested.

- Dissemination of real-time traffic information for multi-modal journey planning (such as through signage and mobile apps) and use of electronic display at more bus stops for bus arrival time were recommended.

Resources Management and Urban Environment

- Promotion of green building design and energy saving measures, including the use of building information modelling, smart energy management system, smart meters, etc. were proposed.

- Installation of smart street light with features such as using LED to reduce energy consumption, smart controller to adjust brightness, bendable pole to adjust lighting coverage over time and presence and motion sensors which can enable brightness control according to vehicular and pedestrian traffic, were recommended.

- Adoption of renewable energy, including solar energy and waste-to-energy were suggested.

- Installation of smart grid was suggested.

- Dissemination of real-time air and water pollution information were proposed.

- Provision of infrastructures and related supporting facilities to alleviate pollution were recommended.

- Enhancement of the urban environment, such as river revitalization, provision of more open space and promotion of urban farming were suggested.

- Use of smart waste management measures, including automatic refuse collection system, smart food waste collection system and smart plastic recycling facilities were recommended.

Information and Communications Technology

- There were suggestions on using open data and APIs to facilitate public creativity, innovation and development of smart city. The data sharing process should be enhanced by fostering collaboration across Government bureaux/departments (B/Ds), standardizing data formats and setting up a centralized digital infrastructure. Ownership and responsibility of collecting, managing and sharing data should also be made clearly.

- Adoption of Internet of Things (IoT) and Blockchain technology were recommended.

- Expansion of Wi-Fi network and extension of network communication protocols were suggested.

- Development of standards and protocols for technologies that would drive the smart city development, e.g. Wi-Fi equipment, and connectivity standards for IoT were recommended.

- Establishment of legislative framework, clear guidelines on data collection and use, and security measures such as privacy impact assessment, ongoing penetration testing and security audits, to enhance data security and privacy were suggested.

- Standardized spatial data infrastructure and opening up of the data were proposed.

- Adoption of multi-purpose sensing infrastructure, e.g. smart kiosks and lamp post, in bus stations, government premises and public areas to facilitate the implementation of other smart city initiatives were suggested.

Other Smart City Initiatives

- Implementation of smart city initiatives related to healthy living were also suggested. For instance, healthcare services can be improved with the use of IoT network for health status monitoring, formulation of smart health community, sharing of medical record and provision of tele-medical consultation, nursing and rehabilitation services.

4.   Way Forward

Stage 1 PE was completed with comments duly compiled in this PE report. The Study Team will consider the comments and proposed smart city initiatives received during Stage 1 PE and further study which smart city initiatives could be implemented in KE and formulate their implementation strategy.[1] Also, the Study Team will continue to identify PoC trials for this Study. The results of these tasks would be presented to the public to seek their views during the Stage 2 PE.

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[1] Territorial-wide implementation programme, roadmap and strategies for Hong Kong's smart city development would be addressed in the Hong Kong Smart City Blueprint Consultancy Study commenced by OGCIO. The Study Team will continue to liaise with OGCIO for further study/ actions.