Legislative Council meeting of 4 July 2018
Motion on "Expediting the promotion of smart city development"

Progress Report

At the Legislative Council ("LegCo") meeting of 4 July 2018, the motion "Expediting the promotion of smart city development" moved by Ir Dr Hon LO Wai-kwok, as amended by Hon Christopher CHEUNG, Hon Tony TSE, Hon Alvin YEUNG, Dr Hon Elizabeth QUAT and Hon Charles Peter MOK, was passed. The full text of the motion is at **Annex**. Having consulted relevant bureaux, the Policy Innovation and Co-ordination Office and the Judiciary, we would like to report to members on the progress of the work concerned.

Promote Innovation and Technology Development

Financial Support

2.   The Government is committed to promoting the research and development ("R&D") as well as application of innovation and technology ("I&T").   Since its establishment in 1999, the Innovation and Technology Fund ("ITF") has been the main platform for the Government to upgrade Hong Kong's technology level and promote innovation. Under the ITF, there are 14 funding schemes targeting at different areas, including supporting R&D, facilitating technology adoption, supporting commercialisation of R&D results and pooling together technology talent, etc.   The LegCo Finance Committee ("FC") approved on 13 July 2018 an injection of $10 billion into the ITF for the continued operation of existing funding schemes and the introduction of new initiatives.

3.   The FC has also approved the funding allocation of $10 billion to establish two research clusters in the Hong Kong Science Park ("Science Park").   One will be on healthcare technologies and the other on artificial intelligence and robotics technologies.   Financial support will be provided to non-profit-making research centres / laboratories operated in the two clusters.   We will actively attract world-class universities, scientific research institutions and technology enterprises for conducting more R&D projects in collaboration with local universities and research institutions.

4.   To encourage companies to conduct R&D in Hong Kong, we will provide enhanced tax deductions for expenditure incurred by enterprises on R&D.   The first $2 million of qualifying R&D expenditure by enterprises will be eligible for a 300% tax deduction and the remaining amount eligible for 200%.   There is no cap for the amount of the enhanced tax deduction.   Subject to the legislative progress, the enhanced tax deduction will be applicable to qualifying R&D expenditures incurred by enterprises on or after 1 April 2018.

Technology Talents

5.   In order to nurture more technology talent, the Innovation and Technology Commission launched a five-year pilot Technology Talent Scheme, comprising the Postdoctoral Hub Programme and the Reindustrialisation and Technology Training Programme ("RTTP") on 22 August 2018.   The Postdoctoral Hub Programme provides funding support to recipients of the ITF, as well as the incubatees / tenants of the Hong Kong Science and Technology Parks Corporation ("HKSTPC") and Cyberport for recruiting up to two postdoctoral talents for R&D work. The RTTP subsidises local companies on a 2:1 matching basis to train their staff in advanced technologies, especially those related to "Industry

4.0".

6.   To promote STEM education, the Education Bureau has renewed the curricula of the Science, Technology and Mathematics Education Key Learning Areas in 2017.   The curriculum focuses on optimising learning and teaching strategies to enhance learning effectiveness, as well as arranging diversified STEM learning activities outside the classroom to enrich learning experience.   Besides, the Education Bureau has been strengthening the professional training of school curriculum leaders and teachers and thus their professional capacity in planning of STEM education development within the school as well as conducting relevant learning activities inside and outside the classroom.

Infrastructure

7.   The HKSTPC is developing the Advanced Manufacturing Centre and the Data Technology Hub in the Tseung Kwan O Industrial Estate and exploring the expansion of industrial estates in Yuen Long and near the Liantang / Heung Yuen Wai Boundary Control Point, with a view to providing space for the sustainable development of re-industrialisation. In addition, the Hong Kong-Shenzhen Innovation and Technology Park in the Lok Ma Chau Loop being developed will make good use of the industrial strengths of the cities in the Guangdong-Hong Kong-Macao Greater Bay Area, thereby connecting the upstream, midstream and downstream sectors of I&T industries and facilitating the commercialisation of R&D results.   Furthermore, the Hong Kong Productivity Council ("HKPC") has been dedicating efforts to promoting re-industrialisation.   It facilitates the migration of enterprises to high value-added production and gradually upgrading towards "Industry 4.0". The HKPC is establishing an Invention Centre jointly with the Fraunhofer

Institute for Production Technology of Germany to assist the industry in adoption of Industry 4.0-related technologies.

8.   To support the development of smart city, the Office of the Government Chief Information Officer ("OGCIO") is launching three digital infrastructure initiatives, namely Electronic Identity ("eID"), a pilot Multi-functional Smart Lampposts scheme and the Next Generation Government Cloud Infrastructure and a Big Data Analytics Platform:

(a)   The OGCIO will actively promote eID to public and commercial organisations, and explore further application and development of eID in different electronic and online services.   The eID system will be able to facilitate the development of e-services in different organisations in the future.   The OGCIO plans to provide eID Application Programming Interfaces (APIs) to interested e-service providers by the end of 2019 for them to develop or enhance systems as necessary for the public to use eID to access more e-services when it is launched in 2020;

(b)   In addition to the use of sensors to collect / disseminate real-time data such as weather, environment and traffic conditions, the lampposts under the Multi-functional Smart Lampposts pilot scheme will also use LED lamps, which are expected to save about 30% of energy.   The pilot scheme will also study the use of new system to automatically monitor the operation of street lights and control the luminosity as needed. The pilot scheme will be progressively implemented from mid-2019; and

(c)   The OGCIO will start adopting public cloud services in compliance with security requirements in 2019, and a new

generation of government cloud infrastructure for the use by all government departments in the third quarter of 2020, thus enabling them to carry out various big data analytics projects.

Laws and Regulations

9.   In promoting the development of smart city, the Government will continue to enhance the awareness of Bureaux / Departments (B/Ds), the industry and the public on the risks and threats of emerging technology areas, including Internet of Things ("IoT"), as well as formulating and updating relevant information security and technical requirements with reference to relevant policies in other regions, international standards and practices. In view of the increasing popularity of IoT technologies, the Office of the Privacy Commissioner for Personal Data ("PCPD") has put in place measures to guard against the risk of data leakage and published infographics and information leaflets to explain the potential personal data privacy risks associated with the use of technologies such as IoT, and to put forth recommendations on measures for privacy protection. The PCPD has been closely monitoring the latest local and overseas situations and enhancing communication with overseas privacy protection authorities. The PCPD also conducts studies on impacts on privacy protection brought by new technology developments and collects views of local stakeholders in a timely manner. The PCPD will also continue to conduct enforcement action, compliance checks and education in accordance with the Personal Data (Privacy) Ordinance, as well as monitoring the developments in other jurisdictions, updating relevant guidelines and making recommendations in a timely manner.

10.   In promoting I&T development, the Government will review the existing policies and measures from time to time to remove red tape

for various trades and industries. Since its establishment, the Policy Innovation and Co-ordination Office ("PICO") has met with relevant government departments and stakeholders on the development of new economic activities such as I&T, and sharing economy to understand the current regulatory regime and gather their views on the subject. The PICO will continue to conduct studies on the regulatory regimes adopted by different cities for different economic activities and their impacts, with a view to providing evidence-based information to relevant policy bureaux for consideration.

Technology Application in the Judiciary

11. With the funding approval of the FC, the Government has allocated necessary funding for the Judiciary to implement projects under the Information Technology Strategy Plan of the Judiciary[1] including enhancement of courtroom technologies, development of an integrated court case management system and introduction of electronic services for various types of transactions such as electronic submission of documents to the Judiciary and electronic payments. Relevant projects are underway.

Open Data

12. The OGCIO has completed the review of open data and the Public Sector Information ("PSI") Portal ("data.gov.hk"). The new open data policy and relevant implementation measures will be announced before the fourth quarter of 2018, with a view to promoting and

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[1] The Information Technology Strategy Plan ("ITSP") of the Judiciary is a long term information technology ("IT") project seeking to enable the Judiciary to meet its long-term operational requirements. The implementation of the ITSP is divided into two phases. The FC approved a funding of $682 million in May 2013 for the implementation of Phase I of the ITSP.

encouraging B/Ds, public and private organisations to open up more datasets.

Fintech

13.   The Hong Kong Monetary Authority ("HKMA") announced a number of initiatives in September 2017 to prepare Hong Kong to move into a New Era of Smart Banking.   One of the initiatives, the Faster Payment System ("FPS"), will be launched in September 2018, allowing customers to make real-time cross-bank and e-wallet transfers with their mobile phone number or email address.   In October 2017, a new task force was set up within the HKMA to minimise regulatory frictions in customers' experience, including remote on-boarding, online finance and online wealth management.   Besides, the revised guideline for virtual banking was published in May 2018.   It is expected that the first batch of virtual bank licence(s) will be granted towards the end of 2018 or early 2019.   Furthermore, the Open Application Programming Interface ("Open API") Framework was released in July 2018 to facilitate the development and adoption of Open APIs in the banking sector.

14.   The HKMA strongly supports banks' use of new technology to facilitate customer due diligence processes and amendments had already been made in the relevant law and regulatory guideline effective from 1 March 2018, which provides greater flexibility for banks to open accounts and update customers' information remotely.   We have also been maintaining close dialogue with banks on their initiatives through the Fintech Supervisory Sandbox and Chatroom.   Some banks have already launched remote on-boarding initiatives through mobile phones, and the HKMA expects that remote bank account opening will become more

popular when virtual banks come into operation.

15.   To encourage the insurance sector to apply new technologies, the Insurance Authority ("IA") launched the Insurtech Sandbox in September 2017 to facilitate authorised insurers to pilot run innovative insurance technologies when they plan to launch Insurtech projects in Hong Kong.   The IA has also launched the Fast Track to expedite applications for authorisation of new insurers operating solely digital distribution channels.

16.   Many Stored Value Facility ("SVF") licensees in Hong Kong are actively introducing new products and expanding services to meet the spending and payment needs for customers and businesses. In recent years, the coverage of SVF has been expanded to wet markets, small restaurants, and small retail merchants, etc.   The HKMA will encourage and promote the development of a diverse payment ecosystem through effective implementation of the SVF regulatory regime and increasing the public awareness in the use of SVF.   In relation to the launch of the FPS, the HKMA will carry out a series of promotional activities together with the industry to introduce the convenience brought by the system.

Smart Government

Government Procurement

17.   Government procurement is guided by the principles of open and fair competition, value for money, transparency and public accountability to obtain conforming services and goods at the best value for money.   The Government is exploring ways to allow more room for innovation (including technological innovation) in government

procurement arrangements so as to encourage local technological innovation, having regard to the principles of the Agreement on Government Procurement of the World Trade Organization. The relevant review will be completed soon.

Smart Mobility

Intelligent Transport System

18.   The Transport Department ("TD") will install traffic detectors on all strategic routes and roads by end-2020 to provide real-time traffic information. The TD will monitor the traffic conditions of these roads comprehensively through the traffic detectors to strengthen its capability in handling traffic incidents as well as traffic management. Relevant traffic incident information will be disseminated to other stakeholders (including public transport operators, the Hong Kong Police Force and the Fire Services Department). Taking the North Lantau Highway as an example, the TD will make use of the variable message signs installed on the major roads leading to North Lantau Island and the nearby strategic routes to disseminate incident information to motorists. The TD is preparing for the installation of four mobile variable message signs.

19.   The TD will also install 11 sets of Journey Time Indication Systems and enhance an existing Speed Map Panel on these roads. The data collected will be disseminated through TD's websites, mobile applications and the Government's PSI Portal ("data.gov.hk") to facilitate the public to better plan their journeys and select routes or transport modes.

20.   The Government will also continue to enhance the operation of

Hong Kong's transport system and road network system. The TD has commenced a feasibility study on the installation of in-vehicle units ("IVUs") to allow motorists to receive real-time traffic information and to pay tunnel tolls remotely through IVUs. The TD will also introduce pilot intelligent traffic signal systems with sensors for pedestrians and vehicles at road junctions. The TD is conducting a feasibility study on Electronic Road Pricing Pilot Scheme in Central and its adjacent areas, and plans to consult the public on the proposed scheme in 2019.

21.   The Energizing Kowloon East Office of the Development Bureau has been collaborating with the Police since 2018 to conduct a trial on the Kerbside Loading and Unloading Bay Monitoring System in Kwun Tong. The two departments are also studying the implementation of a trial on Illegal Parking Monitoring System at suitable road sections in Kowloon East. The trial, which will make use of video analytic techniques to monitor illegal parking activities, is expected to commence within this year. The Government's objective is to make use of new technologies to assist frontline officers in taking enforcement actions against traffic contraventions and enhance the efficiency.

22.   At present, all regular routes of KMB, Long Win Bus Co. Ltd. and Citybus Limited have provided passengers with real-time arrival time (RTA) information of bus through their websites and smartphone apps. Other franchised bus companies (New World First Bus Services Limited and New Lantao Bus Co.) are also implementing RTA in phases, which are expected to be completed within 2018. The MTR Corporation has also distributed information including routes, fares and barrier-free facilities on Government's "data.gov.hk". With the understanding that the community expects more real-time public transport data and information dissemination, the TD will continue to actively encourage operators to open up more data.

23.   In July 2018, the TD launched the "HKeMobility" which integrates the existing mobile applications of "HKeTransport", "HKeRouting" and "eTraffic News" into an all-in-one mobile application ("app").   The new app facilitates faster and more convenient search for routes of different transportation modes, journey times and fares, and disseminate real-time traffic news to enable users to plan for the most appropriate travel arrangement.

24.   The TD has been encouraging public car park operators to provide real-time parking vacancy information ("vacancy information") for dissemination the public through TD's "HKeMobility" app and Government's "data.gov.hk".   At present, "HKeMobility" provides vacancy information of about 220 government-owned and commercial public car parks.   The TD will examine practicable measures to require operators of new public car parks and fee-paying public car parks operating under Short Term Tenancy to provide vacancy information, and also brief the operators on the feasible technical solutions.   In addition, from 2019-20 the TD will install a new generation of on-street parking meters equipped with vehicle sensors to provide vacancy information of on-street parking spaces to motorists.

Autonomous vehicles and vehicle-to-everything technology

25.   At present, autonomous vehicle technology and vehicle-to-everything ("V2X") technology are still in the testing and research stages around the world.   The TD will continue to closely monitor the latest developments in the technologies and review and revise the existing legislation and regulation in a timely manner to tie in with the relevant developments in Hong Kong.   The TD will continue to work with the industry to facilitate trials of autonomous vehicles at suitable

locations.

Healthcare and Elderly Services

26.   The Hospital Authority ("HA") has launched the Smart Hospital Programme to enhance services by strengthening the interconnection and information exchange of service units and using intelligent software, mobile devices and new technology components.   The first phase of the programme, which includes Corporate Queue Management System, Hospital Navigation, Electronic Hospital Bed Panel and Vital Signs Tracking will be implemented progressively from 2017-18 to 2021-22. Furthermore, the HA will proceed to study the provision of remote medical consultation services, enhanced use of home-patients' physiological monitoring sensors, and trial of artificial intelligence and machine learning for enhancing medical services.

27.   Regarding the opening up of health data, the HA will launch a one-year pilot in the fourth quarter of 2018.   Local academic institutions may apply to the HA for studying the data on its Clinical Management System, so as to identify useful datasets and analyse de-identified clinical data under a controlled environment in HA's Data Collaboration Lab. To safeguard patient privacy, data integrity and system security, the HA will develop a regulatory mechanism that is in line with local privacy legislation, ethical requirements and international standards.   It will also formally launch a Big Data Analytics Platform in 2019, with the aim to identifying information that can facilitate the formulation of healthcare policies, improve services, and support biotechnological research.

28.   The Government has earmarked $1 billion to set up the Innovation and Technology Fund for Application in Elderly and

Rehabilitation Care to subsidise elderly and rehabilitation service units to try out and procure / rent technology products, so as to improve the quality of life of service users, and reduce the burden and pressure on care staff and carers. Organisations can also apply for subsidy to try out newly developed technology products in their elderly or rehabilitation service units. The fund is expected to be launched in the fourth quarter of 2018 at the earliest.

29. As the automated drug management systems used by some residential care homes for the elderly ("RCHEs") mix and re-distribute drugs of different residents and disassemble the original packaging of drugs, which in turn pose risks to drug safety, the Social Welfare Department ("SWD"), after consultation with the Department of Health ("DH") and HA, issued a letter to RCHEs in June 2018 to set out matters requiring attention when using such systems. In addition, SWD in collaboration with DH and HA have completed a review of the "Operational Manual on Drug Management in RCHEs" and issued an updated "Guide on Drug Management in Residential Care Homes" in end-August 2018, covering matters requiring attention when using such systems, with a view to providing clearer guidelines for operators and care staff of residential care homes.

Infrastructure and Green building

30. The FC approved on 16 July 2018 the setting up of the Construction Innovation and Technology Fund ("CITF") which among other things would promote the application of Building Information Modelling ("BIM") technology by subsidising the industry (especially Small and Medium Enterprises) in acquiring BIM software and hardware, as well as training in BIM technology for employees. The CITF is

steered by the Development Bureau and managed by the Construction Industry Council.   It is aimed to be launched in October 2018.

31.	The Development Bureau is conducting a consultancy study on the overall strategy for the implementation of the Common Spatial Data Infrastructure ("CSDI"), and upon its completion within 2018 the approach and work plan for the development of CSDI will be determined. Since different government departments (and public and private organisations) have been using geo-information system to facilitate the management of individual geographic related spatial data and / or establish different map service platforms, spatial data involve different datasets, different formats, different update cycles, and even different standards stored in different systems of different government departments. They involve a wide range of areas and it takes time to integrate these spatial data for sharing on the CSDI platform. Depending on the study recommendation, the Development Bureau will work with relevant B/Ds to explore the possibility of basing on existing data and systems to accelerate the formulation of spatial data policies, establishment of spatial data standards and development of the CSDI, with the aim of developing the CSDI portal gradually for full operation by the end of 2023. Relevant departments will also explore the feasibility of launching the service platforms / data in phases as early as possible.

Green and Low-Carbon Community

32.	The Government will continue to pursue the goal of reducing the electricity consumption of government buildings by 5%. We have reduced the electricity consumption by 3% from 2015-16 to 2016-17 and are steadily moving towards the 5% target. The Electrical and Mechanical Services Department ("EMSD") is reviewing the "Building

Energy Code" ("BEC") and the new BEC is expected to come into effect in 2019.   It is expected that upon full implementation of the new BEC, there will be 8% increase in energy efficiency over the existing situation.

33.   The Government will take the lead to apply renewable energy ("RE") on a wider and large scale in the public sector based on mature technologies.   We will also actively create the conditions to facilitate the private sector in adopting RE.   For government buildings, such buildings undergoing major retrofitting and / or renovation works are required to incorporate RE technologies.   The Environment Bureau ("ENB") has also earmarked $1 billion to support Government departments in implementing small-scale RE projects.   At the same time, the Government is actively studying the installation of floating photovoltaic systems in reservoirs.   In addition to government projects, Feed-in Tariff ("FiT") will be introduced under the new Scheme of Control Agreements ("SCAs") signed between the Government and the power companies to encourage the private sector and the community to consider investing in distributed RE.   The power generated can be sold to the power companies at a rate higher than the normal electricity tariff rate.   The EMSD has provided guidelines to help the public understand the considerations in installing RE as well as a summary of relevant application procedures.   The Government will also provide incentives for power companies to develop RE themselves.

34.   The owners of the New Territories Exempted Houses ("NTEH") can also install solar equipment in their premises in accordance with the requirements set out in the pamphlets published by the Lands Department and the Buildings Department respectively.   The Government is exploring further flexibility to facilitate the installation of solar equipment by residents.   Besides, the two power companies will gradually install smart meters for all customers in the next seven years to

encounter a more environmentally friendly mode of energy consumption.

35.   The Environment Protection Department has been in close contact with the recycling industry and support their adoption of higher level of recycling technologies and operating systems through the Recycling Fund to make more effective use of recycling resources.

36.   The Government is committed to promoting electric commercial vehicles ("e-CVs"), through full exemption of the first registration tax, setting up a $300 million Pilot Green Transport Fund ("PGTF") to subsidise the transport industry to test green innovative transport technologies including e-CVs, and subsidising franchised bus companies to test electric buses.   The PGTF has approved 135 trials involving approximately $138 million.   In addition, the Government is providing tax and vehicle licence annual fee concessions and promoting the development and enhancement of charging networks for electric private cars.   In response to the rapid changes in the use of electric vehicles, the ENB is conducting a review with relevant departments, including study on optimising the public charging network and facilities provided by government car parks and exploring ways to encourage the installation of charging facilities in private and commercial building car parks.

Smart Tourism

37.   The Tourism Commission will set up a new travel Landing Page in 2018 to provide one-stop travel information, including traffic information on travel hotspots, real-time weather conditions, and information on hotels and retail outlets to help tourists plan their trips and activities.   An additional $30 million has been allocated to the Travel

Industry Council of Hong Kong in 2018-19 to continue to implement and enhance the Pilot Information Technology Development Matching Fund Scheme for Travel Agents to encourage more small and medium-sized travel agents to use information technology.

38.　　In addition, the Government has strengthened the application of QR codes in tourism.　For example, in the Dr Sun Yat-sen Historical Trail launched in April 2018, QR codes are attached to all the artworks. Visitors can use the smart phone to scan the QR code to connect to the website of the Historical Trail, or download the mobile app "iM Guide" of the Leisure and Cultural Services Department for reading information on the history of the trail, listening to voice presentations and assistance in navigation.　Furthermore, the Government is cooperating with creative media institution and the Hong Kong Design Centre on planning of tourism projects using augmented reality and multimedia technologies at tourism hotspots.

Closing

39.　　The Government is actively implementing the various initiatives in the "Hong Kong Smart City Blueprint" and B/Ds have also stepped up their resources allocation to the initiatives.　The progress will be reported on a regular basis to the Steering Committee on Innovation and Technology chaired by the Chief Executive.　We will publicise the latest developments in due course.

Innovation and Technology Bureau
September 2018

Motion on
"Expediting the promotion of smart city development"
moved by Ir Dr Hon LO Wai-kwok
at the Council meeting of 4 July 2018

Motion as amended by Hon Christopher CHEUNG, Hon Tony TSE, Hon Alvin YEUNG, Dr Hon Elizabeth QUAT and Hon Charles Peter MOK

That, to catch up with the development of the era of intelligence, the Administration has made smart city as one of the four major areas of focused development of innovation and technology in Hong Kong and released the Smart City Blueprint for Hong Kong in December 2017, mapping out the policies and measures to be implemented in the next five years in six areas, namely smart mobility, smart living, smart environment, smart people, smart government and smart economy; in this connection, this Council urges the Government to proactively allocate resources to perfect various policies and ancillary measures, so as to expedite the promotion of smart city development; the relevant measures include facilitating the research and development and application of innovation and technology, upgrading the technological infrastructure of Hong Kong, promoting the intellectualization of infrastructure and green architecture, stepping up the promotion of innovation in financial technology, facilitating the opening of data by public and private organizations for development and application, setting up a platform for sharing big data, making optimal use of innovation and technology for improvement of people's daily living, as well as developing a low-carbon green and smart community, with a view to fostering the sustainable development of Hong Kong and facilitating the people in leading a quality life; this Council also urges the Government to strengthen communication and cooperation with various sectors, especially professionals, to avoid working behind closed doors, and provide small and medium enterprises with financial assistance and support; to expedite the promotion of smart city development, the Government should also:

(1)   conduct a comprehensive review of policies and regulations on elderly care and promote the application of gerontechnology, so as to upgrade the quality of elderly care services and cope with the trend of population ageing in the future;

(2)   expeditiously enact legislation on the Internet of Things to deal with problems associated with privacy, data security, etc., so as to protect public interest;

(3)   make use of big data to promote demand-led transport planning, including regular collection of information on vehicular journeys by the Government for analysis of the distribution of traffic demands and travelling patterns of commuters in Hong Kong, so as to make planning of more accurate public transport services that meet long-term demands;

(4)   enhance the amount and types of data provided on the data.gov.hk website, draw up a timetable for opening of data, and establish an open and transparent platform for industries and the public to reflect their needs for information and data, so as to expand the database;

(5)   provide innovation and technology start-ups with policy support and review the existing legislation and regulations to remove barriers for such enterprises; and

(6)   improve government procurement policies to give priority to using products and services researched and developed by local innovation and technology companies;

moreover, this Council urges the Government:

(7)   in respect of smart mobility, practically ameliorating such problems as traffic congestion, shortage of parking spaces, delayed and lost trips of public transport, etc.; encouraging the industry to introduce an intelligent information system to provide real-time parking vacancy information of private car parks, and conducting a study on using concessions or legislative measures to incentivize private

car parks to share data on vacant parking spaces, so that drivers can access the relevant information;

(8)   in respect of smart living, expeditiously perfecting various infrastructural facilities of a smart city, including further raising the speed of WiFi services in public places and enhancing the security in using such services; conducting a study on the introduction of electronic business registration ('eBR') apart from electronic identity ('eID'); and stepping up the development of smart healthcare and smart elderly care to perfect the healthcare and elderly care services in Hong Kong;

(9)   in respect of smart environment, promoting optimal use of green smart technologies to practise a low-carbon and energy-efficient life and perfect waste disposal, and proactively conducting a study on more effective use of recovered resources to effect waste-to-energy and waste-to-treasure proposals, including integrating innovation and technology with development of green industries or 'light recycling industry', so as to promote the development of the whole green industrial chain as well as the application, research and development of relevant technologies;

(10)   in respect of smart people, to tie in with the global trend of education, further adding elements of arts to Science, Technology, Engineering and Mathematics ('STEM') education, turning it into Science, Technology, Engineering, Arts and Mathematics ('STEAM') education, and allocating additional resources to training STEAM teachers and supporting the promotion of STEAM education in schools; stepping up efforts in promoting the teaching of programming and coding, and making programming and coding a compulsory subject in primary and secondary schools, so as to nurture talents of innovation and technology at their early age; enhancing on-the-job training and retraining of employees to support Hong Kong employees in learning, grasping and applying innovation and technology; streamlining the application and administrative procedures relating to the Postdoctoral Hub and Internship Programme, and shortening the time of processing funding, so as to encourage the industry to hire

more professionals; and strengthening digital support for children from families with financial needs, the elderly and the disadvantaged, so as to eliminate the 'digital divide' and foster digital inclusion;

(11)   in respect of smart government, completing the establishment of Common Spatial Data Infrastructure ('CSDI') by 2020, including expediting the development and implementation of various applications and services of a smart city as well as enhancing city management, so as to achieve various great visions of a smart city; strengthening, improving and promoting digital government services, including online tax return filing, payment, licence renewal, etc.; and stepping up training to enhance the understanding and application of technology by the civil service, such as making better use of the Common Operating Platform for Emergency Management by government departments;

(12)   on smart economy, in line with the development strategy of the Outline of the 13th Five-Year Plan for the National Economic and Social Development of the People's Republic of China, the Belt and Road Initiative and the Guangdong-Hong Kong-Macao Bay Area ('the Bay Area'), promoting industrialization and re-industrialization of Hong Kong's achievements in scientific research; strengthening global support to assist industries in developing businesses in the Mainland and world markets; fostering the development of the innovation and technology industry through tax concessions and other measures; promoting more venture capital and technological service industries; fostering incubation of start-ups of patented technologies; and applying, transforming and perfecting the intellectual property rights regime, so as to establish a market with demand for and supply of innovative technologies and products; and

(13)   proactively promoting the development of a smart city cluster in the Bay Area, including enhancing promotion of the development of sandboxes for financial technology, medical science and technology, and educational technology in the region; speeding up the ground breaking and application of new-generation information

technologies such as artificial intelligence, quantum information, mobile communications, Internet of Things, blockchain, etc. in the region; expediting the establishment of a sharing platform for big data, as well as strengthening the mutual access and flow of people, goods, services, capital and information in the region;

this Council also urges the Government to, in the course of implementing the above measures, extensively collect views from stakeholders straddling different sectors, make optimal use of the existing technologies, enhance public-private partnership, encourage local research and development of advanced smart city technologies, and be genuinely people-oriented; at the same time, as the development of a smart city involves large-scale data collection, this Council urges the Government to increase the transparency of smart city public-private partnership projects, formulate a comprehensive policy on data management and open data to enhance civic participation and accountability of governance, and review and update the Personal Data (Privacy) Ordinance to strengthen the regulation of the collection, processing as well as use of personal data and devise information security standards, so as to strike a balance between promotion of technology and protection of people's personal privacy.