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Introduction

The European Chamber of Commerce in Hong Kong (ECC) created its ICTBC to bring together experts in the information and communication technology (ICT) field in Hong Kong Special Administration Region (Hong Kong) and Macao Special Administrative Region (Macao). The main objective of the ICTBC is to aggregate the interests of the European Union (EU) ICT industry and EU business associations in dealing with Hong Kong Government departments, public authorities and other organisations specialising in the ICT area in the EU, Hong Kong, Macao and People's Republic of China (China), and to provide the EU Office with timely market access information as input for bilateral ICT policy formulation and talks with the Governments of Hong Kong and Macao.

Hong Kong has one of the most advanced ICT sectors in the world and has consistently been voted the world's freest economy over the last couple of decades. One of its trademarks is the low barriers to global trade. The combination of a highly sophisticated ICT infrastructure, the rule of law, free movement of capital, access to funds, agile business environment and its geopolitical situation, as Special Administrative Region in China, makes it very attractive and important to European business interests, in general as well as for ICT companies. It is a stepping-stone not just to China but also to the rest of Asia. To ensure these low barriers to trade, Hong Kong has traditionally aligned its ICT policies closely with the global community and international standards, which has enabled quick adoption of new technologies in the territory, a fact that has, in its turn, attracted many ICT companies to establish their presence in Hong Kong. The ICTBC believes that Hong Kong must continue to follow global standards and seek ways to further attract ICT companies by also lowering the barriers to innovation. This will help create more opportunities for early-stage companies whilst diversifying Hong Kong's economy. To facilitate this process, the ICTBC is identifying and engaging stakeholders including: a) European ICT companies, b) local authorities, policy makers and regulators and c) incubation programmes and investors.

Key recommendations

- To encourage the EU to seek cooperation with the Hong Kong Government and private stakeholders around innovation and incubation to create opportunities for early-stage, European ICT companies to enter the Hong Kong market, and in extension, China and the rest of Asia Pacific.
- To invite the EU to, together with the Hong Kong Government, discuss with the Government of China the possibility to adapt the APT700 plan in the Hong Kong and Shenzhen area.
- To recommend the Hong Kong Government to, in cooperation with European stakeholders, take further steps in the direction of becoming a smart city, mainly by taking on a more people-centric approach.

- To emphasize the need of the EU to continue to share with Hong Kong the experiences from Europe about the benefits of public sector information for the creation of business opportunities in the ICT-sector as well as other business sectors.

1

Innovation and Incubation in Hong Kong

1.1 Background

In the last couple of years, a number of public and private incubators and accelerators have emerged in the China and Hong Kong, targeting foreign companies looking to enter the Chinese and Asian markets. From the European start-up perspective, incubators could be an important gateway to gain access to these markets and local funding, mainly because the best incubators provide direct funding that is otherwise rarely available for early-stage companies. In addition, via incubators and similar establishments, companies can gain the knowledge that is needed to access and scale in the chosen market.¹

Hong Kong, being one of the world's most significant finance districts, is an attractive option for European companies. It is fast and inexpensive to establish a company in Hong Kong, taking from a few days to a week. This can be compared to a period from one month to a year in China. In addition, some small companies have been concerned not only of the company establishment procedure in China but also of the possible dismantle of the business should the location decision prove to be wrong. Other benefits of Hong Kong are its reputable legal system and beneficial tax rates.

Even though the products traded have changed over time, Hong Kong's position as a platform between Europe and Asia is strong. At the moment, current trends in China, such as tightening competition, pollution and Internet restrictions, have made some companies consider other options than China for their Asian headquarters and for their workers' families. Hong Kong might benefit from this trend. However, there are also those who think that China's anti-corruption policies and economic liberalisation will, in the long run, make Hong Kong's position as a gateway to China less important. Also, Hong Kong is competing with other attractive destinations in the area, such as Singapore, in attracting companies and investment.

Since the topic of innovation and incubation has come more into focus in Hong Kong during the past few years, the ICTBC is of the opinion that this area is important to highlight to the European Commission. To have a better view of the current innovation landscape in Hong Kong will help the European Commission to take the necessary action within this field.

¹ Lion Partners, 2015, January, Future Watch Report for TEKES, *China Investment Environment*.

1.2 Main Issues and Challenges

1.2.1 Introduction to the Technology Innovation Landscape in Hong Kong

Invest HK, an organisation under the Hong Kong Government, conducted a survey about the start-up ecosystem in Hong Kong in August 2015. The results show that there has been a growth in the number of start-ups, co-work spaces and incubators in Hong Kong. The 40 co-work spaces, incubators and accelerators polled in the survey (a good number compared to that there were only a handful in 2010) stated that 1,558 start-ups were registered with them. This is an increase with 493 start-ups, or 46%, compared to a similar study made one year earlier. These start-up companies employed 3,721 persons. Although these start-up companies employ only a small number of people, the impact of innovation on society is large, especially in the technology sector. In fact, research has argued that a 20% increase in ICT investment will grow the gross domestic product (GDP) of a country by 1% and that web and e-commerce platforms now handle almost 20% of the value of all sales of goods and services worldwide.² Out of these start-up companies in Hong Kong, the top sectors represented were:

- Information, computer and technology (19%)
- Hardware – Internet of Things (IoT), prototypes and wearables (14%)
- E-commerce (10%)
- Supply chain management and professional or consultancy services (10%)³

Hong Kong Cyberport Management Company Limited (Cyberport), a creative cluster wholly owned by the Hong Kong Government, and the Hong Kong Business Angel Network (HKBAN), also mention shared economy technology, financial technology (Fintech) and open data as promising markets for Hong Kong. Private actors in the Fintech area do, not surprisingly, also see Fintech, together with hardware and IoT, as increasingly more important business areas for Hong Kong. For Hong Kong Science and Technology Park (HKSTP), a statutory body dedicated to building a vibrant innovation and technology ecosystem, the main focus areas for development are smart city (including Fintech, shared economy, Public Sector Information (PSI) and environmental protection), healthy aging and robotics (e.g. robots capable of deep learning going into homes etc.).

1.2.2 Hong Kong's Economic Structure

Hong Kong's economy has traditionally been focused on four pillars; 1) the trading and logistics services industry, 2) the financial services industry, 3) the tourism industry and

² Huawei, reviewed 2015, December, <http://www.huawei.com/minisite/gci/en/huawei-global-connectivity-index-2015-whitepaper-en-0507.pdf>.

³ InvestHK, reviewed 2015, November, <http://www1.investhk.gov.hk/news-item/investhks-survey-shows-continued-growth-of-hong-kong-startup-ecosystem/>.

4) the professional and producer services industry, where trading and logistics is the largest. However, in order to diversify Hong Kong's economic structure and create more growth, the Hong Kong Government has identified and promoted six industries to help expand the local industry structure. The six identified industries include cultural and creative industries, education services, medical services, environmental industries, innovation and technology as well as testing and certification services.⁴ All of the six industries face challenges of their own and there is a need for the Government to enhance its support for these industries in order to help diversify the industry structure. Nevertheless, the acknowledgement of, in particular, the innovation and technology sector, is an important step towards an even better innovation and incubation climate.

1.2.3 Innovation and Incubation Activities and Programmes

Interesting investments and initiatives are currently taking place in Hong Kong, which can affect its innovation climate. Some of these include:

NEST, established in 2014, runs accelerator programmes together with AIA, Infiniti, and DBS in healthcare/wearables, smart cities and Fintech respectively.

BRINC, also established in 2014, is an accelerator with focus on IoT.

FinTech Innovation Lab by Accenture is another relatively new institution, dedicated to bring together stakeholders and promote Fintech.

Hong Kong Design Centre's Design Incubation Programme nurtures start-up companies in design and creative fields.

Cyberport Incubation Programme and Creative Micro Fund is set up to support development of Hong Kong's ICT industry.

Hong Kong Science and Technology Parks run programmes for app developers, biotechnology companies and technology companies.

On November 10, 2015, the **Research Grants Council of Hong Kong** and the **European Commission** agreed to set up a collaboration scheme under the EU Framework Programme Horizon 2020. With an annual budget of 9 million HKD for the benefit of Hong Kong researchers, the collaboration scheme is open for researchers and innovators to apply for matching funds to support their participation in joint research projects in the science disciplines of biology, medicine, engineering and physical sciences. The aim of the collaboration scheme is to

⁴ Legislative Council of HKSAR, reviewed 2015, November, <http://www.legco.gov.hk/research-publications/english/1415rb03-four-pillars-and-six-industries-in-hong-kong-review-and-outlook-20150209-e.pdf>.

foster and strengthen the EU-Hong Kong collaboration in scientific research and exchange in order to achieve leading innovative technologies.⁵

Massachusetts Institute of Technology (MIT) has announced the opening of the MIT Hong Kong Innovation Node in the summer of 2016.⁶ This collaboration space will enable MIT students, faculty, and researchers to work on various entrepreneurial and research projects alongside Hong Kong-based students and faculty, MIT alumni, entrepreneurs, and businesses.

Baidu, the Chinese search giant, is teaming up with Standard Chartered and TusPark Global Network to start an international incubation programme for Fintech companies in 2016.

On November 19, 2015, **Alibaba Group Holdings Limited** launched its Entrepreneurs Fund for Hong Kong.⁷ The fund holds 1 billion HKD, which will be used to support the career and entrepreneurial aspirations of young people in Hong Kong.

Albeit focussed on regenerative medicine and stem cell technologies, it is also worth mentioning **Karolinska Institutet**, which is opening a branch at the HKSTP in 2016.

On November 20, 2015, the **Innovation and Technology Bureau** was launched in Hong Kong. It was initiated by Leung Chun-ying, Chief Executive of Hong Kong, in 2012. The Innovation and Technology Bureau will help develop Hong Kong into a knowledge-based economy and innovation hub for technology and information technology. Further, it aims to create a vibrant ecosystem where the Government, industry, academia and research sector can interact.⁸

Furthermore, in March 30, 2015, the Hong Kong Government announced the establishment of a **Steering Group on Financial Technologies**. The steering group, consisting of ten persons from the financial industry and Research and Development (R&D) institutions, will initially work for one year and shall advise the Government on how to develop and promote Hong Kong as a Fintech hub. Since the steering group was appointed on 1 April, 2015, their report and/or recommendations can be expected around the same time next year.

Last but not least, **Mainland China and Hong Kong Closer Economic Partnership Agreement (CEPA)** should be mentioned. CEPA is a free trade agreement entered into between China and Hong Kong in 2003. The agreement, which has been subsequently enriched and supplemented, covers three different areas: 1) trade in goods, 2) trade in services and 3) trade

5 European Union Office to Hong Kong and Macao, published 2015, Nov 20, [press release](#) "New EU-Hong Kong Research and Innovation Collaboration".

6 Massachusetts Institute of Technology, reviewed 2015, November, <http://news.mit.edu/2015/innovation-node-hong-kong-1109>.

7 Alibaba Entrepreneurs Fund, reviewed 2015, November, <http://www.ent-fund.org/en/global/home?spm=a3139.7833218.0.0.rcTX9b>.

8 Innovation and Technology Bureau of HKSAR, reviewed 2015, November, <http://www.itb.gov.hk/en/index.htm>.

and investment facilitation. The intention of CEPA is to accelerate the economic integration and enhance the long-term trade development between China and Hong Kong. On November 27, 2015, yet another agreement was signed under the framework of CEPA, extending basic liberalisation of trade in services to geographically cover the whole of China.⁹

1.2.4 Strengths and Weaknesses of the Hong Kong Innovation Landscape

To understand Hong Kong's strength and weaknesses for innovation, the ICTBC has turned to some recently published global indices (all from 2015), which all rank Hong Kong differently. The Global Innovation Index ranks Hong Kong 11th (Singapore 7th and China 29th), the Network Readiness Index ranks Hong Kong 14th (Singapore 1st and China 62nd) whereas the Bloomberg Innovation Index puts Hong Kong in the 34th position (Singapore 8th and China 22nd).

According to these indices, Hong Kong's strengths include a very friendly business environment which is conducive to innovation, excellent mobile network coverage, high Internet bandwidth, affordable cellular tariffs and fierce sector competition. Foreign direct investment inflows and outflows rank top of the class, as does the legal framework, which works very efficiently for settling disputes and challenging regulations. The intensity of local competition and the short time required to start a business, are other positive factors. High-tech imports (% of total trade) are comparatively high, whereas high-tech exports (% of total trade) are low.

Weaknesses include the Government's position vis-à-vis ICT: the Government's use of ICT is considered low, ICT is not promoted and there is a lack of integration of ICT in the Government's vision for the future. Furthermore, tertiary education enrolment rates are low and the percentage of science and engineering professionals in the labour force is as well. On the whole, Hong Kong spends less than many other developed economies on education as well as R&D, with ratings below competing economies such as Singapore (and in the case of R&D, also China). Consequently, the number of patent filings and approvals lag behind.

Stakeholder interviews show that Hong Kong's strengths lies in its excellent infrastructure (this is confirmed by the index ratings), such as roads, bridges, airports, broadband, mobile coverage and innovation centres. However, when it comes to soft skills, such as creativity development, diversity, culture and social infrastructure, the view is that these need to be addressed to improve Hong Kong's landscape for innovation, by emphasising these more at all levels of education.

It has been pointed out that Hong Kong does not really have a history of ICT innovation, hence the relatively low rankings. Business in Hong Kong has been very tied to the real estate sector and ICT and innovation has received little attention. This explains the low number of filed

⁹ The Mainland and Hong Kong Closer Economic Partnership Arrangement Further Liberalisation 2015, published 2015, 27 November.

patents, even though Hong Kong has many entrepreneurs. The Hong Kong Government's intention to create a more diversified economy and find ways to nurture creativity and use of technology in education, reflected in its Digital 21 Strategy, would improve the chances for early-stage ICT companies in Hong Kong to grow and attract talent, on a long term. In the short term, the Government should consider initiatives such as the *regulatory sandbox* by the Financial Conduct Authority in the United Kingdom to address regulatory concerns inhibiting innovation and growth in Fintech, as well as the technology sector at large.

According to recent trends in education, technology and innovation are being progressively promoted amongst students, parents and teachers. Furthermore, the Government has invested a lot of money in these areas, not least via the Technology Start-up Support Scheme for Universities (TSSSU). TSSSU provides universities with annual funding to encourage their students and professors to start technology businesses and commercialise their R&D results. Good things take time and although Hong Kong's public administration sometimes might seem slow on adapting new ideas and new technology, once processes are implemented they work efficiently.

1.3 Recommendations

The ICTBC recognises that there is a good state for collaborative efforts within the area of ICT innovation in Hong Kong, and therefore would like to suggest the below recommendations to the European Commission.

- To make the European Commission aware of the current ICT innovation climate in Hong Kong and to recommend the European Commission to further investigate the possibilities for European companies to benefit thereof.
- To encourage the European Commission to seek cooperation with the Hong Kong Government and private stakeholders around incubation and innovation to create opportunities for early-stage, European ICT companies to enter the Hong Kong market, and in extension, China and the rest of Asia Pacific. In this context, the ICTBC also recommends both the EU and the Hong Kong Government to more actively promote CEPA, which could be attractive to ICT companies.
- To highlight to the European Commission the interest in Hong Kong for the six identified industries mentioned under 1.2.2. The European Commission is also advised to be aware of the identified promising markets mentioned under 1.2.1 and to follow up on the report from the Steering Group on Financial Technologies. The ICTBC recommends the European Commission to further investigate the possibilities for European companies to provide services within these areas.

2

Spectrum for Connected Society

2.1 Background

Today, mobile broadband is an integral part of life in the society, where access to information and services anywhere, anytime is a natural extension of society's working and personal lives. As enterprises and individuals invest in an increasing number of connected devices for the purpose of increased productivity or enhanced personal communications, the expectations on operators to deliver high performance network, whether indoors, outdoors, in cities, in suburban or in rural areas, are also becoming the norm.

Mobile data usage in Hong Kong went from around 7,675 terabytes in December 2012 to 15,860 terabytes in December 2014.¹⁰ This is a huge increase. Hence, a key challenge for operators and regulators is to secure and make available new spectrum bands to continue to unleash this potential. With customer loyalty driven primarily by network performance, low-frequency Ultra High Frequency (UHF) spectrum is particularly attractive to operators seeking to improve both wide-area coverage, as well as boosting network performance in urban and indoor areas.

2.2 Main Issues and Challenges

The global migration of terrestrial TV broadcasting from analogue to digital enables much more efficient use of UHF spectrum, thereby creating a digital dividend. With more spectrums freed up, and since the main part of this digital dividend is possible to harmonise all over the world, the possibilities for companies to go global and take their services global will increase if this digital dividend is released. Unfortunately, this is currently not the case in Hong Kong, mainly because of China being sluggish to this development. For both Hong Kong and European mobile communication companies, this creates barriers for trade and advancement of broadband services.

Due to regional differences in UHF spectrum allocation and broadcasting technologies, the International Telecommunication Union (ITU), the United Nations' specialised agency for information and communication technologies, has defined three regions globally for mobile telecommunications. These three regions are broadly defined as Region 1 (Europe, Middle East & Africa), Region 2 (Americas) and Region 3 (Asia Pacific). ITU has recommended all regions to release and harmonise the digital dividend band created when moving away

¹⁰ Office of the Communications Authority of HKSAR, reviewed 2015, November, http://ofca.gov.hk/filemanager/ofca/en/content_108/wireless_en.pdf.

from analogue TV broadcasting.¹¹ The band has been released in Region 1 and 2, but not in all parts of Region 3.

In the ITU World Radiocommunication Conference 2007 (WRC-07), the frequency band 698-862 megahertz (MHz), i.e. the potential digital dividend band in Region 3, was recommended to be released. Furthermore, it was recommended that the digital dividend band was allocated for International Mobile Telecommunications (IMT), the mobile and telecom technology widely used in Europe. The WRC-07 was of the opinion that this would be the most efficient use of the band. As a result, the allocation of IMT for the digital dividend band in Region 3 was inserted in the ITU Radio Regulations, which contains the complete texts (as adopted and amended) outlined by the World Radiocommunication Conferences. However, these regulations only apply to the countries which agree to follow them. Among others, Hong Kong and China has not yet adopted the abovementioned recommendations.

Nevertheless, following the WRC-07, the 698-862 MHz band, often simply referred to as the 700 MHz band or the digital dividend band (for Region 3), was acknowledged by the Asia Pacific Telecommunity (APT). APT deals with how the spectrum created in the digital dividend band should be allocated in the Asia Pacific region. Based on the recommendations from ITU, APT developed a regulatory framework known as APT700, which was finalized in 2011.

APT700 was originally identified as a key opportunity due to the planned transition of terrestrial broadcasting from analogue to digital, being driven by a lesser quantum of spectrum and lower power required compared to analogue transmission. Despite the fact that a multitude of terrestrial broadcasting standards exist within Region 3 (including DVB-T, ATSC, ISDB-T, DMB-T), it was widely acknowledged by APT members that a regionally harmonised digital dividend would create significant economies of scale, thereby driving down the cost of mobile devices, as well as providing excellent wide area coverage and in-building penetration.¹²

On top of the APT700, 3rd Generation Partnership Project (3GPP), a unification of seven international telecommunications standard development organisations, making standards for IMT technology, developed further guidelines for how to use the digital dividend band in Region 3 for IMT technology. 3GPP used the framework of APT700, and in June 2012 it specified two bandplans:

- Band 28 for Frequency Division Duplex (FDD); and
- Band 44 for Time Division Duplex (TDD).

¹¹ These decisions were made in WRC-07 and WRC-15.

¹² GSMA Public Policy Position, published May 2015, "Securing the Digital Dividend for Mobile Broadband", <http://www.gsma.com/spectrum/wp-content/uploads/2013/07/GSMA-Policy-Position-on-the-Digital-Dividend.pdf>

Being popular in China and other countries in the region, the TDD variant in particular has gained the attention of regulators and operators across Asia, Oceania and the Americas. Traditionally, Europe has used the FDD variant. However, the global trend being to move towards technology adapted for both variants, what bandplan is chosen when the spectrum in the digital dividend band is freed is of less importance.

There is clearly both recommendations and regulatory frameworks in place, pushing Hong Kong towards opening up its digital dividend band and allocating it to IMT. In November 2015, ITU World Radiocommunication Conference 2015 (WRC-15) decided to harmonise the digital dividend band further and to allocate it to IMT in Region 1 (just as was decided for Region 2 and 3 at WRC-07). Hence, there is now more initiative than ever for Hong Kong to adapt the APT700 plan in order to benefit from this harmonisation. It should be mentioned that some countries in Region 3 have been early adopters of the APT700 plan, including Australia, New Zealand and Japan.

The Hong Kong Government has expressed that it envisages to adapt the APT700 plan. However, being a Special Administrative Region of China, Hong Kong will have to await China's decision on how to progress in this matter. China is currently using the potential digital dividend band for, amongst other things, analogue TV and does not seem ready to make the switch to digital (and hence release the digital dividend) just yet.

The ICTBC respects that China wants to further investigate the possibilities with adapting the APT700 plan. Nevertheless, Hong Kong should not need to wait for the whole of China to adapt the plan. In order to facilitate, and speed up, the adaptation for Hong Kong, the APT700 plan could be adopted in a smaller part of China, i.e. the Hong Kong and Shenzhen area, to start with. This way, China can try the APT700 concept in a small part of the country, not having to make the adoption for the whole country yet. The ICTBC believes that this will benefit China and Hong Kong, as well as European companies and their interests.

2.3 Recommendations

- To adopt promptly the APT700 band in Hong Kong in order to leverage the full potential of mobile technology and applications, such as smart grids, which has broad applicability in the enablement of smart city ICT solutions.
- To the European Commission together with the Hong Kong Government to approach the Chinese Government and discuss the possibilities for of adopting the APT700 plan in parts of southeast China, i.e. the Hong Kong and Shenzhen area. This would not only benefit Hong Kong and European companies, but would also be a good way for China to try the benefits of the APT700 plan. The European Commission would also be welcome to explore other solutions in order to speed up the implementation of APT700 in Hong Kong.

3

Hong Kong as a Smart City

3.1 Background

According to the European Commission, a smart city is a place where the traditional networks and services are made more efficient with the use of digital and telecommunication technologies, for the benefit of its inhabitants and businesses. The smart city concept goes beyond the use of ICT for better resource use and less emissions. It means smarter urban transport networks, upgraded water supply and waste disposal facilities, and more efficient ways to light and heat buildings. It also encompasses a more interactive and responsive city administration, safer public spaces and meeting the needs of an ageing population.

From Hong Kong's point of view, a smart city is described as "one with wide application of new technologies such as sensors, IoT, cloud computing, mobile technology and big data analytics to develop intelligent systems in city planning, construction and management, so as to achieve better allocation of resources, facilitate sustainable development, and enable better managed city operations for the benefits and quality of its citizens".¹³

Key achievements for Hong Kong's smart city development involves areas such as e-commerce, where especially the Octopus card (used for payment on public transport, stores, cafés, parking facilities etc.) has been a success. Furthermore, in the transport and logistics sector, the Transport Department has implemented an Intelligent Transport System, focusing on providing the public with real-time traffic information and providing comprehensive traffic control and surveillance. The Government has also released various mobile apps and launched the "1823" service, a round the clock, one-stop contact point to answer general enquiries for a wide range of departments and receiving complaints and suggestions about Hong Kong Government services. Initiatives have also been taken within healthcare, where, for example, systems for sharing information between public and private hospitals are being developed and tested. Moreover, in order to release more PSI, Hong Kong is working on releasing all free online Government information in digital formats and to publish this information under one portal (data.gov.hk).

¹³ Central Policy Unit, *Research report on Smart City and the Paper on Government Initiatives on Smart City Development*, in paper from the Commission on Strategic Development on September 10, 2015, Paper Ref: CSD/3/2015.

3.2 Main Issues and Challenges

Despite declarations of a people-centric approach to smart city developments, the ICTBC is concerned that, in reality, and according to the public information available, the Hong Kong Government's strategy is too IT-centric. The view of ICTBC is that the Hong Kong Government's smart city strategy is based on an IT centric approach, which is too narrow. Developing a smart city is a much more complex issue than implementing smart ICT. ICTBC has experienced that smart city development also requires a people-centric approach, seeking to cooperate with civic organisations and the business sector to work actively side by side in order to integrate and determine common needs that will improve quality of life and promote the economic development, before stipulating the technologies required. There is, however, a lack of evidence that this dialogue is taking place in Hong Kong. The ICTBC therefore recommends the Hong Kong Government to look at how to actively promote this kind of cooperation, and to work more closely with European cities and businesses to learn and share findings that will help Hong Kong involve citizens and non-governmental organisations (NGOs).

3.2.1 European Smart City Definitions

With the aim of benchmarking Hong Kong and European cities, below are presented some European cities' definition of a smart city, most of them with a strong people-centric approach.

Barcelona, being one of the leading cities in Europe on smart city development, partly describes a smart city the following way: "The *Smart City* is a new concept defining a city that works to improve the quality of its citizens' lives by guaranteeing sustainable social, economic and urban development. A *Smart City* is based on the use and modernisation of new information and communication technologies (ICT) to provide more efficient management of the city's services and resources... In practice, a *Smart City* has the capacity to meet the needs of its citizens (in terms of the environment, mobility, businesses, communications, energy and housing) and it thereby improves their daily lives."¹⁴

Stockholm's smart city initiatives spring out of its environmental goals and the city believes that an efficient cooperation between inhabitants, the private industry, the public sector and many other players is crucial. Environmental and information technology are both key priorities in developing a sustainable society in Stockholm.¹⁵

The view on smart cities in **Helsinki** is explained by the CEO of Forum Virium Helsinki, an innovation unit within the Helsinki City organisation playing a key role in implementing

¹⁴ BCN Smart City, reviewed 2015, December, <http://smartcity.bcn.cat/en>.

¹⁵ City of Stockholm, reviewed, 2015, December, <http://international.stockholm.se/city-development/the-smart-city/>.

Helsinki's Smart and Open City strategy. He expresses that "For Helsinki, Smart City means more than advanced infrastructure and state-of-the-art technological solutions. For Helsinki, Smart City signifies also advancing open engagement of the citizens and the rest of the city community, pioneering in open data and transparency of city governance, as well as promoting agile service development."¹⁶

Smart City **Vienna**, a long-term initiative by the city of Vienna, looks at a cross-section of the city, covering all areas of life, work and leisure activities in equal measure, and includes everything from infrastructure, energy and mobility to all aspects of urban development. Vienna has developed a long-term umbrella strategy to 2050 where the key objective is the best quality of life for all inhabitants of Vienna, while minimising the consumption of resources. This will be realized through comprehensive innovation.¹⁷

Amsterdam Smart City, a partnership between companies, Government, knowledge institutions and the people of Amsterdam, describes a smart city as one where social and technological infrastructures and solutions facilitate and accelerate sustainable economic growth. This improves the quality of life in the city for everyone.¹⁸

Many European cities are implementing smart city projects, where ICT is not the main focus. For example, Barcelona has a project for bike sharing and another project about safe routes where children can walk on their own, to and from school.¹⁹ Amsterdam has a project called IRIS – "Institutional and regulatory innovation to support local smart energy provisions", which is focused on establishing legal frameworks that offer the best opportunities to develop local sustainable energy provisions.²⁰ In Vienna, all citizens can participate in the development of renewable energies by investing in community-funded solar power plants.²¹ Furthermore, Stockholm has an Urban Mobility Strategy where the concept Walkable City is promoted; the key element is to utilise city planning to reduce the need to travel.

3.2.2 Global Smart City Initiatives

World leading cities are already members of global initiatives for facing cities' challenges, such as climate change, resilience and the improvement of citizens' quality of life. Such initiatives empower cities to connect with each other and share technical expertise on best

¹⁶ [Forum Virium Helsinki](https://www.forumvirium.fi/en/smartcityinnovationunit), reviewed 2015, December, <https://www.forumvirium.fi/en/smartcityinnovationunit>.

¹⁷ [Smart City Wien](https://smartcity.wien.at/site/en/), reviewed 2015, December, <https://smartcity.wien.at/site/en/>.

¹⁸ [Amsterdam Smart City](http://amsterdamsmartcity.com), reviewed 2015, December, <http://amsterdamsmartcity.com>.

¹⁹ [BCN Smart City](http://smartcity.bcn.cat/en), reviewed 2015, December, <http://smartcity.bcn.cat/en>.

²⁰ [Amsterdam Smart City](http://amsterdamsmartcity.com), reviewed 2015, December, <http://amsterdamsmartcity.com>.

²¹ [Smart City Wien](https://smartcity.wien.at/site/en/), reviewed 2015, December, <https://smartcity.wien.at/site/en/>.

practices in each area of interest. For reference, below are some global initiatives where world-leading cities are participating as active members.

100 Resilient Cities – Pioneered by the Rockefeller Foundation (100RC)²²

The 100 RC is an initiative originating from the United States of America, supporting cities all over the world with the adoption and incorporation of a view of resilience. The purpose is to make the cities resilient to both *chronic stresses*, such as high unemployment, overtaxed or inefficient public transport, endemic violence or chronic food and water shortages, as well as *acute shocks*, e.g. earthquakes, fires, floods, etc. The ambition of 100RC is to facilitate the building of a global practice of resilience among Governments, NGOs, the private sector, and individual citizens.

C40 Cities²³

C40, a network of the world's megacities committed to address climate change, supports cities to collaborate effectively, share knowledge and drive meaningful, measurable and sustainable action on climate change. The ambition is to empower cities to connect with each other and share technical expertise on best practices.

Bloomberg Philanthropies – Mayors Challenge²⁴

The Mayors Challenge is a competition for cities, encouraging cities to develop new, creative solutions to city challenges and to improve city life. It aims to inspire local governments and leaders to think more creatively and to come up with groundbreaking new innovations in any policy area that can generate measurable impact. Hopefully, the innovation, creativity and ideas created in the competition will spread to other cities.

World Cities, EU-Third Countries Cooperation on Urban and Regional Development²⁵

World Cities is a project of the EU, managed by the Directorate General for Regional and Urban Policy (DG REGIO) of the European Commission. The project promotes exchange of experience and best practices between the EU and third countries. In order to create sustainable urban development, a holistic model covering many sectors of society is encouraged.

City Protocol²⁶

City Protocol is a collaborative innovation framework that fosters city-centric solutions, which benefit citizens and their quality of life. It seeks to define a common systems view for cities of any size or type, and then embraces or develops protocols that will help innovators

²² 100 Resilient Cities, reviewed 2015, December, <http://www.100resilientcities.org/about-us#/-/>.

²³ C40 Cities, reviewed 2015, December, <http://www.c40.org>.

²⁴ Bloomberg Philanthropies, reviewed 2015, December, <http://www.bloomberg.org/program/government-innovation/mayors-challenge/#overview>.

²⁵ World Cities, EU- Third Countries Cooperation on Urban and Regional Development, reviewed 2015, December, <http://world-cities.eu>.

²⁶ City Protocol, reviewed 2015, December, http://www.cpu.gov.hk/doc/en/commission_strategic_development/csd_3_2015e.pdf

create, and modern cities to deploy, cross-sectorial solutions that can connect and/or break city silos. City Protocol aims at working across diverse cities by interconnecting them and ultimately creating the “Internet of Cities”. To accomplish this goal, City Protocol adheres to a common vocabulary, to express ideas, and proposes a common understanding and tools for effective governance, transformation, collaboration and evaluation.

3.2.3 Central Policy Unit Paper

In the paper from the Commission on Strategic Development from September 10, 2015, referring to the *Research report on Smart City and Paper on Government Initiatives on Smart City Development* from the Central Policy Unit, a list of recommendations on the further development of Hong Kong as a smart city is presented. Below, the ICTBC will put forward the Central Unit Policy’s recommendations and make some comments to them.

People-Centric Approach and Collaboration between All Sectors of Society

- The ICTBC agrees with the Central Policy Unit. A people-centric approach is important, involving all groups of interest in the city: citizens, NGO’s, business, academia and research institutes.
- Both Hong Kong-based companies and European companies exporting its services to Hong Kong should focus on using ICT to solve peoples’ problems, not simply on selling IT solutions. With this approach, a better smart city environment will be created.
- As a city with an increasing aging population, Hong Kong should focus on promoting smart initiatives to improve quality of life of the elderly (see for example project Vincles, Barcelona, awarded by Bloomberg Philanthropy), and not to focus only on their use of technology.

To Promote a More Proactive Role and the Innovation and Technology Bureau can Take Lead on Some Parts of the Smart City Development

- The ICTBC agrees with the Central Policy Unit. Smart city development requires a “whole-of-government” approach and cross-bureaux/departments collaboration. This is the key experience from all European cities that have been working on smart city.
- As an example of how to reach a “whole-of-government” approach, it is recommended to take into account the City Anatomy protocol published by the City Protocol Society,²⁷ since it provides a clear guidance for governance integration (i.e., breaking the inner city silos).

²⁷ City Protocol, *City Anatomy: A Framework to support City Governance, Evaluation and Transformation (CPA-I_001-v2_Anatomy)*, reviewed 2015, December, http://www.cptf.cityprotocol.org/CPAI/CPA-I_001-v2_Anatomy.pdf.

To Promote an Overall and Long Term Strategy, i.e. an Integrated Framework for Smart City Development, Building on the Existing Digital 21 Strategy

- The ICTBC agrees with the Central Policy Unit. There is a need for Hong Kong to set up a long term policy.
- European cities set their transformational strategies well beyond those strictly associated with “smart” implementations. They mainly focus on attaining a highly performing urban metabolism (e.g., self-sufficiency, zero emissions, lowering carbon and water footprints, etc.). This broader view, which also encompasses social innovation, participatory governance and circular economy approaches, is well summarized in the Liveable Districts and Cities Protocol.²⁸

To Promote the Implementation of Policies and Measures to Help Innovation and to Continue Efforts to Encourage Talent in Innovation and Technology in Schools and Universities in Hong Kong

- The ICTBC agrees with the Central Policy Unit. As an example of how to implement policies and measures to help innovation and satisfy the city’s needs, Hong Kong should include smart solutions in the public purchase/tenders, e.g. public transport, to give priority to smart electric solutions.

3.3 Recommendations

The ICTBC would like to make the following recommendations regarding to the smart city development in Hong Kong.

- With regard to the Central Policy Unit’s recommendations mentioned in section 3.2.3 above, the European Commission and the Hong Kong Government should discuss, share information about and cooperate on the actions suggested in relation to each recommendation.
- The European Commission should promote the implementation of social indicators in Hong Kong. The development of common indicators and measures to monitor smart city development is crucial. It should include social impact indicators, to measure the valued added to the citizens. For example, ISO 37120 and indicators from City Protocol²⁹ could be used.
- The European Commission to engage in the smart city discussion in Hong Kong and to explore the opportunities for the Hong Kong Government and the EU to collaborate regarding to smart city development, within the initiative Europe 2020. Europe is currently leading the development in conceptual and practical smart city development, so there should be good opportunities for European business in the Hong Kong market in the long run.

²⁸ *City Protocol, Livable Districts and Cities (CPC_004_Livable_District_and_Cities)*, reviewed 2015, December, http://www.cptf.cityprotocol.org/Publications/CPC_004_Livable_Districts_and_Cities.pdf.

²⁹ *City Protocol, City Anatomy Indicators (CPA-PR_002_Anatomy_Indicators)*, reviewed 2015, December, http://www.cptf.cityprotocol.org/CPAPR/CPA-PR_002_Anatomy_Indicators.pdf.

- Hong Kong is already a member of C40 Cities, focused on tackling climate change. However, the ICTBC recommends the European Commission to discuss with the Hong Kong Government the involving of Hong Kong in global initiatives lead by EU or European cities, in order to create synergies to tackling the smart city issue.
- The European Commission to collaborate with the current European players to upgrade the level of the international conferences on smart cities in Hong Kong. Such conferences may include IoT. The ICTBC identifies an opportunity for Hong Kong to become a strong party in Asia Pacific within this field.

4

Public Sector Information

4.1 Background

Open public data, or PSI, is one of the major areas of innovation in knowledge economies and Internet economies, and has created new services and applications and whole new markets for data and information.

PSI is broadly defined as “information, including information products and services, generated, created, collected, processed, preserved, maintained, disseminated, or funded by or for the Government or public institution”.³⁰

The EU adopted a PSI Directive in 2003³¹ to overcome barriers that limit the re-use of PSI. The Directive regulates how public sector bodies should make their information available for re-use, and deals with key issues such as transparency of what is available and under which conditions, fair competition and non-discrimination between all potential re-users. EU member states are obliged to translate EU directives into national law.

The Directive shall ensure fair conditions for the re-use of PSI and stimulate the growing market of added-value products and service based on PSI re-use. So far, the highest value and re-use exploitation potential is in the field of geospatial information, followed by traffic, meteorological, statistical, environmental and health information.

ECC organised two seminars for the business community in Hong Kong to discuss the socio-economic value of PSI, held on June 7 and November 30, 2011, and supports the development of PSI in Hong Kong. The PSI portal of the Hong Kong Government was launched in

³⁰ OECD Recommendation of the Council for Enhanced Access and More Effective Use of Public Sector Information, C/2008/36.

³¹ Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the Re-use of Public Sector Information.

March 2011 as data.one, and re-launched in 2015 as data.gov.hk following the international naming standard for Government data sites.

4.2 Main Issues and Challenges

While Hong Kong is one of the leading information societies in the world based on ICT availability and usage, the territory does not have a Freedom of Information (FOI) law. The existing administrative *Code of Access to Information* from 1995 did not foresee digital re-use possibilities. PSI and FOI are the two regulatory foundations of the data economy. The data.gov.hk website assures potential users that the data provided can be used without restrictions. However, the terms and conditions do not include redress mechanisms or coherent copyright guidelines. For example, the data portal states that data can be used free of copyright, whereas departmental sites publishing the data refer to the Hong Kong Government as copyright owner. There are also Government agencies that charge for data, e.g. the Lands Department for mapping and geospatial data.

The use of data is global in nature and potential users, whether from the private sector or from a public research organisation, require standardised, open, accessible data. European business in the data and information industry, or any business that requires data for the creation of services and products, operating in Hong Kong faces potential limitations when using public data.

In the context of providing services and products in the area of smart city, such limitations could affect European companies in the field of data analytics, big data, apps development and others.

To date, there has been no survey on how companies in Hong Kong make use of data.gov.hk, and what the potential value of public data re-use is.

4.3 Recommendations

Europe has developed one of the most comprehensive and dynamic markets for data and information in the past years, and has created a successful environment for data-intensive companies, for start-ups and small and medium enterprises. The economic value created through PSI is estimated to reach 68 billion EUR annually.

- To continue to share experiences from Europe about the benefits of PSI for ICT-related business and beyond, and support the further development of existing network of public and private data users in Hong Kong.

Abbreviations

APT	Asia Pacific Telecommunity
APT700	a regulatory framework developed by APT
China	People's Republic of China
Cyberport	Hong Kong Cyberport Management Company Limited
EU	European Union
EUBIP	European Union Business Information Programme
FDD	Band 28 for Frequency Division Duplex
Fintech	Financial Technology
FOI	Freedom of Information
GDP	gross domestic product
Hong Kong	Hong Kong Special Administrative Region
HKBAN	Hong Kong Government, and the Hong Kong Business Angel Network
HKSTP	Hong Kong Science and Technology Park
ICT	information and communication technology
ICTBC	European Union-Hong Kong-Macao Information Communication and Technology Business Council
IMT	International Mobile Telecommunications
IoT	Internet of Things
ITU	International Telecommunication Union
Macau	Macau Special Administrative Region
MHz	megahertz
MIT	Massachusetts Institute of Technology
NGO	non-governmental organisations
PSI	public sector information
R&D	research and development
TDD	Band 44 for Time Division Duplex
TSSSU	Technology Start-up Support Scheme for Universities
UHF	Ultra High Frequency spectrum
WRC-07 - ITU	World Radiocommunication Conference 2007
WRC-15 - ITU	World Radiocommunication Conference 2015
3GPP - 3rd	Generation Partnership Project
100RC - 100	Resilient Cities, Pioneered by the Rockefeller Foundation

Reference List

- Alibaba Entrepreneurs Fund, reviewed in November 2015, <http://www.ent-fund.org/en/global/home?spm=a3139.7833218.0.0.rcTX9b>.
- Amsterdam Smart City, reviewed in December 2015, <http://amsterdamsmartcity.com>.
- BCN Smart City, reviewed in December 2015, <http://smartcity.bcn.cat/en>.
- Bloomberg Philanthropies, reviewed in December 2015, <http://www.bloomberg.org/program/government-innovation/mayors-challenge/#overview>.
- C40 Cities, reviewed in December 2015, <http://www.c40.org>.
- Central Policy Unit, *Research report on Smart City and the Paper on Government Initiatives on Smart City Development*, in paper from the Commission on Strategic Development on September 10, 2015, Paper Ref: CSD/3/2015.
- City Protocol, reviewed in December 2015, <http://cityprotocol.org>.
- City Protocol, *City Anatomy: A Framework to support City Governance, Evaluation and Transformation (CPA-I_001-v2_Anatomy)*, reviewed 2015, December, http://www.cptf.cityprotocol.org/CPAI/CPA-I_001-v2_Anatomy.pdf.
- City Protocol, *City Anatomy Indicators (CPA-PR_002_Anatomy Indicators)*, reviewed 2015, December, http://www.cptf.cityprotocol.org/CPAPR/CPA-PR_002_Anatomy_Indicators.pdf.
- City Protocol, *Livable Districts and Cities (CPC_004_Livable_District_and_Cities)*, reviewed 2015, December, http://www.cptf.cityprotocol.org/Publications/CPC_004_Livable_Districts_and_Cities.pdf.
- CSD/3/2015, reviewed in December 2015, http://www.cpu.gov.hk/doc/en/commission_strategic_development/csd_3_2015e.pdf.
- City of Stockholm, reviewed in December 2015, <http://international.stockholm.se/city-development/the-smart-city/>.
- Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the Re-use of Public Sector Information.
- European Union Office to Hong Kong and Macao, published 2015, Nov 20, Press release *"New EU-Hong Kong Research and Innovation Collaboration"*.
- Forum Virium Helsinki, reviewed in December 2015, <https://www.forumvirium.fi/en/smartcityinnovationunit>.

- GSMA, Public Policy Position, published in May 2015, "Securing the Digital Dividend for Mobile Broadband", <http://www.gsma.com/spectrum/wp-content/uploads/2013/07/GSMA-Policy-Position-on-the-Digital-Dividend.pdf>
- Huawei, reviewed in December 2015, <http://www.huawei.com/minisite/gci/en/huawei-global-connectivity-index-2015-whitepaper-en-0507.pdf>.
- Innovation and Technology Bureau of HKSAR, reviewed in November 2015, <http://www.itb.gov.hk/en/index.htm>.
- InvestHK, reviewed in November 2015, <http://www1.investhk.gov.hk/news-item/investhks-survey-shows-continued-growth-of-hong-kong-startup-ecosystem/>.
- Legislative Council of HKSAR, reviewed in November 2015, <http://www.legco.gov.hk/research-publications/english/1415rb03-four-pillars-and-six-industries-in-hong-kong-review-and-outlook-20150209-e.pdf>.
- Lion Partners, 2015, January, Future Watch Report for TEKES, *China Investment Environment*.
- Massachusetts Institute of Technology, reviewed in November 2015, <http://news.mit.edu/2015/innovation-node-hong-kong-1109>.
- OECD Recommendation of the Council for Enhanced Access and More Effective Use of Public Sector Information, C/2008/36.
- Office of the Communications Authority of HKSAR, reviewed in November 2015, http://ofca.gov.hk/filemanager/ofca/en/content_108/wireless_en.pdf.
- Smart City Wien, reviewed in December 2015, <https://smartcity.wien.at/site/en/>.
- The Bloomberg Innovation Index, reviewed in December 2015, <http://www.bloomberg.com/graphics/2015-innovative-countries/>.
- The Global Innovation Index, reviewed in December 2015, <https://www.globalinnovationindex.org/content/page/GII-Home>.
- The Mainland and Hong Kong Closer Economic Partnership Arrangement Further Liberalisation 2015, published 2015, November 27.
- Trade and Industry Department of HKSAR, reviewed in November 2015, <https://www.tid.gov.hk/english/cepa/>.
- World Cities, *EU- Third Countries Cooperation on Urban and Regional Development*, reviewed 2015, December, <http://world-cities.eu>.
- World Economic Forum, Network Readiness Index, reviewed in December 2015, <http://reports.weforum.org/global-information-technology-report-2015/economies/#indexId=NRI&economy=HKG>.
- 100 Resilient Cities, reviewed in December 2015, http://www.100resilientcities.org/about-us#/-_/.



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