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About the Smart City Consortium (SCC)

The Smart City Consortium (SCC) comprises a group of professionals from different corporations and organizations with the aim to provide opinions and suggestions to the Government for formulating related policies and standards in the development of Hong Kong as a world-class smart city. We encourage worldwide collaboration with different stakeholders to create the right ecosystem, which fosters innovation and sustainable economic growth for Hong Kong.

關於智慧城市聯盟 (SCC)

智慧城市聯盟(SCC)匯聚一群來自不同公司和機構的專業人士,為香港發展成為一個世界級的智慧城市,在政策和標準層面提供專業意見和建議。我們鼓勵與全世界不同的持份者合作以創造合適的生態系統,促進香港創新及經濟的可持續增長。

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Smart·智城 VICION



Our Government has affirmed its commitment to the smart city development in both the Chief Executive's 2017 *Policy Address* and the *Report of Consultancy Study on Smart City Blueprint for Hong Kong* published by the Office of the Government Chief Information Officer (OGCIO).

We believe the following proposals are moving towards the right directions: facilitating cross-bureau collaboration and policy implementation by restructuring governance structure, optimizing procurement process in support of local innovative technologies, and promoting digital identity authentication.

Besides, the tax concessions proposed in the *Policy Address* would be an attractive incentive for R&D for both local and foreign companies. We hope that Hong Kong would become an innovation hub where different innovations could flourish, and establish local regulatory frameworks in setting up a global standard of innovation solutions for smart cities.

In 2015, parties to the United Nations Framework Convention on Climate Change (UNFCCC) ratified the *Paris Agreement* to address climate change. As a global citizen, Hong Kong shares the responsibility to tackle the environmental challenges, but we would not be able to meet Paris target by only relying on traditional energy efficiency measures. Creating smart environment therefore becomes the key strategy to reduce greenhouse gas emissions.

Smart environment is one of the main objectives under the smart city initiative that covers policies over green buildings, smart grids, renewable energy, waste management and pollution control. In this issue, the Smart City Consortium would like to introduce the application of green technologies, and provide answers on how green technologies could help strike a balance between social responsibility and business interest. We should offer greater support for green technologies development to combat climate change and create a pleasant and sustainable environment for our next generations.

行政長官新一份《施政報告》,以及政府資訊科技總監辦公室的《香港智慧城市藍圖顧問研究報告》,都展示了政府發展智慧城市的決心。我們認為政府在以下三大方面的政策方向十分正確,包括:透過改組政策架構,以促進跨部門合作及政策推行;改變採購方法,支持本地創新科技;以及推動「數碼個人身份」(eID)及認證。

此外《施政報告》中提出的稅務優惠,將有效吸引本地及海外企業於香港進行科研。我們希望香港能成為不同創新科技的先導城市,並透過制定相應的本地標準,為智慧城市科技的國際標準奠定基礎。

另一方面,《聯合國氣候變化框架公約》的締約成員於2015年通過《巴黎協定》,決心回應氣候變化危機,香港作為一個國際城市,固然不能置身事外。然而單靠傳統的節能方案,實難以達致協定中的減排目標,推動智慧環境因而成為箇中關鍵。

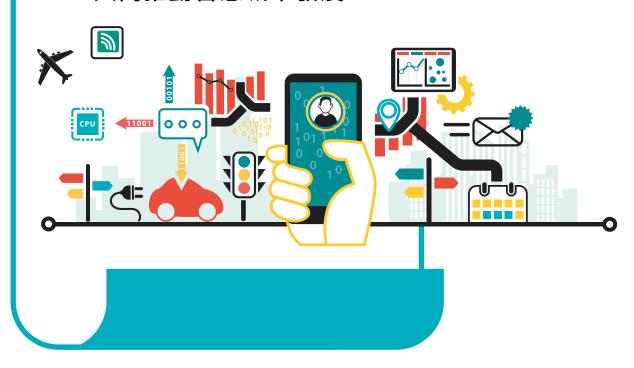
智慧環境作為智慧城市的六大範疇之一,涵蓋綠色建築、智能電網、可再生能源及廢物與污染處理等方面。智慧城市聯盟希望透過今期內容,推廣環保科技的應用,並讓公眾明白發展環保科技在履行社會責任的同時,亦能達至商業效益。因此我們要積極發展環保科技,以應對氣候變化,實現可持續發展,為下一代締造更美好的將來。



Mr. Eric YEUNG 楊全盛先生 President 丰度



- Response to the *Report of Consultancy*Study on Smart City Blueprint for Hong Kong:
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- 回應《香港智慧城市藍圖顧問研究報告》 共同推動智慧城市發展



The HKSAR Government published the Report of Consultancy Study on Smart City Blueprint for Hong Kong ("Consultancy Report"), which defines six key aspects of the smart city initiatives and proposes more than 75 practical suggestions for smart mobility, smart living, smart environment, smart economy, smart government and smart people respectively. The Smart City Consortium (SCC) believes that the Consultancy Report has given full coverage in regulatory and project management structure, application areas, open data, privacy, pilot projects and potential medium to long-term smart city developments for Hong Kong.

特區政府推出《香港智慧城市藍圖顧問研究報告》(下稱《顧問報告》),為香港智慧城市制定發展策略,內容涵蓋智慧出行、智慧生活、智慧環境、智慧市民、智慧政府和智慧經濟六大範疇,並提出了超過75項建議及先導項目。智慧城市聯盟(下稱聯盟)認為《顧問報告》內容全面,就監管與項目管理架構、應用領域、開放數據、私隱保障、先導項目,以及香港智慧城市中、長期可能的發展,提出富前瞻性的建議。





Establishment of the Smart City Steering Committee

In October 2016, the SCC submitted to the Office of the Government Chief Information Officer (OGCIO) and the Planning Department the *Interim Advisory Report ("Interim Report")* outlining SCC's vision and plan for a smart city. Pursuant to the *Interim Report*, the *Consultancy Report* proposed to establish the Smart City Steering Committee (SCSC) comprised of Directors of Bureaux, and the Smart City Programme Office as the SCSC's secretariat. The reports also mentioned the appointment of a Chief Data Officer under the SCSC to direct and coordinate cross-bureau policies for smart urban planning and open data sharing.

We believe that multi-stakeholder roundtables that include industry specialists, LegCo members and academia into SCSC are crucial to more pragmatic and transparent policymaking for the smart city development. We also recommend our Chief Executive to preside over the smart city projects as the SCSC committee chairman.

We would like to highlight the recommendations not mentioned in the *Consultancy Report* but of great significance in the smart city initiatives as follows:

Smart Mobility: Intelligent Traffic Control System and Open Data Sharing

We suggest the Government to share with the public both the realtime traffic information and their analytical results on Hong Kong's transportation connectivity.

In-Vehicle Unit (IVU) and sensors are more than just an effective data collection equipment to gather traffic data. The wider use of IVU for settling toll fees could facilitate the implementation of the non-stop electronic toll payment system, namely the Multi-lane Free Flow (MLFF) Tolling, across all Hong Kong expressways, so as to relieve traffic congestion.

We suggest the Traffic Control Centre collecting real-time traffic data from the Hong Kong transportation infrastructure to provide citizens with updated traffic information on incidents, and recommend other departments effective traffic mitigation measures via the local telecommunication network and mobile apps. Meanwhile, the deployment of intelligent signalized junctions and pedestrian lights could improve the efficiency and timing of traffic lights, and effectiveness of traffic control system.

Moreover, the Transport Department should conduct a public consultation on the possibilities to put autonomous vehicles on the road before regulatory review. We also suggest the authorities to expand driver-less car tests to on-road scenario and setting a benchmark for the testing.

設立智慧城市督導委員會 全面促進各方合作

聯盟在2016年10月向政府資訊科技總監辦公室(OGCIO)和規劃署提交《中期諮詢報告》(下稱《聯盟報告》),介紹聯盟對香港智慧城市藍圖的願景。《顧問報告》提出由政府成立一個牽頭組織架構,與《聯盟報告》中的建議不謀而合。當中建議成立時政策局和跨部門代表組成的高層次「智慧城市督導委員會」(SCSC)及其直接管轄的「智慧城市項目辦公室」,並委任一位首席數據官直接向SCSC滙報,負責統籌各政策局及部門間的合作,以實施智慧城市規劃和開放數據的政策。

除了關於監管和項目管理架構的建議,我們認為行業持份者的參與,例如由行業專家、立法會成員和學者組成的小組,可確保SCSC了解相關行業發展,也能提升政策制定的透明度。同時,我們更期望特首能擔任SCSC主席,親自領導香港智慧城市發展。

此外,為加速智慧城市的發展進程,部分於《聯盟報告》中曾被提及,但未被涵蓋於《顧問報告》中的建議,我們亦希望再次重申如下:

智慧出行:收集大數據 發展智能交通網絡

在智慧出行和智能運輸領域,聯盟建議政府和公眾分享 實時交通數據和分析。

例如在車輛上安裝「智能車內儀器」(IVU)和感應裝置,除可收集即時路面交通資料,還可用於電子道路收費,以及高速公路繳費,實現「多車道自由流」(MLFF),減少幹道堵塞情況。此外,運輸管理中心可透過通訊網絡和手機應用程式,把意外事故向公眾發布,又根據道路實時資訊,向指揮交通的部門推薦最佳

可透過通訊網絡和手機應用程式,把息外事故问公成發布,又根據道路實時資訊,向指揮交通的部門推薦最佳的分流措施。同時,可以在道路交匯處安裝儀器偵測人車流動實況,並以此調節交通燈號,有助改善人車的擠塞情況。

無人駕駛車輛方面,運輸署應為相關法例作公眾諮詢, 以便全面檢討和修訂;同時應於指定的道路作實地測 試,並為之制定測試要求。



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Smart Living: Smart Healthcare System and E-Medical Record Sharing

We suggest building a smart health platform that connects the Government (Public), healthcare professionals (Private), and the local community (People) to alleviate increasing pressure from rising healthcare costs and the ageing population on the Hong Kong healthcare system. We believe that the smart healthcare system would become more proactive, predictive and preventative with Partnership among the Public, the Private and the People.

The followings are the specific recommendations proposed in the *Interim Report* aiming to encourage early medical treatment, improve healthcare efficiency and reduce healthcare costs:

- Proactive Smart Health Monitoring: Share real-time information on individual's health status with family members, private clinics and hospitals through the Smart IoT network;
- Predictive Smart Health Analysis: Create a big data analytic platform that provides healthcare professionals with integrated data for diagnosis and real-time advice for personalized treatments;
- Preventative Smart Health Community Network: Facilitate electronic health records sharing among emergency units, physicians and local community, and introduce tele-medical consultation.

The SCC endorsed the short-term measures proposed in the *Consultancy Report*. Meanwhile, we suggest the Food and Health Bureau and the Hospital Authority to improve its open data policy, strengthen data sharing and privacy protection mechanism, promote the use of Electronic Health Record Sharing System in both public and private healthcare services, and enable healthcare providers and ICT vendors to connect to the system.

We suggest issues of digital payment and electronic identity be discussed under Smart Economy instead of Smart Living.

安老服務和醫療體系一直面臨巨大壓力,故需建構一個聯繫社區網絡(民)、醫護機構(商)以及政府(官)的完善智能健康系統,讓市民享有安全、健康而豐盛的生活。透過官、商、民攜手合作,共同建立一個具備主動性、前瞻性和預防性的健康平台:

- 智能健康主動監測:透過連接智能家居設備及指定診 所和醫院的物聯網(IoT),醫療人員可全面偵察長 者的健康數據;
- 智能健康分析預測:設立大數據分析平台,整合原始 資料和電子病歷,以預測疾病的發展趨勢,並供醫護 人員共用分析結果,以提供即時和個人化的治療;
- 智能保健社區網絡:通過整合政府急症服務、醫療專家和社區支援資訊,配合電子健康紀錄,讓醫護人員可以電話遙距診症。

以上策略有助鼓勵患者及早就醫,也減少病患人士和照顧 者的舟車勞頓,同時舒緩醫療系統壓力及總體醫療開支。

聯盟對《顧問報告》中有關短期措施表示支持,並認為 食物及衞生局和醫院管理局應改善開放資料政策,促進 資料分享並強化私隱保障機制;此外,政府也需積極推 動公私營醫療機構參與「電子健康紀錄互通系統」,同 時確保醫護和創新科技廠商有均等機會連接有關系統。

至於電子支付和電子身份,我們認為不應放在智慧生活範疇,而應歸入智慧經濟中進行討論。

智慧環境:推動綠色建設與智能建築

環境局發表的《香港氣候行動藍圖2030+》,令聯盟深受鼓舞。我們一直積極推動綠色建設和智能建築,包括鼓勵使用IoT技術、可再生能源和能源數據政策。





Smart Environment: Green Buildings Technologies and Intelligent Infrastructure

The *Hong Kong's Climate Action Plan 2030+*, announced by the Environment Bureau, is a driving force for the SCC. We have been actively promoting green buildings technologies and intelligent infrastructure, including smart IoT technologies, renewable energy and energy data management.

Adoption of IoT technologies in building projects within the new development area is a key direction in Hong Kong green building master plan. According to statistics from the Buildings Department, more than 85% of the buildings in Hong Kong are aged ten years or above. We suggest the Government to conduct research on improving energy efficiency in the old buildings.

Besides, air-conditioning uses about 34% of the total energy consumption in Hong Kong. Accordingly, some local IT companies have come up with award-winning solutions that can lower the peak demand of electricity and reduce greenhouse gas emission by using IoT sensors and intelligent control, such as Ambi Climate and SmartAirCon.

New energy management technologies, such as Google's Nest Thermostat, were subsidized by local utilities in the US. We suggest public utilities in Hong Kong to provide subsidies also for installation of smart IoT devices to reinforce energy efficiency policies.

Since more projects under the smart city initiatives would choose alternative energy sources, we suggest setting up a common standard for the use of renewable energy source.

Currently, no existing laws and regulations clearly define the ownership of energy measurement and consumption data. We suggest creating a data integration framework, namely the City Action Platform for Climate Resilience and Energy ("CAPCARE") system mentioned in the *Interim Report*, to compile, collate and share with local electricity providers the energy-related data and environmental statistics. Details of the CAPCARE system are listed in the *Interim Report*.

Smart Economy: IoT Security Certification Center

Electronic payment, a payment method that settles payment through electronic medium, has been playing an increasingly significant role in 推廣IoT技術的使用,於新發展區採用聯繫IoT的建築技術,應該是香港發展環保建築的大方向。同時,屋宇署的數據顯示,香港有超過85%樓宇的樓齡超過十年,政府應研究如何運用合適的技術,令老舊建築達致節能目標。

例如香港的住宅空調佔總用電量的34%,為此幾間香港科技公司設計出Ambi Climate和SmartAirCon等獲獎方案,利用IoT感應器和智能控制,專門針對降低高峰期的用電和減少溫室氣體排放,同時節省電費。

類似的能源管理創新產品,如Google的Nest智慧恆溫器,在美國甚至獲得當地公用事業公司津貼。我們認為香港的相關企業也可仿效,對安裝IoT設備的大廈進行補貼,以鼓勵節約能源。

可再生能源方面,預期將有不少智慧城市項目嘗試以其 他形式替代能源消耗,政府需要制定標準指引。

同時,目前的法例對能源測量和消耗等數據的擁有權誰屬,未有清晰界定。我們提議建立一個綜合相關數據的「氣候復原和能源城市行動平台」(CAPCARE)系統,以滙集、整理能源和環境數據,並和兩家電力公司共享。有關系統的具體細節在《聯盟報告》中有詳細論述。

智慧經濟:建立「物聯網安全認證中心」

電子支付是商業活動中,以電子貨幣付款的交易形式, 現在已日趨重要。為保障消費者權益,應該制定一套 完善的貨幣政策,並和監管制度相互配合,保障客戶之 餘,也可維持電子支付系統的穩定性。

目前香港共發出13個儲值支付工具(SVF)牌照,由不同企業持有,但彼此間卻缺乏一個中央結算機制,供帳戶持有人進行資金往來或以實際貨幣增值。我們贊成《顧問報告》建議,政府應以中間人角色,介入並促成不同SVF與眾多本地銀行客戶間的電子支付互通。同時,我們建議金管局和政府資訊科技總監辦公室攜手舉





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daily trading activities. We believe that a sound monetary policy and a well-established regulatory framework are crucial for strengthening customer protection and maintaining the stability of the electronic payment system in Hong Kong.

13 Store Value Facilities (SVF) licenses have been granted to companies in different industries. However, a central clearing mechanism that facilitates payment transactions or value-adding with real currency among the facility holders is absent. We support the Government's decision to coordinate and regulate electronic payments among the 13 SVF licensees and local bank account holders. In addition, we suggest the Hong Kong Monetary Authority and the OGCIO to jointly organize an open forum to outline strategic directions for the development of digital payments including value adding and e-check services.

As mentioned in the *Interim Report*, we suggest the implementation of Trade Single Window by the Hong Kong Customs and Excise Department and the Commerce and Economic Development Bureau, to streamline import and export procedures. Both corporate digital identity and open application programming interfaces are needed to stimulate business-to-government (B2G) and government-to-government (G2G) transactions and facilitate data sharing among different stakeholders in the trading industry.

Both business companies and customers are vulnerable to cyber threats to their electronic devices via the internet. The Government should consider building an IoT security certification center that follows the Common Criteria (ISO/IEC 15408-1:2009), so as to formulate a basic security standard for tracking IoT-related products and set up a cybersecurity mechanism against data breach. Also, we suggest developing strategies at Evaluation Assurance Level (EAL) to minimize cyber attacks.

Smart Government: Corporate Digital Authentication Framework

To meet the increasing demand for digital identity in a smart city, we suggest building a corporate digital authentication framework to introduce corporate digital identities for businesses and other entities such as NGOs.

辦公開討論活動,為包括現金增值、各銀行電子支票在內的電子支付系統,制定整體發展策略。

《聯盟報告》中,曾提出由香港海關和商務及經濟發展局牽頭,推動貿易單一窗口,讓業界透過一個一站式平台,簡化出入口程序。香港貿易活動蓬勃,在B2G(商界對政府)、G2G(政府對政府)領域的貿易系統需更現代化,故應積極探討企業電子身份的規格和開放應用程式介面(API)的問題,便利貿易各方交換數據。

網絡保安也是關注的議題。企業和消費者的電子設備與互聯網相連,容易成為網絡攻擊目標。政府需建立一個「物聯網安全認證中心」,並採納類似ISO/IEC 15408-1:2009這種通用標準,為IoT產品提供基本的保安標準,以便有需要時可追溯相關產品的資料,並建立網絡保安機制以防數據資料外泄。同時應就「評估保證水平」(EAL)制定策略,以應對數據管理上的潛在風險。

智慧政府:建立企業電子認證網絡許可機制

隨着智慧城市發展日益蓬勃,對電子身份的需求亦日漸增加。聯盟支持政府把電子身份概念從個人擴展至企業 和非政府組織等機構,並建立一個企業電子認證網絡許 可機制,支援香港的智慧城市發展。

電子身份的管理體系應包括兩部分:個人電子身份認證網絡許可,以及企業電子身份網絡認證許可。為適應未來的龐大需求,電子身份管理系統應能處理多種網絡成員,包括商界(B)、政府部門(G)、消費者(C),及其相互間活動的不同組合。

隨着商界對政府(B2G)和商界對消費者(B2C)交易的迅速增長,香港這個國際電子商貿中心必須監察和確保電子身份體系能兼容國際和中國標準;它並且需要有







There will be two digital certifications under the licensing scheme - individual electronic certification network license and enterprise electronic certification network license. To adapt to the increasing needs in future, the framework would be the coordinator for the business sector (B), the Government (G) and the customers (C).

With the rapid growth of B2G and B2C transaction, Hong Kong, as an international e-commerce center, should have a legislative framework to regulate electronic ID authentication, conforming to the standards at the national and global level; and a cybersecurity system against counterfeiting, phishing emails, scam and fraudulent activities.

We expect that the enterprise electronic certification network license would be the sole license for all e-transactions on the Internet among the Government, business sector, schools and NGOs. Below are the specific recommendations:

- Enforce the Electronic Transactions Ordinance in the transactions among the Government, business entities and organizations;
- Set up a cybersecurity mechanism by issuing electronic certificates to all the websites in Hong Kong;
- Permit the certification authority to use data for cybersecurity purposes;
- Create a public electronic network license platform that coordinates B2C transactions;
- Conduct annual audit to ensure that the certification authority does act in compliance with laws and regulations.

Smart People: Motivating SMEs support in R&D and Introducing Coding Lessons in Primary Schools

IT experts with professional knowledge in cybersecurity and data science are the key guards of stability and security of ICT infrastructure. Training and development programmes in IT industry not only require more financial support from the Government but also the support of Small-Medium Enterprises (SME), which is equally important in setting up both R&D programmes for the development of intellectual property rights (IPR) and local engineering graduate training schemes for research students.

College and undergraduate students are encouraged to join internship programmes offered by the Government and corporations in recent years. The SCC also suggests providing more internship programmes for research students to accumulate knowledge and experience in intellectual property development.

The Education Bureau has disbursed one-off funding for the promotion of the science, technology, engineering and mathematics (STEM) education. Nevertheless, we expect coding to be included in primary school curriculum to equip Hong Kong students with basic knowledge and skills in computer programming.

We acknowledge that the Government has confirmed its continued commitment in transforming Hong Kong into the "smartest" city in the world in the Consultancy Report. We expect that the Government would take account of the views and suggestions from different sectors in the society, particularly the industry stakeholders, and be dedicated to making Hong Kong as a world leading Smart City.

效而完善地保護個人和企業的電子身份,防止詐騙、釣 魚電郵和虛假身份等問題。

企業電子認證網絡許可將是各政府部門、非政府組織、 學校和企業用以參與各種電子商務活動和達成電子交易 的唯一身份許可。要建立有關機制,聯盟建議如下:

- 採用《電子交易條例》,為持有電子認證網絡許可的政府部門、組織和企業間的交易提供法律保障;
- 在全港的網站上運用電子認證,建立能覆蓋各種用 途的網絡安全機制;
- 認證機構獲准使用相關數據資料,目的是防範網絡 攻擊;
- 建立公開的電子網絡牌照平台,作為企業與個人完成交易的橋樑;
- 認證機構每年需接受審計,以確保符合有關標準 和規定。

智慧市民:小學引入編程教學 鼓勵中小企致力研發

維持通訊網絡和系統的穩定性對智慧城市尤為重要,所以本港亟需大量資訊科技人才從事網絡安全和數據分析的工作。故此,不僅政府要投放資源培育人才,中小企業亦應積極參與科研計劃,共同開發知識產權,並為相關工程研究的學生提供深度培訓計劃。

近年來,大專院校趨向讓學生在畢業前到企業或政府部門實習。聯盟相信這種模式應擴展到研究生,讓他們在 獲取知識的同時,也能共同參與知識產權開發。

此外,教育局已向學校提供了不少一次性資助,以推廣 STEM(科學、科技、工程及數學)教育,我們希望政 府能在創新科技課程上再大膽邁出一步,在小學引進編 程教學,使學生具備基本的程式編寫能力。

無論《香港智慧城市藍圖顧問研究報告》或新一份《施政報告》,皆讓我們感受到政府正致力將香港建設成一個國際級的智慧城市。聯盟樂見政府積極聆聽各方意見,並寄 望政府能深入考慮及落實上述建議,促進社會各界攜手合作,一同推動智慧城市發展,共建繁榮香港。



Full text of Response to Consultancy Study 顧問報告回應全文



Full text of Interim Advisory Report 中期諮詢報告全文

