Report of the
Technical Advisory Ad Hoc Committee
on Multi-functional Smart Lampposts

March 2020

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Chapter I – Introduction

Background

1.1   The Pilot Multi-functional Smart Lampposts Scheme ("Pilot Scheme") is one of the key digital infrastructure projects announced in the 2017 Policy Address to support smart city development.   Smart lampposts aim to provide convenient data services and collect various real-time city data, enhance city and traffic management, and complement the digital infrastructure development for the fifth generation (5G) mobile communications services.

1.2   Under the three-year Pilot Scheme, some 400 smart lampposts are planned to be installed at selected locations in four areas, namely Central/Admiralty, Causeway Bay/Wan Chai, Tsim Sha Tsui and Kwun Tong/Kai Tak Development Area, to facilitate collection of various types of real-time city data at district level, such as meteorological data, air quality data and traffic flow, for better city and traffic management.   The data collected will also be released to the public as open data via the Public Sector Information ("PSI") portal (data.gov.hk).   The data will be useful to support the development of innovative applications by the industry. Moreover, city dashboards derived from the open data will provide the public with a real-time overview on the latest information of the city in various areas, including environment and weather as well as road traffic and availability of public parking spaces.

1.3   City data aside, mobile network operators ("MNOs") can make use of smart lampposts as street furniture to install radio base stations ("RBSs") to roll out their 5G network for provision of 5G services and enable the development of more convenient and user-friendly smart city applications by the industry for the benefit of citizens.   Smart lampposts also facilitate the provision of free Wi-Fi services to the general public. By leveraging smart lampposts as a shared infrastructure, different government departments would no longer need to arrange the installation of required equipment/applications separately, which is not only much more cost-effective but will also occupy the least amount of road spaces and minimise roadwork interruptions to the traffic in laying the required

network and electricity cables.

1.4　　　　Following consultation with relevant District Councils ("DCs"), installation started after January 2019 and 50 smart lampposts were put in place at Sheung Yuet Road in Kowloon Bay, Shing Kai Road in Kai Tak and in Kwun Tong town centre in end June 2019.

Smart Lamppost Functions and Applications

1.5　　　　A smart lamppost serves as a multi-purpose street furniture to house different devices and applications for collection and sharing of live city data.　　The major user departments involved in the smart lamppost applications are Highways Department ("HyD"), Hong Kong Observatory ("HKO"), Environmental Protection Department ("EPD"), Lands Department ("LandsD"), Transport Department ("TD") , the Office of the Communications Authority ("OFCA") and the Office of the Government Chief Information Officer ("OGCIO").　　The functions and applications originally planned in the Pilot Scheme are summarised below –

(a) HyD - Adoption of LED lighting for energy saving and smart management of road lights;

LED Lantern

(b) TD - Collection of traffic data through thermal detectors, Automatic Licence Plate Recognition and Bluetooth detectors, and monitor traffic status and road incidents with traffic snapshot images, video detectors and pan-tilt-zoom surveillance cameras for better traffic planning and management, and keeping the public better informed of the latest road traffic

Thermal Detector

conditions at specific locations;

(c) HKO and EPD - Collection of meteorological and air quality data at district level by sensors make available better weather and environmental information to the public at specific locations;

Meteorological Sensor

Air Quality Sensor

(d) EPD - Monitoring of illegal construction and demolition ("C&D") waste dumping activities for planning relevant law enforcement operations to reduce the environmental nuisance at specific locations;

(e) LandsD - Provision of accurate positioning services through Radio-frequency Identification (RFID) tag, Geo-QR code and Bluetooth beacon to support the development of location-based applications and provide more convenient and user-friendly geo-spatial information services to citizens;

RFID Tag, Geo QR Code and Bluetooth Beacon

(f)   OFCA - Facilitating MNOs' use of smart lampposts for the installation of RBSs for provision of 5G services in Hong Kong; and

(g)   OGCIO - Provision of free Wi-Fi services for the public and tourists at suitable locations.

1.6   Each of the above applications will only be installed in specific lampposts on those locations with operational needs for collecting the relevant data or provision of relevant services.   Security risk assessment and privacy assessment have been conducted before implementation of the applications in accordance with prevailing government information security regulations and guidelines.

Public Concerns over Privacy

1.7   Since late June 2019, there had been growing public concerns and discussions in various media (including the social media) over the privacy protection measures associated with smart lampposts.   The OGCIO took active steps to address such concerns or even misunderstanding -

➢   Arranged a technical briefing and on-site visit for news media to introduce the structure and functions of smart lampposts;

➢   Clarified continuously with the media on the functions of smart lampposts;

➢   Published the locations, devices and functions installed on every smart lamppost on the PSI portal (data.gov.hk);

➢   Established a smart lamppost thematic webpage on the OGCIO website to facilitate a better understanding of the functions and applications of the smart lampposts; and

➢   Having regard to the public concerns over privacy matters, the Government announced on 16 July 2019 not to activate three applications which may touch on personal data privacy, namely –

- monitoring of illegal dumping activities with the aid of cameras located near blackspots;

- detection of journey time and average speed of vehicles by Bluetooth detectors; and

- assessment of road use by different types of vehicles enabled by collection of car plate numbers with the aid of cameras.

1.8   In early August 2019, the OGCIO announced the setting up of the Technical Advisory Ad Hoc Committee ("the Committee") to examine the privacy protection technologies and measures in respect of the related functions of smart lampposts, and undertook to open up meeting materials of the Committee in the smart lamppost thematic webpage.

1.9   Regrettably despite the above measures taken, during a public event in Kwun Tong on 24 August 2019, 20 smart lampposts on Sheung Yuet Road were damaged to varying degrees, including one lamppost being torn down and 19 forcibly opened with the devices therein damaged or dismantled.   During another public event on 4 October 2019, 10 smart lampposts near Kwun Tong Town Centre were damaged to varying degrees including the external covers damaged or dismantled and the door locks for three of them forcibly opened with signal cables cut as well as devices and equipment damaged.   Basic public lighting services resumed shortly after the damage, but the damaged devices had not been repaired or replaced.

Chapter II – Technical Advisory Ad Hoc Committee

Objectives of the Committee

2.1   The Committee was established on 12 August 2019 with the following terms of reference –

(a)   examine personal data privacy protection and related information security technology issues relating to the operation of multi-functional smart lampposts, and recommend measures to address public concerns and any additional safeguards required, in individual smart lamppost applications; and

(b)   advise on the publicity and engagement strategy to facilitate public understanding of the equipment installed on smart lampposts and their functionalities in various applications as well as the potential uses, so as to communicate to the public in an effective and transparent manner to engender greater community support for the smart lamppost initiative.

Membership

2.2   The Committee was convened by the Government Chief Information Officer, with members comprising the Privacy Commissioner for Personal Data as well as a number of academic and industry experts on information security and privacy.   The full membership is at the **Annex**.

Summary of the Discussions by the Committee

2.3   The Committee held seven meetings between August 2019 and February 2020.   All meeting documents and minutes of the meetings are available at OGCIO's Multi-functional Smart Lampposts thematic webpage:
http://www.ogcio.gov.hk/en/our_work/strategies/initiatives/smart_lampposts/.

2.4   In its first three meetings, the Committee received briefings by HyD, EPD, LandsD and TD on the structural design and features of smart lampposts and the proposed applications.   The Committee paid a site visit to Shing Kai Road at Kai Tak on 10 September 2019 to inspect the internal structure of smart lampposts and the devices installed therein. Taking into account the briefings by the user departments and the site visit, the Committee reviewed in detail the functions and technologies employed, particularly the possible privacy risks involved and the

Site Visit

protection measures being put in place.   The Committee also suggested

LiDAR

Government to explore the use of other more privacy-friendly technologies such as Light Detection and Ranging (LiDAR) as a substitute for cameras in smart lampposts.   Details of the smart lamppost applications reviewed by the Committee are available at the Multi-functional Smart Lampposts thematic webpage on OGCIO website.

2.5   At its 4th meeting on 12 November 2019, representatives of the MNOs were invited to exchange views with the Committee on the use of smart lampposts to facilitate roll-out of 5G network.   A presentation was given by a representative of Hong Kong Telecommunications (HKT) Limited on the use of smart lampposts for the installation of RBS, and their plan of installing 5G mini base station running at 3.5GHz (Sub-6 GHz) or 28GHz on smart lampposts.   A presentation was also made by the Privacy Commissioner for Personal Data on personal data privacy implications relating to 5G Technology.

2.6   At its 5th meeting on 10 December 2019, the Committee agreed in principle that the Government should continue with the smart lamppost project after taking out cameras, especially given the rollout of the 5G mobile service in near future.

2.7   At its 6th meeting on 17 January 2020, the Committee reviewed the initial results from a proof-of-concept exercise on using LiDAR technologies as a substitute for cameras in the detection of vehicle speed and identification of different types of vehicles in the traffic.   The Committee also discussed the content of the final report and specific recommendations.

LiDAR

(Note: further study on structural safety and aesthetically pleasing will be conducted before installation)

Possible Position on Lampposts for Installation of LiDAR

2.8   At its 7th meeting on 28 February 2020, the Committee gave their comments on the draft final report and endorsed it subject to some textual revisions.   It was agreed at the meeting that the final report would be circulated among members through email for endorsement.

Chapter III – Assessments and Recommendations

3.1   After reviewing comprehensively the design and operation of smart lampposts, the functions and technologies employed for planned and potential applications, the personal privacy and security risks involved as well as related protection measures being adopted, etc., the Committee agrees unanimously that smart lampposts can serve as a key digital infrastructure in smart city development and notes that many other cities are pursuing similar projects.   The Committee affirms its support for the Government to continue with the Pilot Scheme to facilitate city management and roll-out of 5G network in Hong Kong.

3.2   As smart lampposts are multi-functional with many new devices, and the trial would take place in different areas, mostly with heavy traffic/pedestrian flows, the Committee acknowledges the need for extra care in respect of privacy and data security.   In this context, the Committee considers it necessary to offer a range of expert advice and recommendations, covering the use of technologies and devices in individual applications, management of data, physical design of lampposts, facilitation for roll-out of 5G network, governance arrangements as well as promotion and public engagement, with a view to strengthening the protection of data security and personal data privacy and instilling public confidence in the Pilot Scheme.   The relevant assessments and recommendations are detailed in the following paragraphs.

3.3   Having regard to the public concerns raised in the public domain, particularly the social media, some of which may not be based on entirely accurate technical information, the Committee stressed that the applications should only be deployed on those smart lampposts at selected locations with a genuine need for collecting the relevant data (e.g. known blackspots), i.e. not installing such devices on every lampposts as a norm, and installation works should only commence after consulting relevant DCs.   The functions of installed devices (e.g. for vehicle counting, speed detection and road occupancy) should also be reviewed to minimise the numbers and types of devices installed.

Chapter III Assessments and Recommendations

Use of Technologies in Individual Applications

3.4   The Committee considers that the following planned functions and applications are privacy-friendly, and support the Government to install them on the smart lampposts:

- ➢ LED lighting
- ➢ Meteorological sensor
- ➢ Air quality sensor
- ➢ Thermal detector
- ➢ Radio-frequency Identification (RFID) tag
- ➢ Geo-QR code
- ➢ Bluetooth beacon
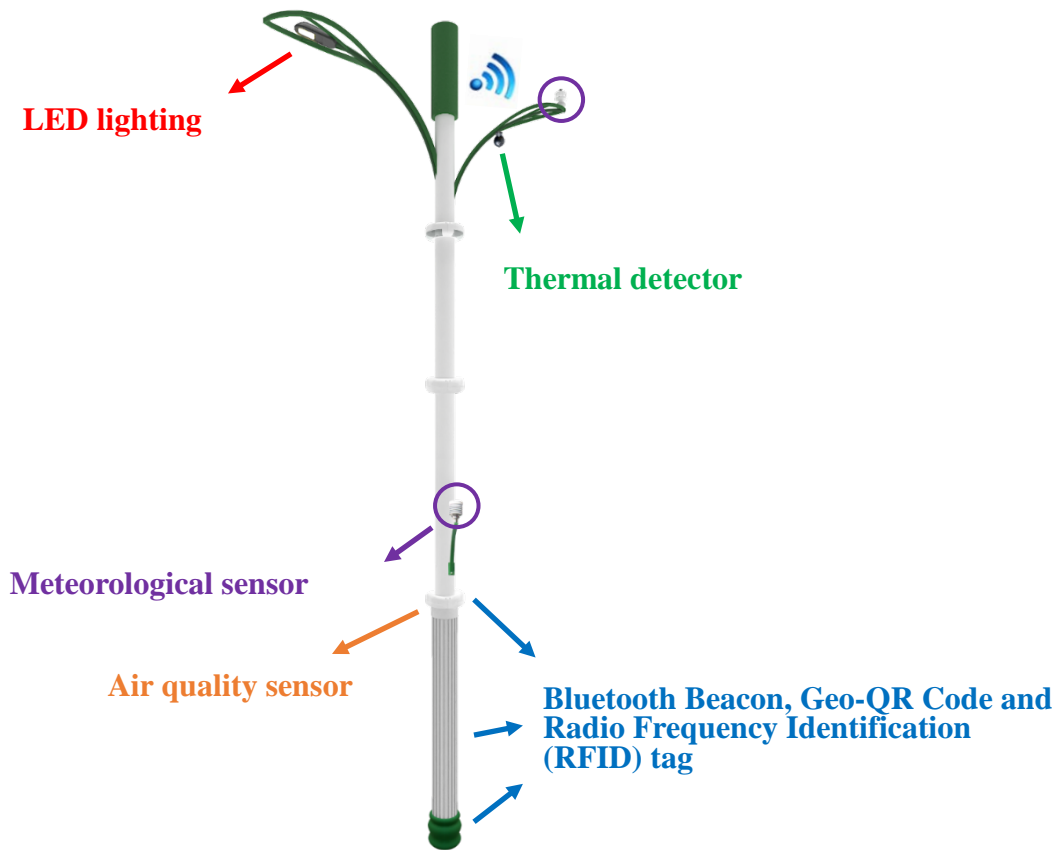
Functions and Applications

3.5   For example, positioning devices including RFID tags, Geo-QR codes and Bluetooth beacons are installed by LandsD on smart lampposts to provide accurate positioning information.   Such devices will serve as the positioning infrastructure of a modern city, using the

geographical coordinates of the lamppost for positioning, navigation and geo-spatial information search of nearby facilities. Further, the visually impaired would be able to locate their positions by using canes equipped with RFID readers to read the location information from RFID tags on nearby smart lampposts. The Committee considers that such devices would not be able to collect data and thus have no personal data privacy issue. To enhance transparency and public understanding, the Committee *recommends* that LandsD and OGCIO should –

RFID Blind Cane Navigation System

    (a)   open up the technical specifications as well as the functions and purposes of the devices for public reference; and

    (b)   publish usage guidelines of the devices to facilitate the development of various location-based applications by other government departments and the public to make effective use of the positioning information offered by the devices.

3.6   Besides, TD is currently adopting thermal detectors to collect data of traffic flow. Such detectors provide only thermal images without collecting personal data or images that can reveal the identity of specific persons. This notwithstanding, the Government is advised to publish the purpose of the device as well as its functional and technical specifications for public reference. The Committee also *recommends* that the Government should adopt the following additional measures to enhance public awareness –

    (a)   display clear messages and sample photos on smart lampposts showing the actual views collected by the devices; and

    (b)   conduct comprehensive security risk assessments and audits as well as privacy impact assessments regularly based on international standards to ensure that there are no personal data privacy issues related to the use of thermal detectors.

3.7   The Committee has reviewed a number of planned functions which may have privacy concerns from the public.   Detailed assessments and recommendations on individual applications are summarised in paragraphs 3.8 to 3.11 below.

Monitoring of Illegal Dumping with Camera

3.8   Illegal dumping of C&D wastes has led to many environmental issues.   EPD planned to use video cameras installed on smart lampposts to detect and monitor any suspected illegal dumping at known blackspots to facilitate follow up actions.   However, there are recent public concerns on the use of high definition cameras on lampposts located in areas with heavy pedestrian flow, worrying that the identities of pedestrians could be captured and recognised from the recorded photos/videos by facial recognition processing.   While noting the objective of the proposal and the fact there is no facial recognition functions in these cameras, the Committee is mindful of the public concern over potential privacy issues, and considers it essential to re-gain the trust of the public on the whole initiative.   It should however be noted that there are inherent constraints in non-video technologies such as thermal detector and LiDAR in monitoring illegal dumping.   The Committee therefore ***recommends*** that EPD and OGCIO should explore other more privacy-friendly technologies as a substitute for video cameras as alternative solutions.   Before a suitable alternative can be identified, monitoring of illegal dumping by using smart lampposts should be dropped from the list of intended applications of smart lampposts for the time being.

Vehicle Classification by Automatic Licence Plate Recognition (ALPR) for Traffic Management

3.9   Under its original plan, TD intended to make use of ALPR to collect traffic flow statistics of different vehicle categories to facilitate traffic survey purposes.   Since ALPR requires the use of video cameras and pattern recognition technology, and given the current public concern about possible capture of facial images of pedestrians and tracking of individual vehicles, the Committee ***recommends*** that TD should explore other technology solutions to replace the use of ALPR.   In this regard, the

Chapter III Assessments and Recommendations

Committee welcomes TD's initial idea of using LiDAR as a substitute for ALPR in the Pilot Scheme, despite that the former would provide less information (for instance LiDAR should be able to distinguish between large vehicles like buses/large lorries and small vehicles, but not between franchised and non-franchised buses).   The Committee considers LiDAR a privacy-friendly technology that could effectively address public concerns over personal data privacy.
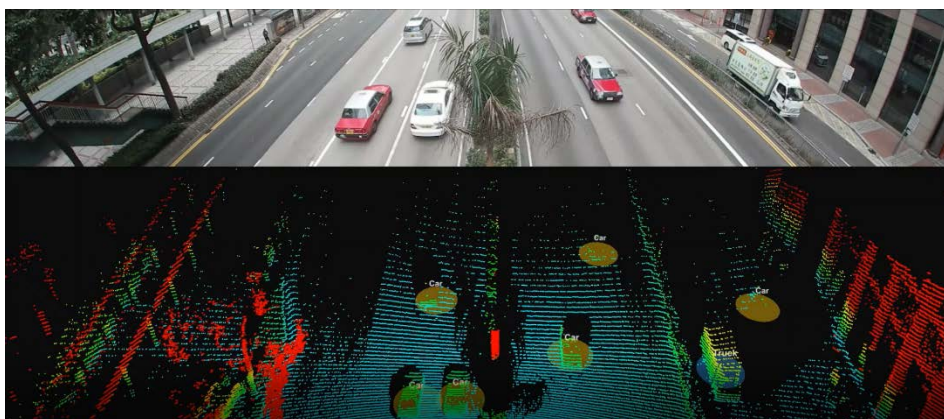
Classification of vehicle types by LiDAR (lower) with actual environment (upper)
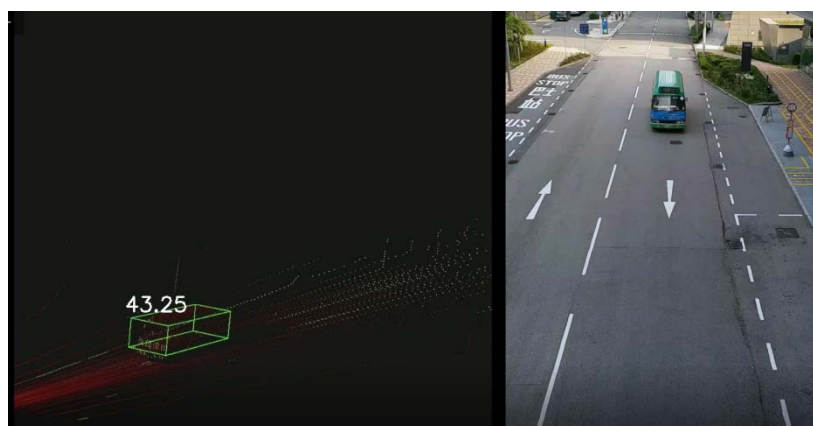
Detection of vehicular speed by LiDAR (left) and actual environment (right)

Monitoring of Traffic Conditions by Traffic Snapshot Images, Bluetooth Detector, Video Detector and Pan-tilt-zoom (PTZ) Surveillance Camera

3.10   To enhance the effectiveness of its traffic management work, TD initially planned to use Bluetooth detector to estimate the average journey time and vehicular speed between detectors, and to use video detector to collect real-time traffic data, perform automatic incident detection, monitor live traffic conditions, and provide traffic snapshot

images for public dissemination, and install a surveillance camera to monitor real-time traffic conditions. However, there have been public concerns over the use of Bluetooth detector and video detector for tracking the movement of individual vehicles as well as the use of surveillance camera which may capture facial images. In view of the public concerns, the Committee *recommends* that TD should consider using thermal detectors as a substitute for video detectors for collecting data related to traffic flow and vehicular speed. As regards the use of Bluetooth detectors, video detector and PTZ surveillance cameras for measuring journey time, incident detection, taking traffic snapshot images and monitoring live traffic conditions, the Committee *recommends* that TD should explore other more privacy-friendly technologies as replacement in the Pilot Scheme. Any newly proposed devices and applications should go through the proposed governance mechanism (see paragraphs 3.21 to 3.22 below) prior to implementation.

3.11   Sample images taken using LiDAR and thermal detector technologies are attached below for reference.
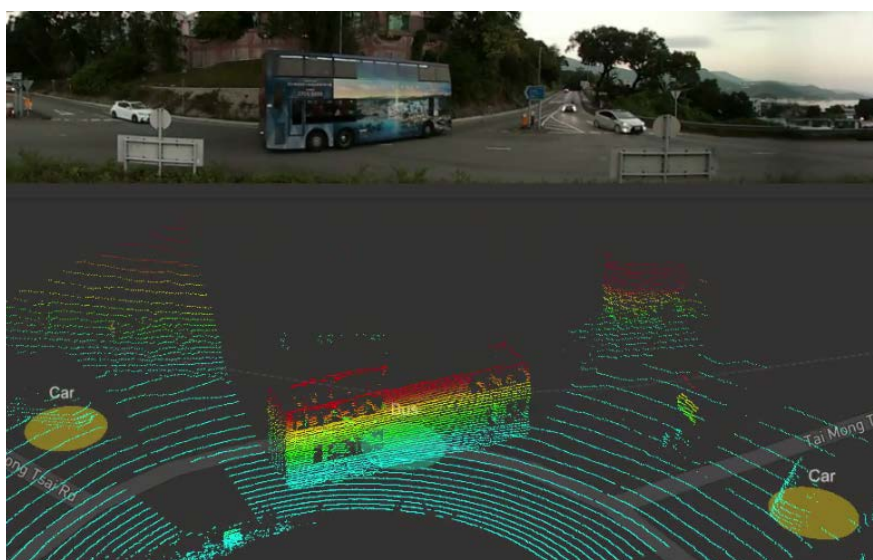
Comparison of a LiDAR image (lower) with actual environment (upper)

A traffic flow image taken from a thermal detector

Management of Data Collected from Smart Lamppost

3.12　　　The Committee notes that the Government has strictly complied with the requirements of Personal Data (Privacy) Ordinance[1] which outlines how data users should collect, handle and use personal data. The Committee ***recommends*** that the Government should ensure that personal data, if any, is collected on a fully-informed basis and in a lawful and fair manner, with due consideration towards minimising the amount of personal data collected.　The amount of personal data collected shall be necessary and not excessive to achieve the purpose of collection. Once collected, the personal data should be processed in a secure manner and should be deleted right after the fulfilment of the purposes of using the data. Use of the data, including transfer and disclosure, should be limited to or directly related to the original collection purpose, unless prescribed consent is obtained from the data subjects.　The personal data privacy protection policy and practices should also be published for public reference.

Lamppost Design

3.13　　　As the smart lampposts are intended to replace conventional lampposts, the Committee agrees that making use of existing lamppost positions and foundation depths helps reduce the complexity of the road works involved while being structurally sound to support the installation of smart devices and RBSs.　Provision of 24-hour power supply to smart lampposts was also implemented.　The Committee agrees that the current

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[1]　The Data Protection Principles and other compliance requirements under Personal Data (Privacy) Ordinance are detailed in
　　http://www.pcpd.org.hk/english/data_privacy_law/6_data_protection_principles/principles.html

design of the smart lampposts has addressed the limitations in conventional lampposts for mounting of smart devices and applications.

3.14   The Committee *recommends* that the Government should review critically the functional need for each smart lamppost so that all the devices are installed on individual smart lampposts on a strictly "as needed" basis.   In addition, it is most important to protect personal data privacy at source and implement privacy protection by design and by default.   In particular, edge computing on the lampposts or embedding it in the devices should be adopted to filter out and mask personal identifiable information, if any, before the data collected through the lampposts is sent to designated government departments.   Data collected shall be anonymised as much as practicable and feasible.

3.15   The Committee *recommends* that the Government should publish full details on the types of data being collected by the smart lampposts with a view to enhancing transparency and public awareness. Clear messages and sample photos should be displayed on the smart lampposts and the dedicated website showing the actual views collected by the devices.

3.16   The Committee also *recommends* that subject to the compliance with relevant security and privacy requirements as well as the governance mechanisms described in paragraphs 3.21 to 3.22 below, HyD and OGCIO should consider exploring the use of smart lampposts, the devices and data collected etc., for students to carry out projects for educational purposes, in order to increase the transparency as well as public awareness of the benefits of smart lampposts.

3.17   The Committee is concerned that the electromagnetic radiation generated from multiple devices and network equipment installed on smart lampposts might increase the risks of data loss, system crashes, module damages and slow/lost connection to the Internet in case of improper management.   It *recommends* that HyD and OGCIO should conduct electromagnetic compatibility tests on each component and on-site electromagnetic radiation assessment on a regular basis and before additional lampposts and applications or a new type of device is to be installed, so as to ensure the proper operation of different equipment, both

on the same lamppost or across nearby lampposts.   A standard procedure for the test should be developed and documented.   The test process and reports should also be made fully transparent to the public.

5G Mobile Communications Implementation

3.18   The Committee affirms the importance and value of 5G services to Hong Kong, and agrees that smart lampposts could provide a suitable infrastructural platform for city-wide installation of RBSs for provision of 5G services.

3.19   The Committee considers that since Hong Kong has different MNOs adopting base station equipment from different telecommunications equipment providers and only suitable smart lampposts would be installed with 5G base stations, the issues about provision of 5G base stations by single/specific telecommunications equipment supplier and high density of 5G base stations on smart lampposts are slim.   In respect of other possible security and privacy challenges, such as ubiquitous connection, location privacy, multi-vendor environment and security of mass-connectivity, they could be addressed by proper policies and practices in compliance with the related laws and regulations for protection of personal data privacy.

3.20   In view of public concern on radiation exposure, the Committee *recommends* that the Government should strictly follow established regulations and guidelines for the installation of 5G base stations.   Their installation on smart lampposts should only be allowed at appropriate locations.   The minimum distance between any 5G base station and a person should be clearly specified as a pre-condition for operators.   The radiation level around the lampposts should be measured and monitored regularly, and the assessment process and results should be made fully transparent to the public.   Public education should also be conducted to enable the public better understand the matter.

Governance Arrangement for Adopting New Applications

3.21   The Committee *recommends* that the Government should appoint credible and qualified independent third-party experts, including

renowned audit firms, to conduct regular security and privacy review of the technologies, functions, applications and devices of smart lampposts in accordance with established practices and international standards (e.g. ISO 27000 series), and to ensure that proper safeguards are in place and all relevant laws and standards are complied with. Reports on the security and privacy audit processes and findings should be made fully accessible by the public.

3.22　　　In addition, the Committee *recommends* that the Government should set up a rigorous, credible and transparent governance mechanism to review and approve any new smart lamppost applications prior to their installation, and make the decision fully transparent to the public. The mechanism should include the following for any new applications or new type of device proposed for the smart lampposts that may entail privacy or data security implications:

> ➢ ensure full compliance with the Personal Data (Privacy) Ordinance and related guidelines and practices;

> ➢ adopt relevant international standards (e.g. ISO 27001 and ISO 27701);

> ➢ conduct electromagnetic compatibility tests to ensure the proper operation of different equipment installed on a smart lamppost as well as among nearby smart lampposts;

> ➢ conduct end-to-end security risk assessment and audits and privacy impact assessments; and

> ➢ engage relevant stakeholders and parties concerned, including the Legislative Council and DCs.

Promotion and Public Engagement

3.23　　　The Committee *recommends* that the Government should further step up the promotion of and public engagement in taking forward the Pilot Scheme, including:

    (a) Publish the following technical documents in both Chinese and English through the smart lamppost thematic website:

- ➢ device and application list;

- ➢ functional requirements and technical specifications of the devices on smart lampposts;

- ➢ data collection and operational workflow;

- ➢ developers' guides for relevant smart lamppost functions, such as positioning devices;

- ➢ sample photos showing the actual views collected by the device if applicable; and

- ➢ the Privacy Impact Assessment Report and Security Risk Assessment and Audit Report.

(b) Update the development of the project periodically through the website and social media.

(c) Disseminate promotional materials, e.g. short videos, infographics, FAQs on the benefits of the applications from a people-oriented perspective through the website and social media in order to:

- ➢ explain the purposes, benefits, and technical details of the devices and applications on smart lampposts;

- ➢ publish use cases in other major cities;

- ➢ illustrate the security and privacy protection measures;

- ➢ emphasise the importance of security and personal data privacy protection; and

- ➢ highlight that the collected data be sent to the relevant government user departments only and not to any other third parties.

(d) Organise and participate in public events, exhibitions and forums to reach out to the general public, arrange live broadcast by Key Opinion Leaders, Legislative Council Members, etc. showing the interior of the smart lamppost, and conduct outreach programme for academic and professional institutions to elaborate on the project and the technical details, including:

- ➢ considering reserving spaces in smart lampposts for devices / projects from students for educational purposes;

> ➤ conducting outreach programme for academic and professional institutions to elaborate on the project and the technical details; and

> ➤ showcasing the functions and features of the smart lampposts through demonstrations, exhibitions and workshops at relevant venues, such as Science Museum, and inviting schools and relevant associations and engaging students, parents and the general public to participate.

(e) Refine the lamppost design to:

> ➤ make the devices on smart lampposts more transparent and visible to the public; and

> ➤ illustrate the devices installed and their applications to the public through pictures / diagrams / QR codes, etc.

Chapter IV – Conclusion

4.1   Data is undoubtedly the bedrock of smart cities in this data-driven era.   The Committee considers that smart lampposts are key infrastructure for promoting smart city development in Hong Kong. Apart from using more environmentally-friendly lighting technology viz. LED lighting and intelligent management, the various types of city data collected by the smart lampposts can help drive smart city development and facilitate better city and traffic management through the use of real-time city data (such as weather, air quality and traffic condition).   The city data collected can also be released in machine-readable formats via the PSI portal for free use by the public.   Both the open data and the positioning devices on smart lampposts can facilitate development of more innovative applications to create even wider benefits to the community.

4.2   Smart lampposts also serve as a suitable street furniture in facilitating the roll-out of 5G network and installation of free Wi-Fi hotspots.   5G technology will offer enhanced mobile broadband services for consumers, support ultra-reliable low-latency communications and massive machine type communications (i.e. Internet of Things (IoT)) as well as other innovative applications, such as vehicle-to-everything communications (C-V2X) to improve road safety and travel experience. 5G network is no doubt one of the pivotal telecommunications infrastructure to enhance Hong Kong's position as a regional communication hub, and provide an impetus for our future economic development.

4.3   Notwithstanding the grave public concern over privacy matters arising from the smart lampposts pilot scheme in recent months, the Committee considers it necessary to seek a consensus in the long run as to how to strike a good balance between privacy protection and smart city development, lest Hong Kong will lag behind other major cities around the world.   Before adopting any new technologies, the Government should conduct thorough assessments on potential personal data privacy impacts, and manage any risk exposure fully and properly.   Public engagement and awareness building should continue to be mounted extensively to help secure the trust and buy-in of different stakeholders,

Chapter IV – Conclusion

which will be a critical success factor for rolling out smart lampposts and more importantly, building Hong Kong into a world-class smart city and bringing greater benefits to the people.

Membership of the Multi-functional Smart Lampposts Technical Advisory Ad Hoc Committee

Name	Post/Organisation
Convenor	
Mr Victor LAM	Government Chief Information Officer
	Office of the Government Chief Information Officer
Members (in alphabetical order of surname)	
Mr Vincent CHAN	Partner
	Ernst & Young Advisory Services Limited
Dr K P CHOW	Associate Professor
	Department of Computer Science
	The University of Hong Kong
Mr Francis FONG	Honorary President
	Hong Kong Information Technology Federation
Mr Stephen HO	Honorary Chairman
	Communications Association of Hong Kong (CAHK)
Ir Prof Joseph NG	Professor and Director of the Research Centre for Ubiquitous Computing, Department of Computer Science
	Hong Kong Baptist University
Mr Ronald PONG	Chairman
	IT Governance Committee, Smart City Consortium
Dr Lawrence POON	General Manager
	Hong Kong Productivity Council

Annex

Dr K F TSANG	Associate Professor
	Department of Electrical Engineering
	City University of Hong Kong
Mr Stephen Kai-yi WONG	Privacy Commissioner for Personal Data
Mr Wilson WONG	Chief Executive Officer
	Hong Kong Internet Registration Corporation Limited

OGCIO Representatives

Mr Tony WONG	Assistant Government Chief Information Officer (Industry Development) (until 18 December 2019)
Mr Kingsley WONG	from 19 December onwards
Mr Jason PUN	Assistant Government Chief Information Officer (Cyber Security and Digital Identity)

Secretary

Mr Dantes TANG	Senior Systems Manager (Smart City) 2
	Office of the Government Chief Information Officer