



Land Surveying Division
Sr Paul Tsui LSD Council Chairman

Smart Cities and Land Surveyors

Turning Hong Kong into a smart city has been a hot topic in recent years. How is the work of land surveyors related to that for smart cities? The Internet of Things (IoT), big data analytics, and artificial intelligence (AI) are recognised as key technologies that power a smart city. Nevertheless, these three technologies are highly related to data. According to some studies, 80% of data have a location component. In the 2015 statistics of the European Commission's European Data Portal, the category of geographic information was shown to have the highest commercial value and could be used in 13 other data categories via maps to create visualisations. In fact, many smart city applications are location-based.

IoT network sensors can generate a huge amount of real-time location data at high speeds no matter if the sensors are static or dynamic in location. With such a large amount of spatiotemporal data generated, geospatial big data analytics can be utilised to discover insights into the big data using spatial statistical techniques. This also forms the basis of a broader discipline of AI, which highly depends on the amount and quality of training data available for making accurate predictions.

Many AI application scenarios are location-based in nature, so a new scientific discipline, geospatial artificial intelligence (GeoAI), has emerged. GeoAI combines innovations in spatial data science, artificial intelligence methods in machine and deep learning, data-mining techniques (e.g. spatial statistics), and high performance computing to extract information from spatial big data. Indeed, land surveyors have been using AI techniques to perform image classifications on satellite imagery for a few decades.

GeoAI, together with IoT and geospatial big data analytics, can power many different smart city applications. The keys to its success are the talents specialising in collecting, handling, and analysing spatial data. As I mentioned last month, land surveyors have added spatial data scientist to their areas of expertise and can make significant contributions to transforming Hong Kong into a smart city from a technological perspective.

Now TV 『理財有方』訪問 - 香港土地測量師進入大灣區市場的障礙與機遇

前任土地測量組主席林力山博士測量師早前接受 Now TV 『理財有方』節目訪問，就香港土地測量師在大灣區市場的障礙與機遇作出分析。

障礙方面 - 專業資格互認

專業資格互認是進入內地市場的重要環節。現時，香港土地測量師還未與內地達成該互認協議，主要原因是國內沒有一個『行業自律管理』的土地測量師專業學會。在內地，土地測量師稱為『測繪師』，國內的測繪師資格是透過測繪師考試制度直接由政府頒發。專業資格互認原是由中港兩地的相關『專業學會團體』作為『對口』經討論達成協議，而該互認在土地測量師及測繪師範疇方面，便出現『不對口』的情況。現時的折衷安排是歡迎港澳專業人士參加國內的測繪師考試，透過考試而獲取測繪師資格。

林博士認為，雖然現時情況如此，但是參考其他已達成專業資格互認協議的測量組別經驗，土地測量師的專業資格互認仍是指日可待的。例如：國內的中國房地產估價師與房地產經紀人學會原本也是在內地政府體系內，最後亦成為行業自律管理組織，可以進行『對口』專業資格互認。因此，土地測量師組正積極推動國內測繪師成為行業自律管理組織。

障礙方面 - 國家座標系統等敏感資料

國家座標系統乃國內高度敏感資料，例如：港珠澳大橋、深港蓮塘 / 香園圍口岸等跨境基建項目，在香港境外範圍有座標資料的工程圖都有嚴謹的『限閱』法規規定。因此，香港土地測量師可能因未獲批准索取地圖及座標資料，而不能在內地進行測繪服務。

機遇方面 - 房產測繪

內地房地產發展蓬勃，房產測繪服務需求殷切。房產測繪包括建立平面控制網及分層分戶平面圖，分層分戶平面圖及相關的圖、表、冊、簿、面積等數據都是在買賣時法規規定的重要資料。林博士認為，平面控制網及分層分戶平面圖與國家座標系統可以是分離的，因此，香港土地測量師應可以爭取在需求殷切的內地房產測繪服務，分一杯匙。

結語

林博士認為，雖然香港土地測量師就進入內地市場還有一點障礙，但是粵港澳大灣區及十四五規劃仍國家重點推進發展工作，十分需要香港專業人士的貢獻。香港土地測量師一直不斷積極裝備自己，例如：智慧城市、空間數據共享平台，就是為著將會迎來的龐大機遇。

CPD Highlights

“Multi-functional Smart Lampposts” Pilot Scheme

A joint professional seminar on the “Multi-functional Smart Lampposts” Pilot Scheme was held on 17 February. Colleagues from OGCIO, the Office of the Government Chief Information Officer (Ms Cari WU and Mr Dantes TANG), the Highways Department (Mr Nelson IP and Mr Ronald KWOK), and Lands Department (Mr Kenny CHAN) shared with HKIS members the Scheme’s design and implementation.

The Government’s 2017 Policy Address mentioned the launch of the Scheme at selected urban locations to support the building of a smart city with citywide coverage of data and networks. The Highways Department engineers introduced the Scheme’s background and elaborated on the functions of equipped sensors, provisions to accommodate those sensors, and their expected benefits. OGCIO’s systems managers then summarised the Scheme’s implementation progress and explained the various measures to protect privacy and available open datasets for further applications. Sr Kenny Chan highlighted the positioning devices in the smart lampposts and spatial data and positioning infrastructure behind the scenes.

Over 100 HKIS members attended this briefing session via Zoom. The Q&A session featured fruitful discussions and exchanges between the speakers and audience, which shed further light on the future innovative possibilities of smart lampposts.



Courtesy of Now TV and YouTube:

<https://tinyurl.com/yakkvr82>



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CPD Highlights - "Multi-functional Smart Lampposts" Pilot Scheme