Land Surveying Division
Sr Paul Tsui LSD Council Chairman

Seminar on Digital Twinning for Smart City Development

I was invited to be one of the speakers and panelists for the event, "Seminar on Digital Twinning for Smart City Development," held on 29 August. It was well attended in person and online. The world now faces many challenges including climate change, flooding, overpopulation, housing supply shortages, food insecurity, drought, communicable diseases, etc. In order to tackle these challenges, a new geographic approach utilising digital twin and GIS technology is required to create better understandings, explore alternatives, design solutions, and explain them all to others and take action.

A digital twin is a virtual representation of the real world including physical objects, processes, relationships, and behaviours. GIS creates digital twins of the natural and built environments and uniquely integrates many digital model types. Geospatial technology connects different types of data and systems to create a single view that can be accessed throughout a project's life cycle. GIS enhances data capture and integration, enables better real-time visualisation, provides advanced analysis and automation of future predictions, and allows for information sharing and collaboration.

Digital twinning with GIS involves abstracting and modelling everything in the real world through a landscape information model (LIM); building information model (BIM); network information model (NIM); and city information model (CIM). The diagram below illustrates the concept.

The event concluded with a panel discussion and many questions from the floor.

Sr Paul Tsui presents during the seminar.

Souvenir Presentation to Sr Paul Tsui by Ir CF Lai,
Strategic Leader of the VTC Smart City Information Centre

Sr Paul Tsui answers questions during a panel discussion.

All Seminar Speakers and Panelists

CPD Highlights

Solar Cities for Energy Transition Facilitated by GIScience with Multi-Sourced Spatiotemporal Big Data

THE HONG KONG INSTITUTE OF SURVEYORS
香港測量師學會
土地測量組 Land Surveying Division

CONTINUING PROFESSIONAL DEVELOPMENT

Dr ZHU Rui, Felix

is hereby granted the

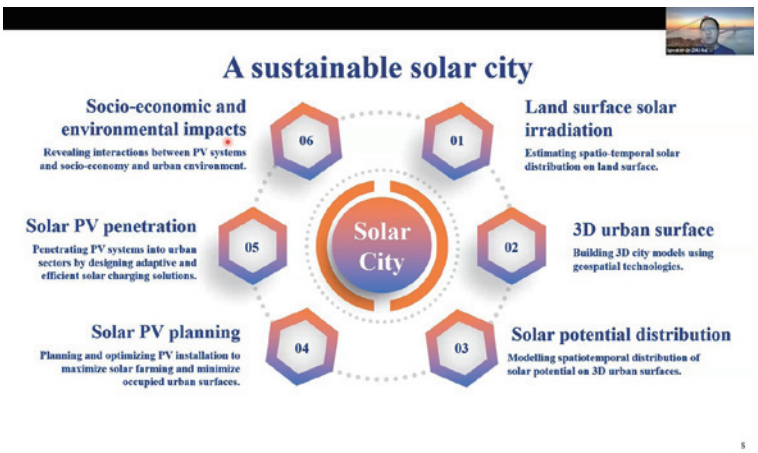
Certificate of Appreciation

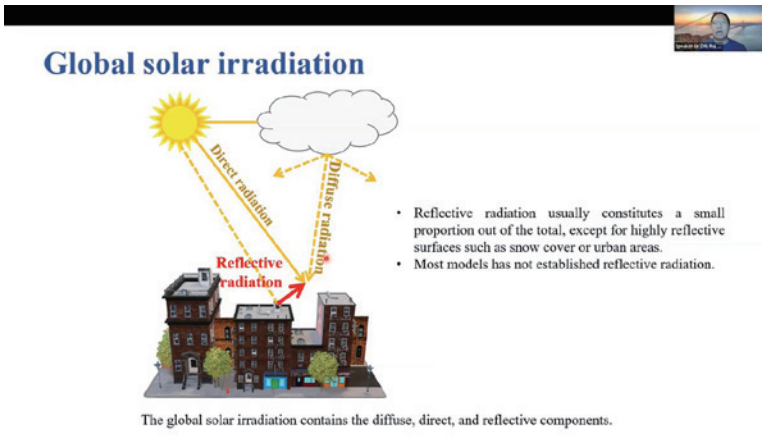
for participating as the guest speaker in the seminar
"Solar cities for energy transition facilitated by GIScience with multi-sourced spatiotemporal big data"
on 31 August, 2023

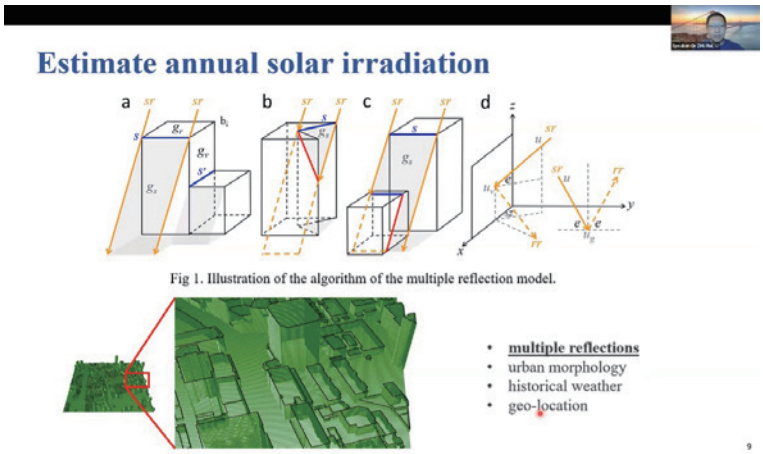
Sr TSUI Hoi Yuen, Paul
Chairman of Land Surveying Division

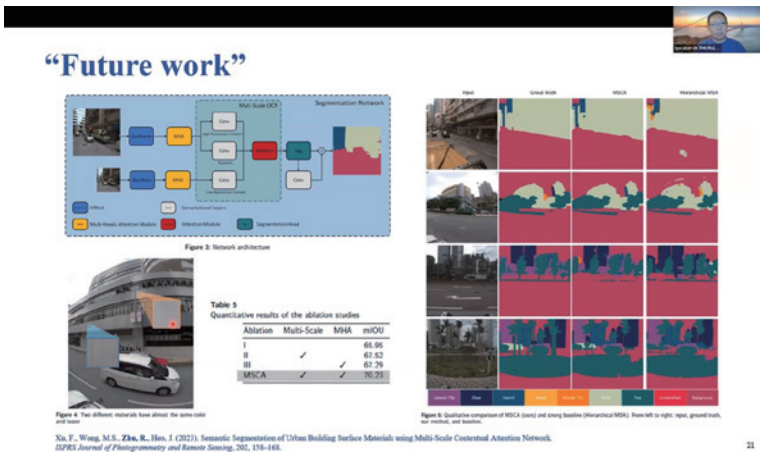
On 31 August, Dr Felix ZHU shared with his HKIS peers a CPD on how GIScience and remote sensing can help facilitate energy transition in a solar city framework. Felix is a senior scientist at the Agency for Science, Technology and Research (A*STAR), Singapore.

Felix explained the concept of a sustainable solar city and its links to multiple geospatial datasets. Then he introduced his research findings on benchmarking annual solar irradiation to calculate the solar potential of cities around the world and highlighted the indispensable role of geospatial data sets and big data processing algorithms.







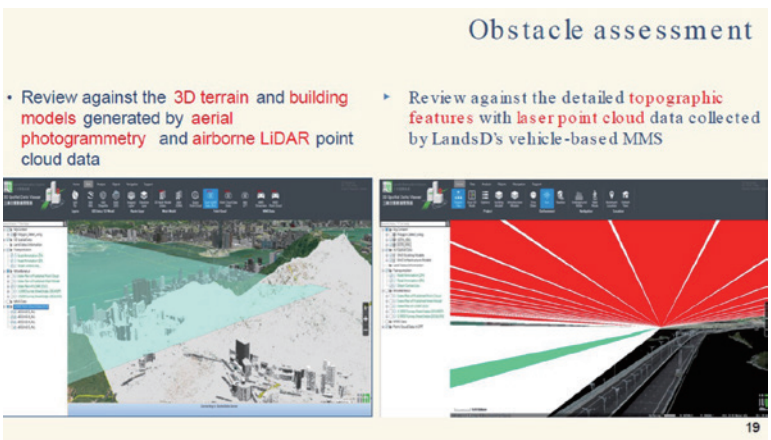


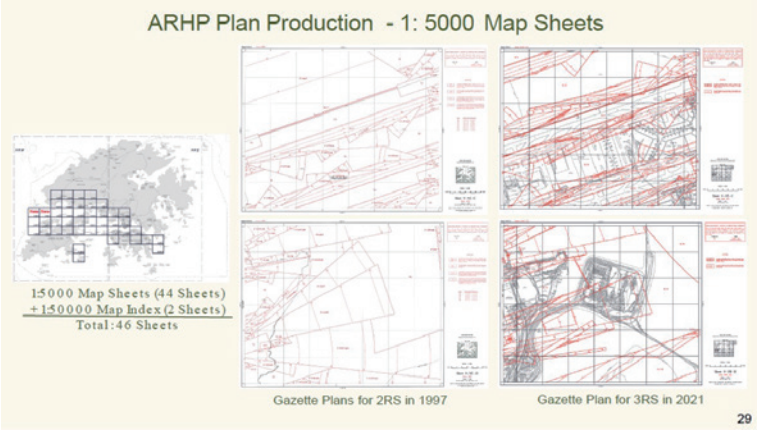
Finally, Felix suggested future works to build a semantic-enabled "processing unit" to facilitate urban solar potential calculation and planning. He concluded that with more sensors deployed or equipped in a space-enabled city, geomatics or urban informatics can surely help support decision-making and urban planning so that a sustainable future can be achieved.

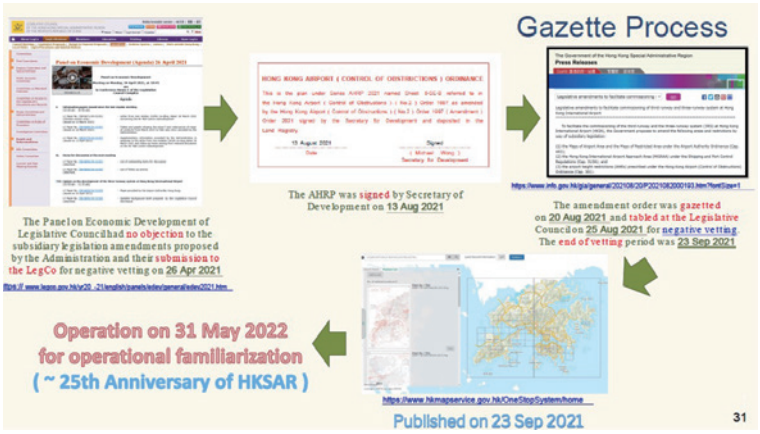
Airport Height Restriction Plan and Aerodrome Obstacle Chart for the Three-runway System of Hong Kong International Airport

On 14 September, Sr Gary LAU delivered a talk on the role of land surveyors in helping the Government's Civil Aviation Department (CAD) analyse the airport height restriction (AHR) data and generate/update the Airport Height Restriction Plan (AHRP) and aerodrome obstacle charts.

LSD Vice-Chairman Sr LAU Chi-kwong welcomed Gary to the HKIS. Surveyors from all disciplines joined this CPD to grasp how planning for gazetting purposes works. During his talk, Gary illustrated how 3D GIS capabilities and 3D reality capture approaches can facilitate obstacle assessment. He also explained the loss of information when 3D GIS is converted into a 2D plan to fulfil statutory gazetting requirements.







During the Q&A session, Gary answered a dozen questions from the audience and shared more of his experiences collaborating with different survey offices and stakeholders to achieve common goals. The talk ended with an open question to all participants: What should be done to make 3D models, instead of traditional 2D plans, the media of choice to deliver information?