EVENTS WATCH

HKIS ANNUAL CONFERENCE

Hong Kong Institute of Surveyors weighs views on digital transformation for construction industry, writes **Prudence Lui**

The property and construction sector must embrace digital innovations to become more efficient, cut costs and stay a world beater, according to 250 industry leaders, academics and Government officials who attended the Hong Kong Institute of Surveyors' annual conference.

The one-day conference, this year with the theme 'Innovation: Revitalizing Construction', comes at a crucial junction for the SAR's construction industry, with news reports of rising costs that have made the city the third-most expensive in the world to build in, a shrinking, ageing skilled labour force, land shortages, and projects facing lengthy delays.

In his welcome speech, HKIS President Sr Dr Tony Leung Ka-tung cited people now live in evolving times as technology continues to transform the way people work. Indeed, not only do these changes promise opportunity for professionals they also promise the potential of higher living standards and lower living costs for the wider population. Moreover, government and community leaders have certainly understood the need to push Hong Kong further into becoming a smart city. It is this sentiment that drives today's conference theme. Obviously, the conference examined and encouraged the early introduction of smart technologies, projecting the future, framing the current landscape trends and spelling out the challenges and opportunities ahead as the industry continues to undergo a digital transformation.

Secretary for Development Mr Michael Wong Wai-lun, JP told the gathering on 21 September that the government believed Hong Kong was lagging in adopting smart information suites. He added that since the importing cheap labour was no longer viable, Hong Kong had to rely on these technologies. That's why the Bureau is pushing forward the adoption of Modular Integrated Construction (MiC) and the fuller use of Building Information Modelling (BIM), as well as the newly launched Centre of Excellence for Major Project Leaders. Currently, there are some 15 projects at various stage of construction adopting MiC, including a residential care home for the elderly in Kwu Tung North plus private sector projects like the Sleeping Beauty Castle at Hong Kong Disneyland Resort using BIM and MiC. Though there might not be significant savings in terms of cost as the skill is not there but all the projects showed significant savings regarding time, labour safety and environmental disruption, plus a huge reduction in wasted material. From government's perspective, the city is still lagging behind in BIM and Wong urged industry to help to catch up.

Mr Allan G H Tan, Managing Director of United Tec Construction Pte Ltd, said Singapore was using Prefabricated Prefinished Volumetric Construction (PPVC) to combat its own shortage of skilled labour but it was not without challenges. PPVC, like MiC, uses individual modules complete with finishes, fixtures and fittings prefabricated off site to be assembled into a complete building. Mr Tan said PPVC was more productive and faster but was a complex process with no room for mistakes, requiring a new mindset. He also walked audiences through key challenges behind implementation i.e. the presence of a fabrication yard and fit-out factory which is big enough for production and storage of suitable equipment and cranes; PPVC is estimated to cost 10 percent more than today's conventional methods. Due to the complexity of the Mound-2D to 3D approach, complete accuracy is required; there is no room for mistakes since there is no turning-back in the process. As PPVC's is still at its infancy stage, it's a very new and quite a game-changing technology from 2D to 3D, and there are many challenges unanswered and so it requires a big change of mindset across the board. Key driving factors to move into PPVC include improved productivity, shorter period, clean site, improved working environment like less noise, less dust, shorter duration of inconvenience and good safety result. Another plus, it's really possible to achieve zero accidents. That's very tough to do in the conventional way of construction but for the first time in Tan's career, it could be zero if one does his PVVC right.

The goal of Lands Department is to develop Hong Kong into a spatially enabled world city. According to Ben Chan Siu Bun, Assistant Director/ Survey & Mapping of the LandsD, this would be achieved through Common Spatial Data Infrastructure (CSDI), under the Smart City Blueprint, and its integration with BIM and geographic information systems (GIS) to create an integrated and accessible network that would provide invaluable tools for building professionals such as 3D maps, briefed the audience on the CSDI implementation progress and what it means for building professionals. In 2017, the Innovation and Technology Bureau published Smart City Blueprint for HK setting out the overall framework and strategy for developing HK into a smart city including CSDI, 3D map and BIM. Then, the government also earmarked $300 million in the 2019 Budget Speech to develop a geospatial data sharing platform and 3D digital maps of the whole territory.

When government promotes Construction 2.0 using more digital technology, it involves project challenges like vast amounts of data and difficult-to -retrieve data effectively because they are not spatially integrated. Sr Paul Tsui, Managing Director of Esri China

(Hong Kong) Ltd, pointed out that the result is that you are getting more digital data from different sources and in different formats i.e. imagery, graphic map, big data from sensors, BIM models, CAD drawing etc. Such massive amounts of data are generated from different stakeholders in a construction project and 80 percent of data is spatial i.e. sensor networks. GIS integrates all type of data, forming a platform for geospatial data dissemination. GIS is a solution to this problem as it can integrate all this information using locations and assisting engineers/ designers to make decisions.

Real-life examples of smart and innovative building by Mr Raymond Kwok, Project Manager of Swire Properties, offered One Taikoo Place as an example of a project built with smart design, smart construction and smart operation. The 48-storey tower in Quarry Bay opened in 2018 used digital technology with inspired new methods in construction with the potential to bring benefits. For instance, the integrated design approach engaged all stakeholders i.e. architects, main contractors and even facility management at the planning, design, tendering, contract and operations stage. It brought together a full life cycle team contributing to our design and procurement process.

Among the most keenly awaited talks was that by Sr Dr Stephen Lai Yuk-fai, JP, Managing Director of Rider Levett Bucknall Ltd, on the causes of rising construction costs and the importance of developing and using new technologies to enhance construction efficiency amid economic uncertainties. Dr Alexia Nalewalk, Professor, American University, further delivered an insightful lecture on the risk analysis of construction costs. Mr Yu Tak Cheung, Deputy Director of the Buildings Department, supported the integration of operations and maintenance in the planning and design stage and introduced a newly published "Code of Practice on Design for Safety – External Maintenance 2019". Mr Frankie Fung, Chief Assistant Secretary, Development Bureau, shared practical tips on cost management and project governance for public works projects.

Before closing the event, Sr Edwin Tang, Chairman of the HKIS Annual Conference Organising Committee and HKIS Vice-President, recapped all the above-mentioned issues as playing an important role in shaping the future of our industry, and consequently, our city's living standards.

The HKIS Annual Conference ended in a high note as it's also one of the key event celebrating its 35th anniversary this year. It will continue as a platform to discuss the future development of Hong Kong with professionals from various sectors to boost construction industry standards.