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## **‘Walking’ through a building – even before it is constructed**

*by Joanna Seow*

Construction industry professional Tan Teck Seng looks like he is playing a high-tech video game when he examines a building on a screen, decked out in virtual reality (VR) goggles and controllers.

But his mission is more down to earth – to show an intricate model of Kranji Green, a multi-storey recycling facility being built by national industrial estate developer JTC. He is walking through a VR simulation of a 3D model of what the building should look like when completed.

VR allows contractors, architects, engineers and developers to experience the model in life-size proportions, which increases the chances of catching any design flaws before construction begins.

The 3D model also allows supervisors to use their phones or tablets on site to ensure that what is built tallies with what is approved in the model.

Mr Tan is a building information modelling (BIM) coordinator with construction firm Boustead Projects. VR walk-throughs are just one of the ways Boustead has been raising its digital game in recent years. In 2017, it created a mobile digital hub out of a retrofitted shipping container with VR tools that can be moved from site to site to facilitate meetings.

Boustead managing director Thomas Chu said better technology “creates that environment to attract talent and improve the way we construct our buildings”.

He added that Boustead is also working with start-ups to test-bed ideas that may eventually be commercialised.

One initiative involves working with Airsquare to use 3D laser scanning and artificial

intelligence verification to check whether the built outcome adheres to the BIM model as construction progresses.

Boustead has spent about \$2 million on integrated digital delivery technology so far, said Mr Chu.

While he cannot put a figure yet on the returns, he hopes its methods will set it apart in the eyes of both clients and staff. He noted that the processes already improve the site environment, safety and productivity, and help the firm promote itself to clients.

The firm is also trying to implement other innovations such as Lean PlanDo, an application that facilitates information sharing and tracking, in overseas projects as Boustead expands into Malaysia, China and Vietnam.

“My dream is to create a new market and new higher skilled management-level job opportunities for local staff to go overseas,” said Mr Chu.

The strategy has helped attract talent like Mr Tan, 32, who joined Boustead last year as he felt it was pushing the envelope in tech use.

He initially worked as a draughtsman when he first joined the industry in 2012. Now he uses VR, augmented reality, drones and lidar (light detection and ranging). He learnt his skills on the job as he had previously studied a different field – materials science.

“If you asked me 10 years ago, I would have thought construction is like (TV character) Phua Chu Kang, wearing yellow boots and going around doing drawings and taking measurements,” he said. “Now, there is even coding, and we can run software to check our models.”