

# HDB ties up with universities to boost productivity, design

## Agency signs collaboration agreements with NTU and SUTD worth S\$10.7m to develop smart solutions

By Lee Meixian

leemx@sph.com.sg  
@LeeMeixianBT

### Singapore

THE Housing and Development Board (HDB) will be working with two local universities to boost its construction productivity and better tailor its neighbourhood designs to residents' needs.

On Thursday at the International Housing Forum on sustainable urban development, the agency signed two research and development agreements with the Nanyang Technological University (NTU) and Singapore University of Technology and Design (SUTD) worth S\$10.7 million.

The two agreements span three years each. The one with NTU is a S\$4.7 million collaboration to develop a smart integrated construction system to facilitate data-sharing and synergise construction processes across industry partners through a central digital platform.

This means that everyone in the construction chain – architects, contractors, pre-casters and material suppliers – can be plugged in real-time on the same project management tool. This will enable them to better keep track of their budgets and timelines.

It will also be powered by a smart tracking system to better manage the logistics of construction inventory such as precast components.

Lam Khin Yong, chief of staff and vice-president (research) at NTU, called it “just-in-time construction”, where efficient communication allows for modules to be fabricated “just in time” to be sent to the construction site for use, so that there is no waiting time or storage cost. Geo-tagging also allows the right modules to be located on the ground and hoisted up for installation.

A third aspect of this collaboration is a smart crane system, which will automate the manual hoisting process of building components, thus eliminating the need for manual labour.

Through smart sensors embedded in the precast components and a network of sensors placed around the construction site, the system will cal-

culate and determine the quickest and safest hoisting path to mitigate potential collisions and swaying, thus reducing construction time and improving safety.

Minister for National Development Lawrence Wong, who officiated the event, noted that boosting construction productivity is a “national priority”. The sector's productivity continues to lag other sectors – not just in Singapore but also worldwide.

“For Singapore, it is particularly hard because we cannot sustain our current ways of building with high reliance on foreign workers. It is just not sustainable, and so we need to move toward more advanced and productive technologies,” he said.

The second agreement is a S\$6 million memorandum of understanding signed with the SUTD to embark on a “New Urban Kampung” research programme.

HDB and SUTD will conduct a social behavioural study to predict how the demographics in HDB towns are likely to evolve, and attempt to forecast residents' behaviour and responses to initiatives introduced in their living environment through big data and advanced modelling tools.

Mr Wong said: “This will help us

better understand how residents and the community respond to changes in the physical landscape, so that we can adjust our housing designs in tandem with changing needs and aspirations.”

For example, with residents becoming more digitally-connected, void decks could be equipped with Wi-Fi-enabled workspaces for residents to gather and study, organise workshops, or hold classes. Such initiatives will also encourage residents to make fuller use of communal spaces, HDB said.

The universities had responded to HDB's grant calls for research projects, designing their research programmes based on specific problems that HDB had indicated that it wanted to solve.

Speaking to reporters after the signing ceremonies, HDB CEO Cheong Koon Hean said she could not give a timeline for implementation as the research is in the early stage, and the research outcomes have to be studied for cost efficiency and technical feasibility before they can be rolled out.

“In innovation, sometimes you don't have a lot of answers. It's about trying out, so let's try out and see.”