

1 dwellings

HARMONIOUS LIVING AT ITS BEST

ISSUE SEP/OCT 2019



Building Future-Ready Homes

Engineering innovations to achieve greater construction productivity

Partners in Co-creation

Nurturing 'heartware' in HDB towns

Service Transformation

Enhancing service delivery to our customers

Meet the Dwellers

Making a difference, one haircut at a time



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An Innovative DNA

Advanced technologies in the built environment sector have opened up many exciting possibilities for HDB in our ongoing journey to build quality homes for Singaporeans. From 3D printing to drones powered by artificial intelligence, this issue of *Dwellings* explores how HDB is leveraging these game-changing innovations, in collaboration with industry partners.

The spirit of innovation has also propelled HDB in our service delivery transformation. With our customers' needs as chief priority, we walk you through how HDB has employed Design Thinking, research and technology to delight customers at every touchpoint.

Innovation does not lie with HDB alone; our residents have also been instrumental in driving change in our towns as we introduced several community initiatives to spur greater ground-up involvement in recent years. Co-creation programmes, such as Build-a-thon and Cool Ideas for HDB Living, offer residents the opportunity to shape their towns and homes together, deepening their sense of ownership and belonging in the community.

Dwellings also chats with a long-time Bedok resident who seeks to give back to the community through her barbershop — from offering free haircuts for vulnerable youth to looking out for the well-being of elderly residents. Such is the camaraderie and caring spirit of the HDB heartland.

About *Dwellings*

Dwellings is published by the Housing & Development Board (HDB), Singapore's public housing authority and a statutory board under the Ministry of National Development. For over 50 years, HDB has provided quality and affordable public housing for generations of Singaporeans. Currently, more than 8 in 10 resident households in Singapore call an HDB flat their home. Through *Dwellings*, we want to share how we create the kind of public housing that is uniquely different, and also uniquely Singapore.



(Above) West Terra @ Bukit Batok is the first public housing project to be built with Pre-fabricated Volumetric Construction (PVC) technology. The PVC construction method increases construction productivity and safety on work sites, while helping to reduce labour needs, as well as noise and dust generated from building works



Building Future-Ready Homes

To advance its goal of building well-designed, quality homes, HDB has been on a continual quest to deepen its expertise in construction technology. More recently, new partnerships and research projects have broadened the horizons to keep HDB towns future-ready.



Singapore's urban landscape can be described as a vibrant tapestry of building forms in myriad colours and shapes. Even so, in every HDB town, neatly arranged blocks of public housing exude a certain visual consistency — an outcome of HDB's intensive construction productivity efforts to build better homes safer, faster.

HDB has made big strides in construction innovation over the years, from embracing prefabrication technology to developing its own Precast Building System, and in recent years, implementing wider adoption of Prefabricated Prefinished Volumetric Construction (PPVC) as part of a national effort to increase construction productivity. As the largest housing developer in Singapore, HDB plays an important role in leading the industry's technological development and growth.

To better meet the growing demand for well-designed, quality homes, HDB has taken an integrated approach across the construction value chain — from upstream designing and planning, and construction, to downstream building and facilities maintenance. Working behind the scenes, engineers and architects from HDB's Building Groups have been driving

innovations and research endeavours to further enhance HDB's construction capability and capacity through innovative technologies.

Venturing into 3D Printing

Additive manufacturing, or 3D printing, has ushered in a new era of mass customisation, offering the ability to create 3-dimensional objects with intricate details or geometric forms that would be near impossible to create with traditional methods. Its applications are almost limitless and could offer a revolutionary leap, changing the way homes are designed and built.

In 2018, HDB embarked on a research project to explore the potential adoption of 3D concrete printing. Working with Robin Village Development, Witteveen+Bos, and Nanyang Technological University, the research collaboration looked into developing digital fabrication technologies through 3D concrete printing and other supporting systems to boost construction productivity and sustainability.

HDB's 3D Concrete Printer

Installed at the HDB Centre of Building Research (CBR), the 3D concrete printer is currently the largest of its kind in Southeast Asia. It is capable of printing components up to 9m long, 3.5m wide and 3.8m tall, and successful printing trials have since produced a room-sized 3D-printed volumetric component with reinforcements, a first of its kind in the world of 3D concrete printing, right here in Singapore.

Building on these efforts, the research will expand to other areas to enhance the printer's capabilities, such as using multiple nozzles to increase printing productivity, and the development of a robotic system to place steel reinforcements into the concrete during the printing process. Software will also be developed to seamlessly integrate the 3D concrete printer with HDB's Building Information Modelling system, allowing the direct flow of data from design to production, and minimising the need to create another set of workshop drawings for the production of volumetric components.

The customisability of 3D-printed concrete opens up more possibilities in producing more varied and inviting features with an organic and free-form design. Think curvilinear benches, meandering planter boxes and distinctive sculptural forms — these features, not common in today's housing projects, could well become a reality in future HDB projects.

1

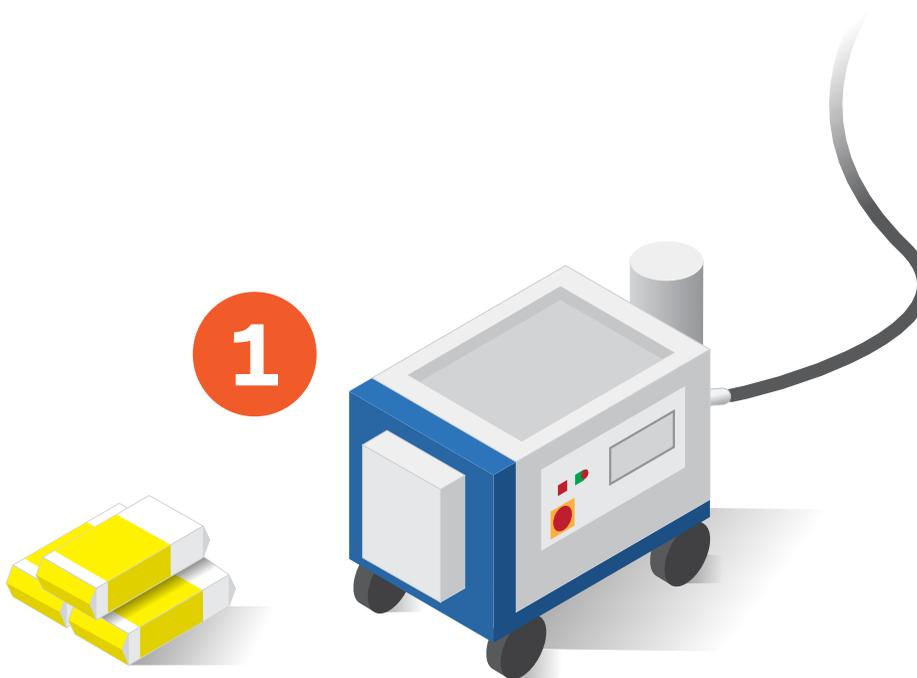
3D concrete printing material is prepared by mixing a customised cement blend with water.

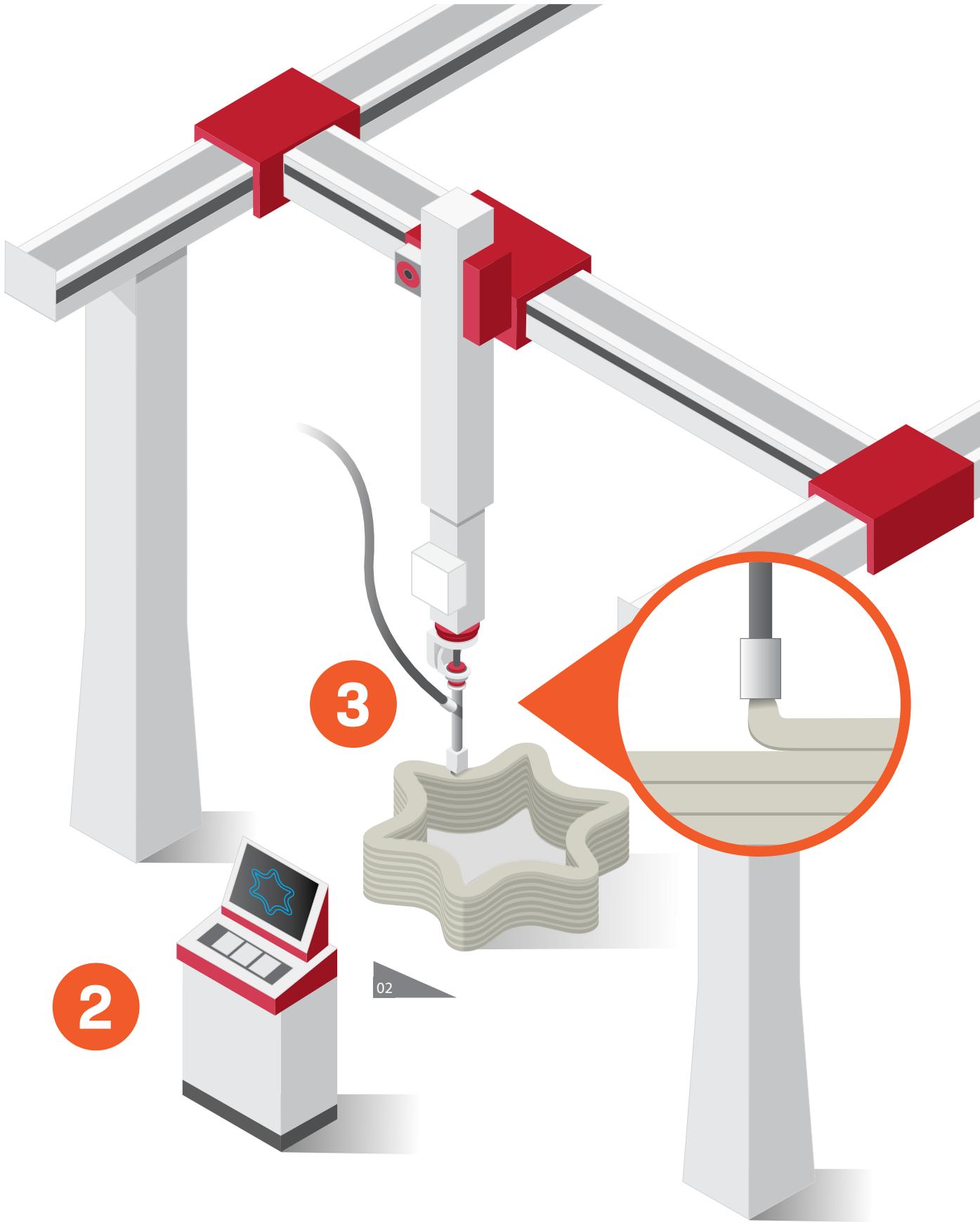
2

Design plans for the concrete component are loaded into the 3D printer control panel to control the print path of the nozzle.

3

Like squeezing toothpaste out of a tube, the concrete component is additively manufactured – one layer after another.





2

3

02



Advancing Concrete Performance

However, 3D concrete printing is not without its challenges. Engineers at HDB's Building and Research Institute (BRI) discovered that getting the right concrete mixtures is essential to printing objects successfully. Mixtures that were proven to work overseas would need to be reworked to suit Singapore's humid and tropical climate.

Leveraging private expertise in material science, HDB has inked a Memorandum of Understanding (MOU) to collaborate with Evonik (SEA) Pte Ltd on a study to improve the workability and strength of concrete material used in advanced manufacturing methods such as 3D printing. By using silica as additives to the concrete premix, the

early strength, homogeneity and flowability of concrete can be enhanced, allowing the smooth laying of concrete layers and ensuring that the layers are well-bonded after the 3D printing process.

Upon successful trials, new standards could be developed for materials used for 3D-printed concrete components in the construction of HDB buildings.

(Above) 3D concrete printing will enable more creative design features to be built at HDB estates, which would be challenging to create using conventional construction techniques. These features could include customised sun shades, 3D artwork, organic landscape features and precinct furniture



Smart Building Inspection

Another research study in the works is the use of unmanned aerial vehicles or drones for facade inspection. HDB blocks are regularly inspected to ensure that they remain in good condition for residents. Manual methods, such as using suspended gondolas, are currently deployed to perform building facade inspection.

Recognising the benefits drones can offer, in March 2018, HDB embarked on a research collaboration with HUS Unmanned Systems to explore the adoption of drones and visual analytics technology to help automate the building inspection process, with the goal of improving productivity, safety and inspection accuracy.

HDB's future drone inspection system taps into a cloud software platform to conduct a visual scan of building facades captured during inspection. Leveraging artificial intelligence (AI), the system processes thousands of photos and identifies building defects in the cloud. It can detect and categorise the types of defects, and tag them to a drawing or visual of the building. The platform would then deliver a report to

highlight the severity of the defects detected and recommend possible remedies.

A small-scale trial was conducted in July 2018. Anticipating concerns that could arise from flying the drones around homes, residents were notified in advance on the use of drones, with the area below the flight path cordoned off for safety during the inspection process. Any images of residents captured during the scanning process will be masked out, before the captured data could be used for analysis. Future research will also look into the possibility of developing a feature to automate masking, ensuring that the privacy of residents is protected even as the inspection is taking place.

The use of drones offers multiple advantages. Apart from providing greater visibility to areas that would be challenging for workers to access, eliminating the use of gondolas also reduces potential hazards that could happen during inspection, such as falls from height. The inspection process would be less laborious, and the documentation and reporting of defects more precise.

Keeping Construction Sites Safe with Video Analytics

Construction sites depend on manual supervision to ensure safety requirements are met, and that the works are progressing as planned. With many concurrent activities happening at these sites, maintaining our high standards of safety and supervision is a resource-intensive endeavour as multiple workplace, safety and health officers, as well as site supervisors are deployed to worksites.

HDB is collaborating with the National University of Singapore and AI Singapore to study ways to automate safety inspections. The research project aims to enable continuous and real-time monitoring of hazards through live CCTV footage by integrating video analytics and AI technology.

To augment manual supervision, tower cranes at HDB construction sites have CCTV cameras installed to record construction activity. Trials are underway to use the footage to run video analytics to identify safety lapses, or even detect potentially unsafe behaviours and conditions.

Concurrently, the research data and models developed in the study will broaden the application of video analytics in the field of construction management and supervision for HDB worksites and the construction industry as a whole.

HDB is currently test-bedding the system at a BTO project and exploring wider application at other sites. [d](#)

(Right) Live video feeds from construction sites are retrieved and ingested into the system. The AI engine, pre-trained using deep neural networks, will perform real-time video analytics to detect workers and potential hazards.

If the AI engine detects danger, it will immediately trigger a text alert to the safety officer-in-charge. A management dashboard will allow users to view results of the video analytics and alerts that were triggered by the system.

1 Barricades at building edges

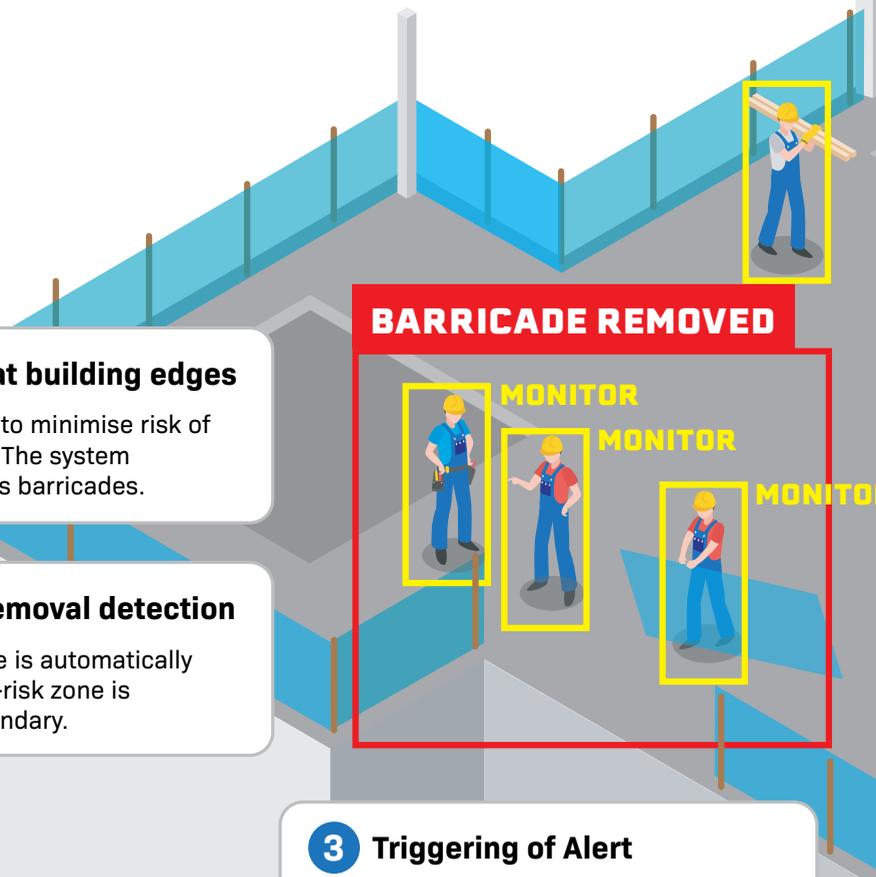
Barricades are used to minimise risk of workers falling over. The system automatically detects barricades.

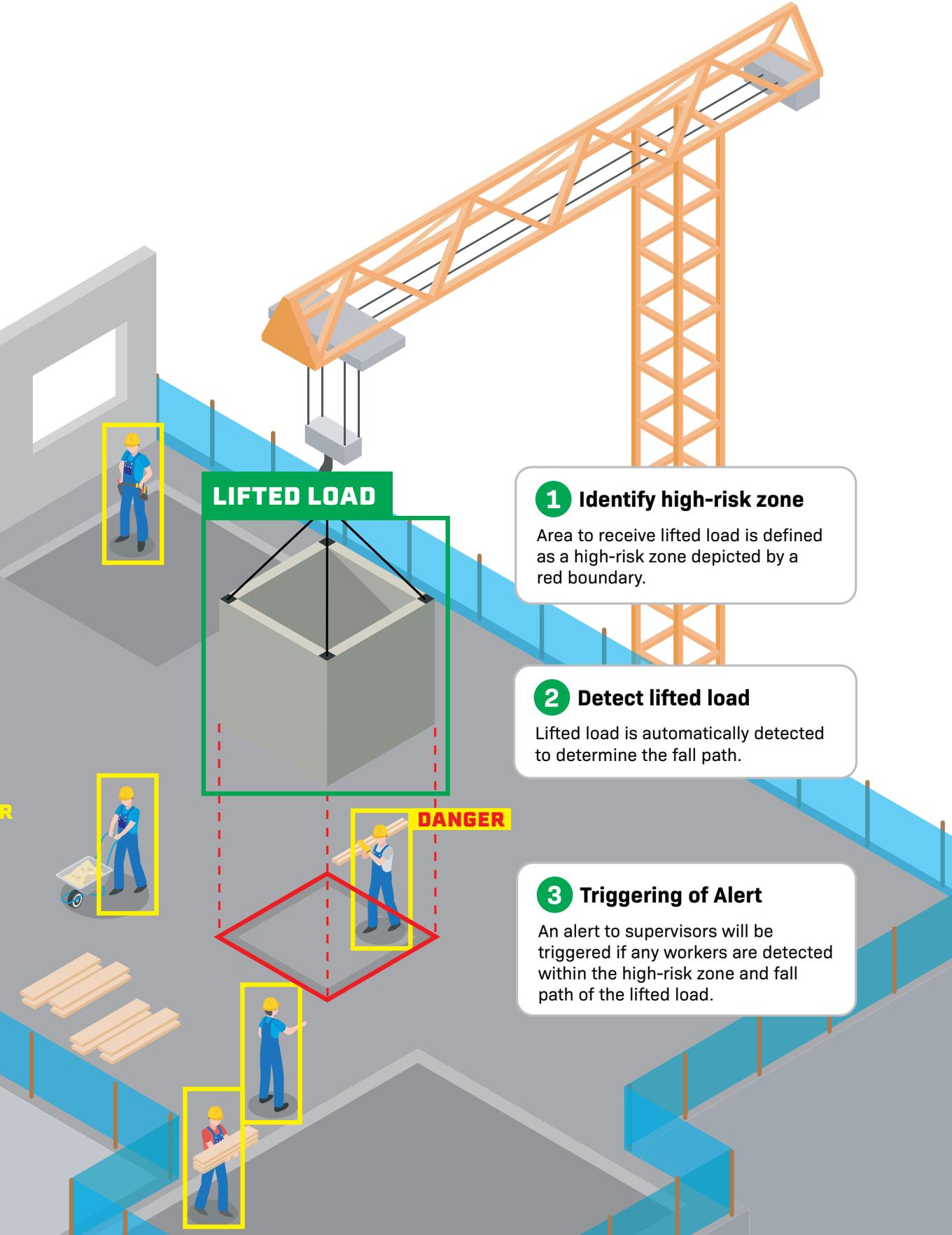
2 Barricade removal detection

Removal of barricade is automatically detected and a high-risk zone is defined by a red boundary.

3 Triggering of Alert

An alert to supervisors will be triggered if workers are detected within the high-risk zone, to ensure that a fall prevention plan is in place.





LIFTED LOAD

1 Identify high-risk zone

Area to receive lifted load is defined as a high-risk zone depicted by a red boundary.

2 Detect lifted load

Lifted load is automatically detected to determine the fall path.

3 Triggering of Alert

An alert to supervisors will be triggered if any workers are detected within the high-risk zone and fall path of the lifted load.

DANGER

Partners in Co-Creation

More than just flat owners, our residents are instrumental in shaping active, thriving communities in HDB towns. With the many community programmes introduced to spur ground-up participation, more residents have been playing an active role in co-creating and enlivening community spaces in their neighbourhood.



(Right) A group of Woodlands residents came together to create a hydroponics garden for their community, which was one of the three winning ideas at HDB Build-a-thon 2019







Like a plant that grows from a single seed, the hydroponics farm in Woodlands Glen sprouted from an idea to engage the community through a spot of gardening. Inspired by the success of community gardens elsewhere, Mr Leon Yeo and his neighbours turned a common green area in their precinct into a 30 square metres high-tech hydroponics farm, about half the size of a 3-room HDB flat.

With the help of eco interest groups, the team rallied over 200 residents, many of them young families, to get involved in the gardening activities. They got to know each other better over eco-talks and workshops, as well as through planting and harvesting edible greens such as chye sim and Chinese cabbage.

This unique urban garden, named Hydroglen, was one of three winning ideas at Build-a-thon 2019, a competition that encourages residents to propose and implement ideas, which can enliven communal areas, build neighbourly bonds, and create pleasant environments for the community and their families.

01 The community garden has brought residents of all ages together as they plant and harvest their own edible greens



02

A Livelier Neighbourhood

Build-a-thon is into its third edition, and eight ground-up initiatives from its 2019 run have been or are in the midst of being implemented. These include ideas to inject buzz into underutilised spaces, and void deck revamps that turn them from plain to photo-worthy.

This year, to lend greater support to the ideation process, HDB even organised a Design Thinking course for participants, where they learnt to sharpen their proposals, develop prototypes, and test their solutions with the end user in mind.

Apart from providing a platform for ideas to take shape, HDB also set up the Friendly Faces, Lively Places (FFLP) Fund in 2016, offering residents up to \$20,000 to bring their community project proposals to life.

The FFLP Fund was extended to HDB shop tenants, lessees and Merchants' Associations in 2018, so that they, too, can carry out community bonding activities in their neighbourhoods.

The fund has inspired numerous projects in various HDB towns, including handicraft-making sessions in Pasir Ris and Tampines, a heritage photography exhibition in Jurong, and a play yard in Aljunied with swings and gardens that residents co-created so people could come and gather.

02

The team behind the hydroponics garden working on their prototype at a Design Thinking workshop organised by HDB and Republic Polytechnic

A SPACE TO CONNECT

A series of 3D murals depicting different eras of Singapore's development adorn the walls of a void deck in Woodlands Drive 62. A plant wall, as well as additional lightings, has also been installed, adding to its Instagram appeal.



03

'Konnect Point' is the brainchild of a 10-member Build-a-thon team who wanted to create a space that could bring together neighbours of different ages. In refreshing the void deck, the team, comprising Woodlands residents and students from Republic Polytechnic, also sought the support and ideas of some 230 residents in the area.

The end result is a popular hangout where residents young and old come by to pose for photos, and bond over traditional games such as hop-scotch and snake-and-ladders, which were installed using floor decals.

Encouraged by its initial success, the team holds monthly breakfast events at the space, attracting over 100 residents each time. Over food, residents engage in friendly competition over old-school games such as marbles and 'five stones', or take part in workshops and community flea markets.

03-04 Residents have been delighted by the rejuvenated void deck, which is now adorned by vibrant and colourful 3D murals



04



05

05 Residents of Canberra designed and built Singapore's first community-built playground

06 FOH Volunteers like Jack Lee play a key role in engaging residents and facilitating community discussions



06

Volunteer for a Cause

In another part of the island, a group of residents is taking steps to enliven their living environment through play.

Over numerous weekends, Jack Lee, a 23-year-old architecture student from NUS, joined an HDB team in taking some 300 residents through design workshops to decide on the play components that will go into Singapore's first community-built playground, the Build-a-Playground @ Canberra project. These include slides, bridge and climbers.

"I enjoyed helping the residents envision what the space can be, rather than an area that they just pass by every day," Jack said.

Jack is one of the many volunteers under the Friends of Our Heartland (FOH) network. Started in 2017, the volunteering network encourages residents to contribute to the community through different programmes and activities. With three key tracks – Cultivate, Activate, and Facilitate, the FOH network caters to participants with varying levels of experience, skills and resources.

Besides participating in outreach events, initiating community projects, and engaging the elderly, trained volunteers also help facilitate community discussions on neighbourhood rejuvenation and development plans.

The role of volunteers is essential in soliciting ideas and suggestions from residents to ensure that the project will meet the community's needs. To bring Singapore's first community-built playground to fruition, the FOH volunteers dedicated their time to the Build-a-Playground @ Canberra project, working with HDB to plan and carry out resident interviews, a pop-up roadshow, and design workshops.

Such efforts to encourage community ownership have paid off. 98% of the participants said that they felt a stronger sense of ownership and are inspired to be more involved in their community in the future.

FOH volunteers have also been seeking ideas from residents in Toa Payoh, Woodlands and Pasir Ris since early 2018 as part of Remaking Our Heartland 3. Through street interviews and workshops, volunteers have helped gather the community's views on the preferred activities and spaces to be enhanced for the town-wide renewal programme.



07

Supporting Budding Innovators

Additionally, as part of ongoing efforts to foster stronger community involvement, HDB has steadily built on its successful Cool Ideas for Better HDB Living initiative, which was first inceptioned in 2011. What started out as an online crowdsourcing effort for fresh ideas to enhance the HDB living environment has since expanded into a hackathon, with a stronger focus on scalable Information and Communication Technology-based solutions.

The Cool Ideas initiatives have generated hundreds of ideas from participants of diverse backgrounds, all looking to make a difference to their community.

To help bring good ideas to life, HDB subsequently introduced the Cool Ideas Pitch, which offers budding innovators access to mentorship, guidance and resources from industry experts. Seed funding, in the form of the Cool Ideas Fund, was also made available to help close the gap between ideas and implementation.

A solution that has been implemented is 'Speedoc'. Recognising the demand for house-call doctor services, especially among a growing ageing population, Dr Shravan Verma developed a mobile application that can quickly and conveniently connect house-call doctors with patients who need medical attention, around the clock.

Speedoc has since been adopted by Microsoft Singapore, with plans to tap into the latter's technical expertise to scale up service delivery through the use of data analytics. [d](#)



08

07 The Speedoc app, an idea pitched under the Cool Ideas for Better HDB Living initiative, offers users quick and convenient access to medical attention

08 The team behind Speedoc recognised the growing demand for house-call doctor services

A Journey in Service Transformation

The HDB Service Master Plan was drawn up to ensure that HDB customers are cared for at every stage of their service journey. By leveraging Design Thinking and technology, HDB is providing a more convenient and personalised experience for its customers.

(Right) HDB explores the use of technology to improve service delivery for its customers





Visit the HDB Hub at Toa Payoh on a regular working day and you will find its Atrium bustling with activity. Colourful and bright with a welcoming, homely vibe, the first storey of the Atrium was revamped in 2016 to uplift the service experience for HDB's customers. Besides a visual overhaul, Design Thinking was also applied to simplify processes and provide practical solutions that cater to the needs of customers with different levels of digital savviness.

Today, electronic services at the Atrium are made more accessible for the public. Most customers can simply walk up to an electronic queue kiosk for a ticket, or opt to register for a queue number on their mobile phones via the Mobile Concierge feature on the Mobile@HDB app. HDB Service Ambassadors are on hand to lend a hand to customers who require more guidance.

These are steps HDB has taken to simplify the service journey, with plans to introduce more appointment-based services so that customers save time from waiting in line.

Additional enhancements have been progressively rolled out since the revamp of the Atrium, including a video analytics solution to study crowd patterns. By learning from data, HDB is able to estimate periods with higher volumes of customers, and better deploy manpower so customers can still be served in a timely manner during peak periods.



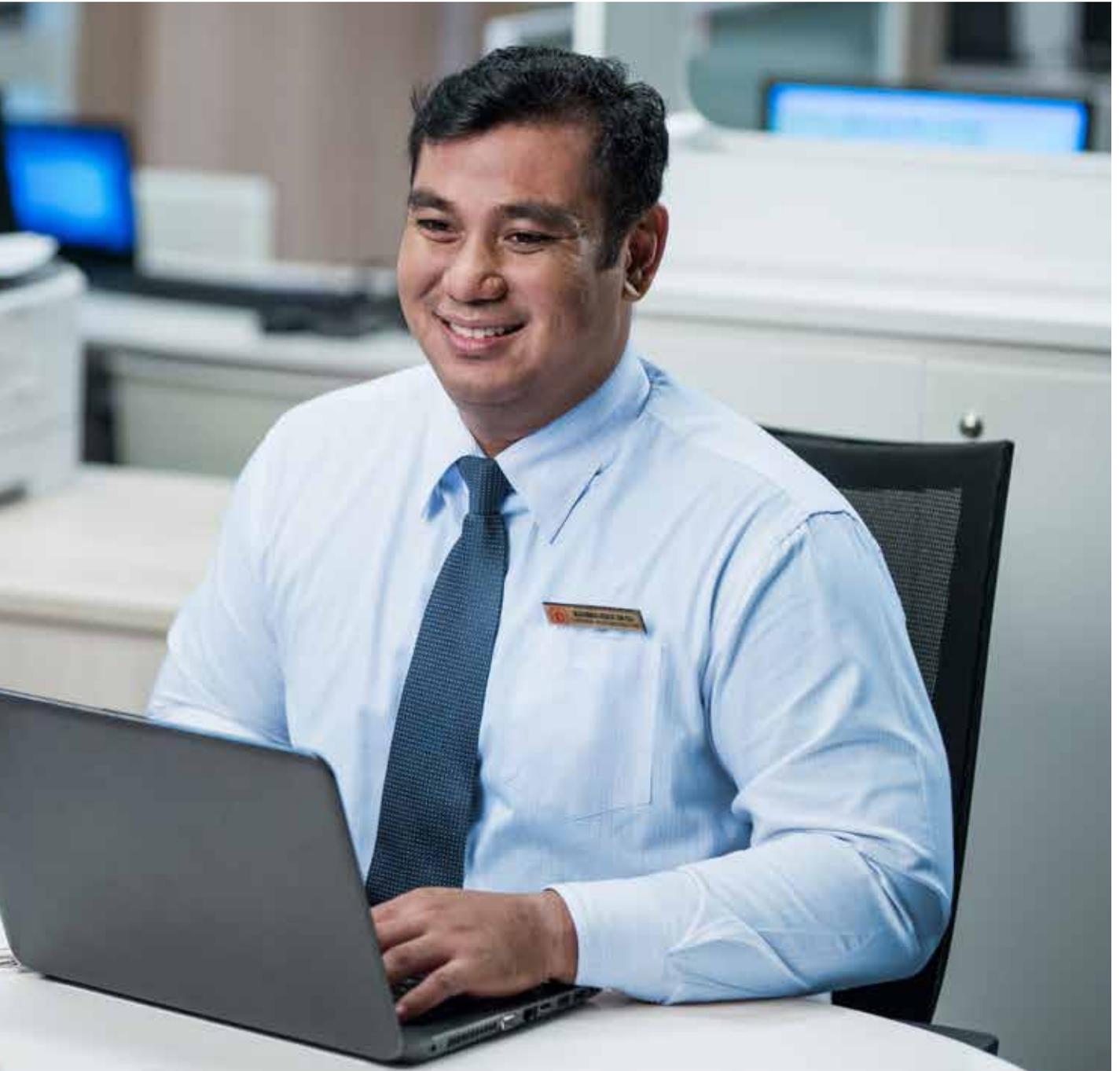
Putting Customers First

With over 80% of Singapore's resident population calling HDB flats their home, HDB handles a staggering number of enquiries at its various customer touchpoints. Every year, around 2 million queries are attended to at the service counters, over the phone, and via email correspondences.

HDB's customer base is also diverse in its profile and needs. Ensuring that customers, ranging from first-time homebuyers to homeowners, experience smooth and memorable service journeys is a multifaceted challenge.

"HDB places a large emphasis on understanding our customers so that we can better address and anticipate their needs," says Senior Organisational Excellence Manager Yang Xiaoli. "We want our customers to feel assured and cared for, and our goal is to provide them with a positive and seamless service experience throughout their journey."





Embracing Digital Service Delivery

In keeping pace with Singaporeans' lifestyles and preferences, HDB has introduced and encouraged the use of digital channels where possible.

As HDB's main digital storefront, the HDB InfoWEB receives more than 2 million views a month. To help customers navigate the HDB InfoWEB, HDB's Information Services Group developed and launched AskJudy, a virtual assistant that provides instant replies to online enquiries. Through collating and observing common questions from users, AskJudy is trained to respond to a variety of enquiries, from applying for an HDB housing loan to checking the latest transaction prices of resale flats.

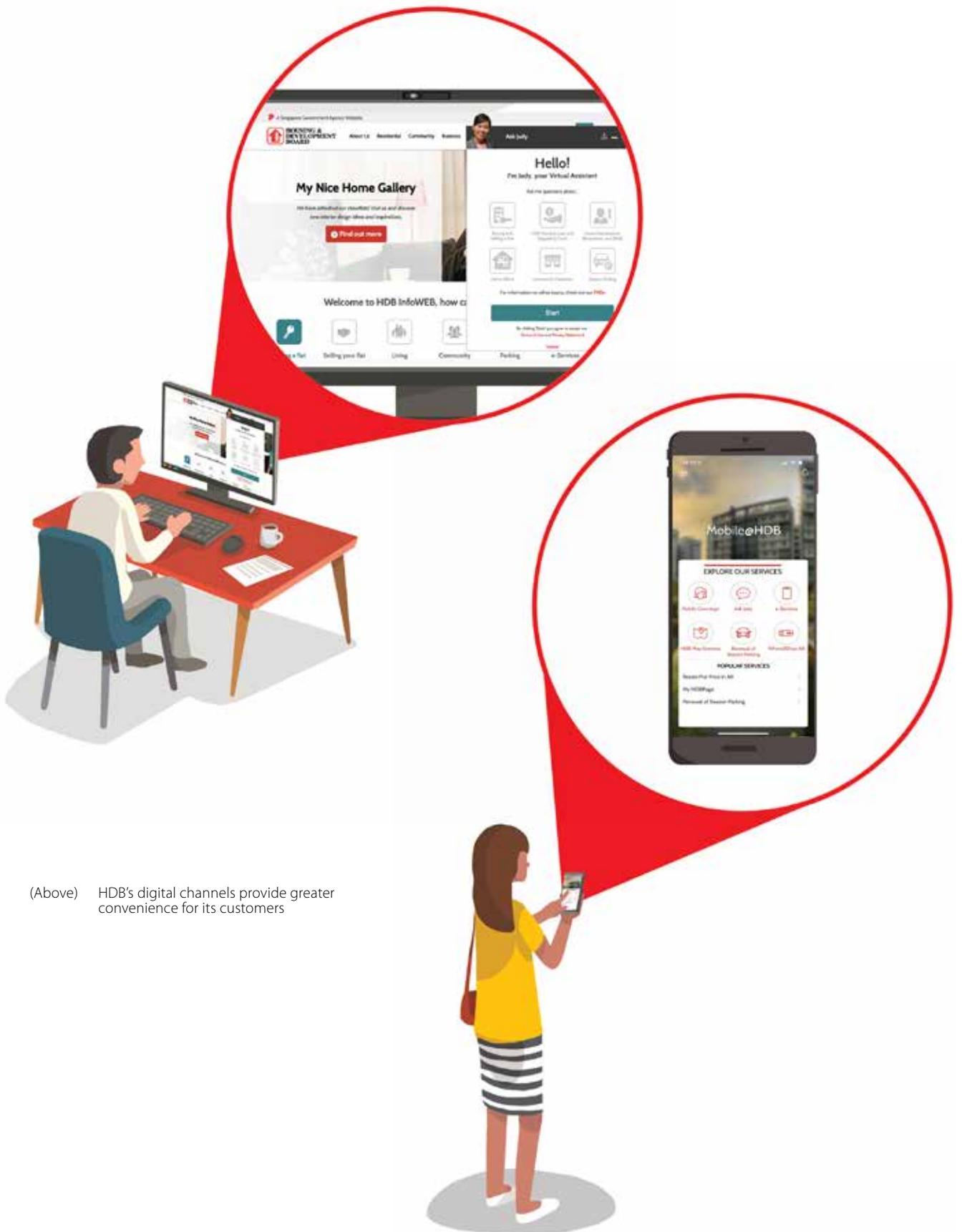
Some 200 e-Services are also available on the HDB InfoWEB and mobile platform, with about 50 million transactions completed digitally in 2018. Together with the AskJudy chatbot, these e-Services have proven popular as they reduce the need to call, write in, or visit HDB for simple business transactions and general queries.

For first-timers Youwen and Paopao, the process of purchasing their home turned out to be smoother than they expected. "Our experience with buying a BTO (Build-to-Order) flat was hassle-free, because most of the processes could be conducted online," Youwen shared. "We also found it really useful that we can retrieve all the details about our flat via My HDBPage any time," Paopao added, referring to the personalised portal on HDB InfoWEB, which displays customers' transactions and correspondences with HDB.

Even as HDB taps into technology to provide more convenience for customers, the human touch remains invaluable, especially at significant junctures in one's flat purchase journey, such as the collection of keys or flat transfers when homeowners pass on. "Through digitalisation, we can resolve customer needs more quickly and efficiently. It allows us to dedicate more resources towards high-touch transactions, where face-to-face interactions are still critical to serve our customers personally at key moments of their housing journeys," explains Xiaoli.

HDB is also implementing 360° virtual tours so that homeowners who are due to collect their keys can experience an immersive experience, such as a walk-through of their new BTO/SERS (Selective En bloc Redevelopment Scheme) flat on their mobile devices.

For resale home seekers, HDB has similarly sought to improve the process for them. This includes the popular augmented reality tool within the Mobile@HDB app, which was launched in 2015 to allow home buyers to look up resale prices of HDB flats. Users point their camera at an existing flat or area they are interested in, and the app will pull up the latest resale transacted prices, availing information at their fingertips promptly with technology. Since 2017, HDB's Resale Portal has also streamlined the buying process for both buyers and sellers into a single platform, reducing the number of appointments required with HDB.



(Above) HDB's digital channels provide greater convenience for its customers



02

Transforming the Ways of Work

At HDB, enhancing the service experience for customers has also involved transforming its internal processes.

For example, effective from the May 2019 BTO sales exercise, the balloting time for new BTO flats has been reduced from 6 to 3 weeks. This was achieved through streamlining internal workflows.

The Housing Management Group (HMG) has reimagined the delivery of housing management services by pursuing new ideas and building capabilities. The first 24/7 e-Lobby at Bukit Panjang Branch ushered in a new way of operation for HDB Branches. The e-Lobby is equipped with self-help machines, such as e-kiosks, and cash payment and AXS machines, so that customers can access HDB services at any time of the day. Data analytics is used to track public usage of the e-Lobby to cater for more future improvements.

To further reduce counter transactions and cash collections, HMG is looking to introduce more new digital payment modes, such as PayNow Corporate. By moving to digital services, the opportunity then arose for staff to acquire different competencies to perform higher value-added tasks.

“It has been heartening to see our staff take on their new roles eagerly and step up to the challenge of upskilling themselves,” says Group Director Derek Tan. “We are committed to transforming ourselves digitally, leveraging data and technology, so that HDB can be agile and adaptable in meeting our customers’ needs, ensuring that they are cared for at every stage of their housing journey.”^d

02

Customers cut down on waiting time when they transact with HDB at e-kiosks



Meet the Dwellers – A Cut Above the Rest

Behind the neat, ordered facades of HDB blocks is a living compendium of lives, people and stories; some more colourful than others, but all unique and interesting in their own special way. A barber offers more than just haircuts in her heartland shop, as she seeks to bring people closer together and make a difference in her community.



01

Tucked away in the quiet neighbourhood of Bedok North Street 3 is Limpeh Barbershop. It sits along a row of heartland shops, and it is not just a barbershop for elderly gentlemen, as its name suggests (*'limpeh'* is a Hokkien term which means “your father”). This is a barbershop for the community.

At its helm is Siti Rafidah, who chose to set up shop in the town that she has called home her entire life. Her barbershop is a stone's throw away from the bustling Bedok town centre, nestled amongst a range of shops that serves the community's daily needs, such as a traditional bakery and a convenience store, and in an area where life moves at a comfortable and leisurely pace.

Amidst Familiar Faces

The familiar faces, sights, and sounds of Bedok made it easy for Rafidah to decide to ply her trade there.

“I know who's who in this neighbourhood. And most of them know me as well, especially the aunties and uncles. They recognise me as the only woman running a barbershop around here, and the only person with such striking blonde hair!” says Rafidah, pointing to the top of her head.

She adds that she often bumps into her customers at the supermarket or coffee shop when she is off duty. “It's always nice to chat with them. I can't think of a more perfect place than Bedok to run my barbershop.”

Bringing People Together

Barbering is something Rafidah fell into by chance and grew to like while doing research on men's grooming for her final year school project at the Nanyang Academy of Fine Arts.

She now sees a stream of regulars, including those who have been with her since she first started out 5 years ago. She speaks fondly of an elderly wheelchair-bound customer, who would insist that



02

only Rafidah cuts his hair. When he started missing his monthly Friday snips, a worried Rafidah enquired after him, only to discover that he had been hospitalised.

“When he came to my shop again for a haircut, he had actually come straight from the hospital!” she recalls with a laugh. Since then, Rafidah regularly checks in on the customer’s condition.

This, Rafidah believes, is what makes heartland shops like hers so important — they have the power to bring people closer together. “Here, we look out for one another,” she says.

01-02 Rafidah and her team of barbers serving customers amid the vibrantly colourful walls of the barbershop

03 Rafidah’s favourite tools of the trade



03





04



05

05 Rafidah chatting happily with a customer as she cuts his hair

06 Photos of Rafidah with her loved ones and customers adorn the mirror

More Than Just a Haircut

Through Limpeh Barbershop, Rafidah has been able to grow her passion for barbering and also give back to the community in a way that she knows best.

Particularly close to her heart is a group of boys she often sees walking past her barbershop. Having seen them grow up and being familiar with their disadvantaged backgrounds, Rafidah took it upon herself to play barber — and confidante — to the boys.

“I cut their hair for free and sometimes my barber chair becomes a counselling chair, where they tell me the problems they are facing at home or in school,” she says.

“I don’t ask for anything in return — other than that they finish school and get a good education. Through this simple act of giving them a haircut, I want them to know that there is someone out there who cares and looks out for them.”

Rafidah is not just the boss of Limpeh Barbershop — she is the heart and soul of the place as well. [d](#)

1 1 dwellings

HARMONIOUS LIVING AT ITS BEST

Editorial Adviser

Joyce Ng

Editor

Foo Siew Shyan

Print & Online Team

Nur Raihana Muhamad Razali, Nicholas Yau,
Farihin Khairunan, Britina Tan,
Liao Youqing, Atikah Abdul Razak, Briana Tan

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HDB Hub 480 Lorong 6 Toa Payoh
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Tel: 6490-1111
www.hdb.gov.sg

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Contact

For feedback and contributions, please email the *Dwellings* editorial team at dwellings@mailbox.hdb.gov.sg. Please also let us know if you wish to receive a print magazine.

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