

## When high-rise living gets a lift

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*Data tracking vertical movement can help guide decisions on where to place amenities in high-rise buildings to foster interaction.*

Singapore's very own Kampung Admiralty has earned the premiere accolade for architectural design - named Building of the Year at this year's World Architecture Festival. The winning design team at Woha Architects made creative use of the modest 0.9ha site with a 45m height limit, combining a sheltered plaza for community events with commercial spaces, a medical centre, and a community rooftop farm, along with childcare facilities and studio apartments for the elderly, all in a 12-storey complex.

This win gives a resounding stamp of endorsement to the idea that high-rise complexes can provide a comprehensive suite of synergistic amenities while offering good quality of living. More importantly, it is a strong signal of promising trends in the future evolution of Singapore's urban landscape.

As the city-state has always been land scarce, building vertically was an unavoidable necessity in the early years of nation building. Housing Board (HDB) flats and skyscrapers dot the island, along with the more recent emergence of vertical farms.

Although the Singapore skyline is often depicted with a few iconic skyscrapers, there are approximately 5,000 tall buildings (defined as being at least 35m or 12 storeys high), according to government figures.

This number significantly increases if one includes buildings that extend underground into basements. Verticality thus truly pervades Singapore's built environment and one could argue that it even percolates down to landed houses, which have only gained height in recent decades.

Whereas life in a vertical cityscape is second nature to residents here, high-rise urban living is associated with various ills in many parts of the world.

In some countries, high-rise low-cost residences are denigrated as anonymous spaces with uncomfortably large population densities that are devoid of a sense of community, where crime and disease run rampant, and isolation threatens individual well-being. This is best exemplified by the deprived "banlieues" encountered at the periphery of many cities in France.

Singapore's HDB flats have been largely successful in avoiding these pitfalls through constant refurbishment and enhancement of communal services and amenities that add vibrancy to neighbourhoods.

Yet high-rise living in Singapore can also be atomised. When the lifts did not previously stop at every floor of old HDB blocks, the landings of the floors on which they did stop became natural venues for neighbours to converge and exchange greetings.

With progress comes convenience and HDB residents can now simply take the lift to and from the level on which they live, with a diminished chance of encountering or socialising with their neighbours. Indeed, in the unfortunate instance of reported crimes, it is not uncommon to read of neighbouring households not having known or interacted with the victims.

There is therefore considerable room for design interventions that can help foster greater interaction in the urban environment, so as to engender a livelier sense of community and nourish bonds between co-existing households.

The Kampung Admiralty approach of interweaving essential services with commercial offerings that cater to a diversity of people therefore deserves closer study to identify how particular design decisions can have particular ramifications, felicitous or otherwise. It is a worthy venture in urban planning that allows us to reimagine urban living so that it is not only more satisfactory, but uplifting as well.

Besides such design innovations, we can give urban planning a further shot in the arm by astutely harnessing Big Data. The growing ubiquity of smartphones has enabled scientists to track human movements at high degrees of accuracy and granularity. Such information has uncovered the phenomenon of "burstiness" in human dynamics where long lulls of slow activity are punctuated by brief windows of intense activity.

These "wicked bursts" explain why the best planners are systematically challenged when new infrastructures are inaugurated. In some instances, these challenges persist and grow over time due to an amplification of the bursts. For example, anyone alighting at Kent Ridge MRT station during school and office hours is bound to be engulfed in such a burst.

Complexity scientists have started to analyse such trends to better inform the planning of built environments, crowd management, traffic flows and emergency procedures. Hitherto though, such research has focused more on horizontal mobility patterns-having been primarily conducted in North America and Europe, regions that are characterised by a horizontal urban sprawl as compared to Asia's mega cities that favour vertical expansion.

Our understanding of vertical mobility patterns is thus nascent but can now be considerably enriched with the already existing sensors embedded in our smartphones and smart watches. We are therefore capable of tracking in great detail how people move up, down and across our urban landscape.

A complete appreciation of vertical mobility patterns can more effectively unlock the potential of vertical urban landscapes. Specifically, in integrated high-rise complexes such as Kampung Admiralty, how does the relative placement of essential services, communal spaces and individual abodes facilitate or hinder particular forms of mobility and social interaction?

How can the linkage of such diverse spaces via staircases, escalators, lifts, travellers and ramps smoothen the path for residents, enabling them to seamlessly transit through the different levels of the complex as they go about their daily routines? How does interspersing communal spaces with commercial amenities encourage inter-generational mingling?

Singapore's push for a smart nation must therefore be boosted on all fronts. Not only must we strive for positive outcomes that raise the quality of life for all residents, we need to fortify the pool of urban planners, architects and engineers who can marshal urban analytics to make more enlightened design decisions for positive impact.

At the same time, we should deploy the latest scientific advancements in data gathering and analysis to distil deep insights about human mobility, traffic flows, energy use, waste generation and

environmental pollution to build a more sustainable and liveable urban environment. With this strategic confluence of efforts, we can lift urban planning in our vertical cityscape to the next level.

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