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PLANNING & GOVERNANCE
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Rethinking Planning Paradigms in the Wake of COVID-19

Singapore's public housing towns are designed using the neighbourhood concept, where localised facilities like shops, multi-generational playgrounds, community gardens and amenities take care of residents' most day-to-day needs.
Image: Centre for Liveable Cities

The COVID-19 public health crisis has transformed the way we live, work, play and learn—creating economic downturns and disrupting supply chains, among other upheavals. To ensure that cities and people are resilient against future pandemics, governments will need to re-think planning paradigms, innovate and inspire behavioural change.

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> **Physical and behavioural paradigm shifts must go hand in hand. For a city to be resilient, we need everybody to work together.**
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Over the last two decades, the world has seen up to five pandemics. The advent of COVID-19, one of the biggest public health crises of all time, has also forced us to reconsider deeply held beliefs about good city form and urban planning. What should we do to make our cities more resilient?

Changing Paradigms: Disrupted or Accelerated

Health concerns have always informed planning and urban design. Poor sanitation, crowded living conditions and pollution in Britain at the end of the 19th century sparked the Garden City Movement. Noted architects, such as Le Corbusier, were mindful of health considerations and lifted some of his buildings off the humid ground to avoid contamination.

Much of what cities are currently doing in response to the pandemic—from quarantines and lockdowns to working from home, wearing masks and so on—borrows from frameworks used to protect the occupational health of workers. These pandemic mitigation strategies will influence the way the built environment is planned and designed.

However, even as the world adopts these measures, there remain many uncertainties. How long will the pandemic last? Will there be recurring lockdowns? Will telecommuting and e-commerce be sustained? And what will the impact be—on productivity and creative collaboration, or on educational, dining and retail experiences?

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There are some planning paradigms that drive the way cities are planned. For example, most cities are constrained by limited land. Driven by the imperative of efficiency, land use planning aims to optimise land and resources, which generally leads to higher density developments. Cities that thrive on trade, such as Singapore, have invested heavily in transport infrastructure like ports and airports. With globalisation, cities have also outsourced much of their production to cheaper locations.

Pandemics such as COVID-19 force us to re-think some of these paradigms. This is not to say that we need to throw out what we've been doing: indeed, many planning paradigms are likely to continue or even accelerate. But we may have to layer on new considerations.

For example, supply chain disruptions have derailed and slowed construction and manufacturing activities.

Geopolitical imperatives are driving a shift from globalisation to glocalisation. There are now calls to shift production of essentials and medical goods back home. Travel restrictions threaten the hub position of key cities and have decimated tourism. Such changes demand new strategies to ensure that economic activity and growth can continue. In terms of environmental and spatial considerations, there are also calls for de-densification, with a new focus on living conditions and spacing out peak commuter traffic.

How then do we find new ways to live, work, play and learn in the post-COVID environment? What shifts in urban planning and design do we need to make?

### From Just-in-Time to Just-In-Case

One initial shift is to reframe our planning from a just-in-time to a just-in-case approach: to rethink efficiency versus contingency. To minimise supply chain disruptions, we may have to increase storage capacity to stockpile essential materials, chemicals and medical supplies, as well as build up selected local production capacity. Singapore feels this keenly, because we import almost everything.

Thinking just-in-case instead of just-in-time also means we need land and multifunctional spaces that can be converted very quickly into dormitories and healthcare facilities, or even quarantine facilities if large numbers of people are infected in a pandemic. Zoning regulations may need to be reviewed to afford more flexibility for land use.

Food resilience is another challenge—particularly for Singapore, which imports more than 90% of our food. A diversification strategy has served us well in the past, but many countries are also feeling the pressure of the global pandemic. So we need to identify even more food sources to ensure continuity of supply. Singapore is also ramping up local production and intensifying urban farming, targeting to produce 30% of our nutrient needs locally by 2030.

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During the coronavirus pandemic, available land at Tanjong Pagar Terminal, Singapore was used to house COVID-care facilities.
Image: Hit1912 / Shutterstock.com
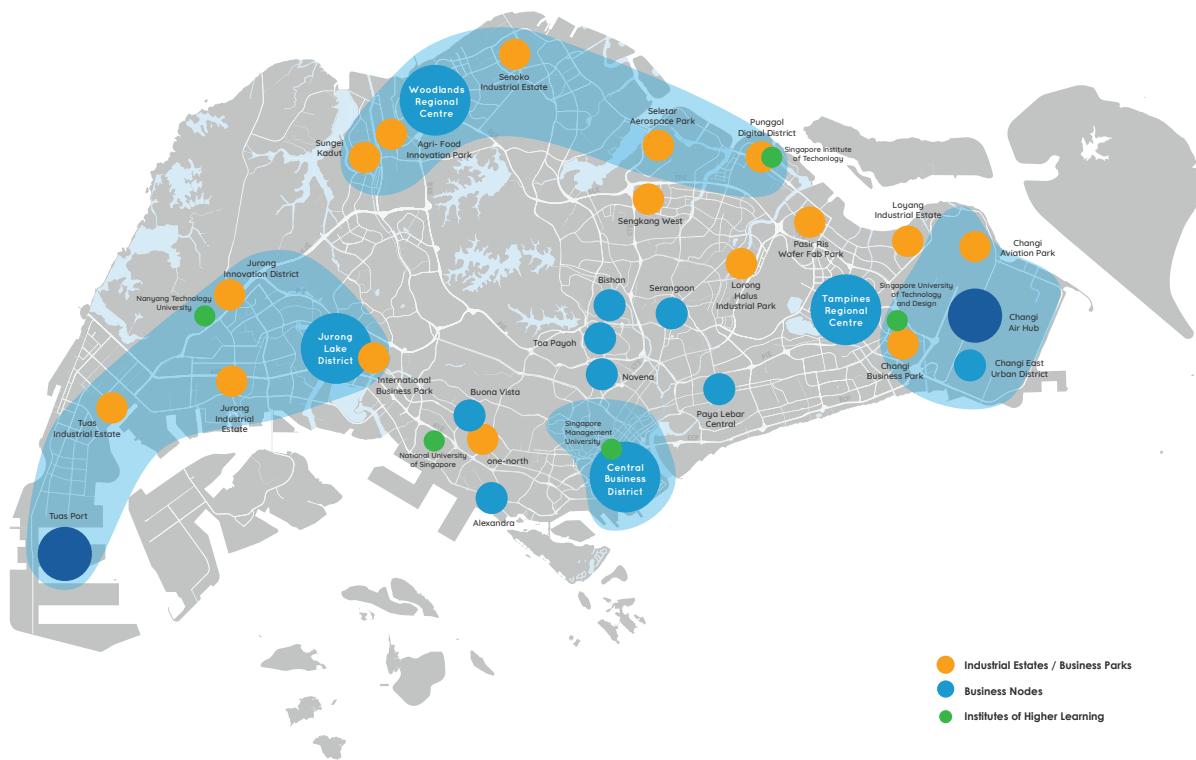
At the national level, Singapore has been developing as a polycentric city with regional centres in different parts of the city-state so as to bring work closer to homes.
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> **The key is to adopt a more decentralised spatial strategy—dividing up the city into various self-contained zones.**

From Borderless to Bubbles

Another shift is from going borderless to creating bubbles. This means attempting to ring-fence clusters of infection within a specific geography—at different scales—to minimise the spread of infection. Hence, countries are creating travel bubbles and fast lanes for visitors from some countries with low rates of infection, while quarantining those from other countries with higher infection rates.

On a national scale, planning should aim to reduce the concentration of people in key areas such as the CBD and reduce peak-hour commutes on public transport. The key is to adopt a more decentralised spatial strategy—dividing up the city into various self-contained zones.

Fortunately, Singapore has already been developing as a polycentric city over the years: this spreads out

jobs and amenities so workers do not have to travel across the island and crowd public transport to work in the CBD.

At the neighbourhood and district levels, there can be more self-contained neighbourhoods. In Singapore, more than 80% of the population are already housed in public housing towns, each comprising several neighbourhoods of about 4,000 to 6,000 units each, all well-served by shops and amenities and accessible by walking and cycling. Each neighbourhood is in effect a self-sufficient bubble, minimising the need for residents to travel to amenities elsewhere.

For individual buildings, we can decongest offices and space out workers, designing bubbles around each person with sufficient spacing, while compartmentalising common

From Densification to Distributed Density

spaces like pantries and toilets. We can consider contactless fittings and improve air quality with better air filtration systems. Restaurants will need more space because fewer people can be safely seated indoors. We can promote takeaway meals or more outdoor eating—Singapore's hawker centres are a good typology—and have more queuing space within and outside shops. For residences, we can design flexible layouts for multifunctional spaces to support working and studying from home.

Does this mean urban density is doomed? High density cities are hubs of innovation and engines of growth; they are more efficient and sustainable than urban sprawl, accommodating the large numbers that flock to a city for jobs and amenities. Interestingly, highly dense cities like Hong Kong and Taipei have contained COVID-19 reasonably well. The challenge is to find innovative ways to accommodate large numbers of people by combining design with lifestyle changes.

One design challenge is mass communal living in dorms, nursing homes and hostels—potential

infection hotspots in a pandemic. For example, in a worker dormitory, distributed density means that groups of workers should be housed in different blocks, with each block ring-fenced to minimise inter-mingling. Singapore had to address these norms when a serious COVID-19 outbreak occurred in our migrant worker quarters. We will be building new quarters with better standards and more space per person in the longer term.

We need to re-establish confidence in the notion of density. This means liveable density and quality living conditions that can benefit all residents.

During the lockdown, Singapore deployed food vans to public housing apartments so the elderly could buy their groceries close to homes without having to travel to shops.
Source: The Straits Times © Singapore Press Holdings Limited. Reprinted with permission

From Liveability to Health and Wellness

Rethinking Urban Services

Going beyond liveable cities, health and wellness must now be a priority in the design and planning of cities, to reduce the prevalence of pre-existing medical conditions that can increase health risks for patients infected with COVID-19.

Singapore has been growing as a "City in a Garden", using holistic and biophilic design principles to promote physical and mental wellbeing. For instance, we provide, within walking distance, more parks and spaces for exercise and relaxation. We adopt sustainable green building designs with better ventilation and air quality, which also reduces the urban heat island effect.

Here, the science matters. We developed a biophilic framework to guide the design and development of our public housing towns, based on research into how greenery contributes to health and wellbeing. At the town and building levels, we deploy tools like wind flow modelling to capture breezes and achieve better air quality while maximising natural ventilation and lighting.

We should also look into establishing bio-secure buildings, with filtration systems for better air flow and fewer high-touch surfaces; and incorporate inclusive design to support special needs groups and an ageing population.

COVID-19 has accelerated digitalisation—but not everyone can go digital. It is important to minimise the digital divide. In Singapore, we set up a SG Digital Office to accelerate digital adoption in our community: helping hawkers to adopt e-payment solutions and seniors to develop digital skills, and putting in place very good digital infrastructure, such as high-speed broadband, so people can work and study from home.

Encouraging telecommuting and staggered work hours are ways to shave off the peaks and decongest public transport. Cities should also cater to alternative modes of transport, like cycling and walking.

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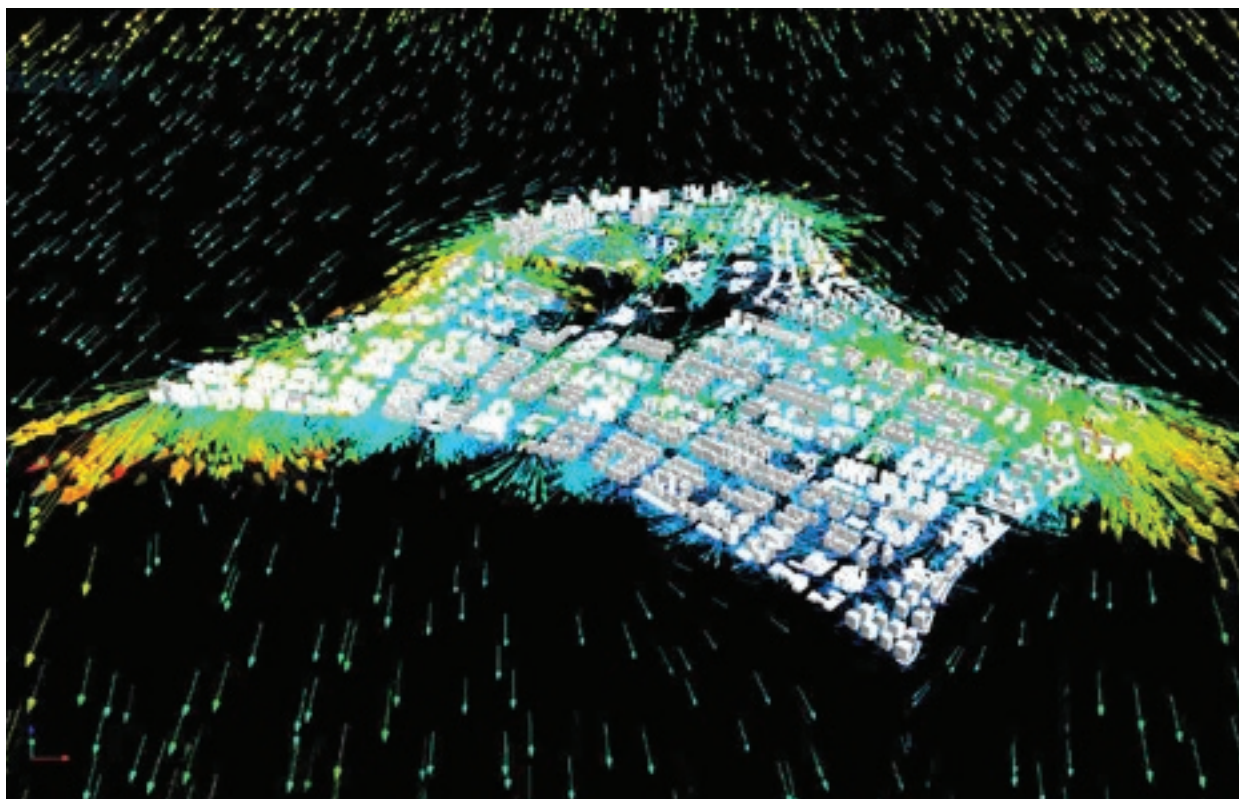
Environmental modelling of Punggol Town allows HDB planners and architects to see the effect of urban design on environmental conditions.
Image: Housing & Development Board, Singapore

A digital ambassador speaks with a stallholder in Singapore as part of broad digitalisation outreach efforts to help businesses learn how to use digital tools.
Source: Lianhe Zaobao © Singapore Press Holdings Limited. Reprinted with permission

Land that is less needed for roads can go towards more greenery and public spaces. But there are other factors to consider: reduced commuter loads may affect the viability of public transport services, for instance. We should also plan for new delivery patterns from accelerated e-commerce, goods movement, urban logistics and the wider use of drones and robots for deliveries.

COVID-19 has led to increased waste production: mountains of biomedical, electronic and takeaway waste are growing. Cities must ramp up the disposal, processing and management of waste—but also educate people to reduce, recycle and reuse rather than throw things away.

Innovation and Social Resilience

COVID-19 has led to many innovations in a short time: the rapid development of diagnostic kits, cheaper ventilators, contact tracing applications, mask technologies and even antiviral drugs and prospective vaccines. Digital innovations in retail, learning, services, culture, the arts and telemedicine will reconfigure the way citizens live, work, play and consume services.

Following this crisis, there could also be greater use of prefabrication, robotics, artificial intelligence, automation and 3D printing, particularly in essential services and the construction industry so as to reduce reliance on migrant workers.

Going beyond COVID-19, cities should ride on this wave of innovation to boost opportunities for urban planning and to advance the healthy development of our cities.

But physical and behavioural paradigm shifts must go hand in hand. For a city to be resilient, everybody needs to cooperate and work together, and to change their social behaviours for the greater good.

Governments play an important role in supporting businesses and job creation, as well as setting legislation for stay-at-home rules and enforcing quarantines and border controls. But it is critical to build social capital and to persuade citizens to be part of the solution, so that they will chip in to help each other cope with new vulnerabilities.