# Learning to be **Smart**

*Singapore is a leading smart city that is challenging Hong Kong to step up its game. We outline where the city-state is spending its resources and political capital to deliver a better country*

By Jennifer Khoo

*Marina Bay, Singapore*

*Photo: Thinkstock*

Energy-efficient buildings in Copenhagen, telecare services in Barcelona and solar-powered waste bins in Yinchuan; these technology-based advances are making our cities smarter, revolutionizing the way we live and work.

In the Asia-Pacific region, few places have shown Singapore's zeal to become a 'smart city'. With the goal of becoming the world's first smart country by 2025, Singapore has been on a long-term mission to build the best digital infrastructure through its *Smart Nation* plan.

This series of government-led policy initiatives is seen by many as the ideal mechanism to deliver tomorrow's cities, and an examination is timely in the wake of AmCham's advocacy of smart growth for Hong Kong.

In Singapore's case, the technology may be new but the challenge has been faced by its government since independence: how to make the island nation, with negligible resources other than the talents of its people, a going concern that continues to thrive.

**Energy and traffic**

The Lion City is also the world's top-ranked smart city, according to research and analytics firm Juniper Research. Last August, Singapore collected more Smart City Asia Pacific Awards than any other country except New Zealand, with which it tied.

Energy imports sustain the country's economic growth, making its conservation a priority. The near-constant use of air conditioning in most homes and workplaces, for instance, is one driver of innovation in sustainable energy management.

Smart housing technology – including renewable energy solutions, 'green' buildings and Internet-of-Things-enabled home environments – is being tested for implementation in Housing and Development Board (HBD) apartments, i.e. the government-managed housing projects where over 80 percent of residents live.

Nearly 1 million motor vehicles were on the road in 2015, according to Statistics Singapore. But under endless pressure to make the most of its limited land mass, building new roads isn't a sustainable solution to Singapore's growing traffic concerns.

By using smart sensor technology and apps for mobile devices, commuters will be able to see when a bus is due and how many seats are free, improving the convenience and appeal of public transport.

**Health and productivity**

Singapore's population is aging. By 2030, the number of citizens aged 65 years and older will have more than doubled, according to the Ministry of Health.

Initiatives in the healthcare system are driven by the limited amount of manpower for healthcare, medical costs that Statistics Singapore says are rising, and what the World Health Organization says is an increasing tendency for longer hospital stays to treat more chronic diseases.

*HBD flats in Singapore*

*Photos: Pixabay*

*Gardens by the Bay*

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## What makes a city 'Smart' ?

A term given to cities that have effectively utilized technology to address a range of urban issues such as energy and waste management, traffic management and congestion, public safety and sustainability.

Hospitals are testing a virtual reality rehabilitation system. With body sensors transmitting data back to the hospitals, patients can carry out their therapy at home, freeing up facilities at hospitals for critical care. Yet more sensors in the homes of the elderly will monitor their movements and send alerts to caregivers if irregular behavior is detected.

*Smart Nation* measures will also be taken in other key areas, including business productivity and public-sector services.

**Master plan**

The Singapore government has made policies and introduced legislation meant to nurture a culture of experimentation and innovation, in the hope that new ideas will eventually be adopted.

In January last year, Prime Minister Lee Hsien Loong announced the Research, Innovation and Enterprise 2020

*Dr Vivian Balakrishnan, Singapore Minister-in-charge of Smart Nation*

***"People will come here and say, 'I have seen the future and it works.'"***


master plan, which outlines how US$13.4 billion should be spent to support science and technology in the public and private sectors. About US$2.7 billion, or the equivalent of about 1 percent of Singapore's GDP, will be spent annually over five years.

With more than 5 million people living on 719 square kilometers of land and an internet connectivity rate of 99 percent, Singapore is an ideal testing ground for new technologies. There are dedicated spaces for public- and private-sector researchers to develop, prototype and test technological solutions.

The one-north business park and science and technology hub is the country's first test site for self-driving vehicles and other mobility concepts, and is also home to a handful of start-up accelerators, venture capitalists and MNCs, who come together to bridge the gap between innovation and enterprise.

**Open invitation**

In his speech at the opening of *Smart Nation* Innovations week 2016, Minister for Foreign Affairs Vivian Balakrishnan, who is the Minister-in-charge of *Smart Nation*, invited investors, application developers, service providers and other companies to come and leverage the opportunities the city offers.

These opportunities, Balakrishnan said, include a market of "5 million human beings, almost every one of whom is carrying a smartphone." A smartphone, he said, is a piece of technology with the potential to


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*Information provided by Smart Nation Singapore*

"acquire and analyze data to create actionable insights and applications."

Singapore is ranked number 10 in the world and first in Asia for its startup ecosystem, according to the 2015 Global Startup Ecosystem Ranking, and second only to New Zealand for ease of doing business, according to the World Bank.

"What we are trying to do in Singapore is create the most conducive environment for people who get it, so that in the future people will come here and say, 'I have seen the future and it works,'" Balakrishnan said.

**Surveillance state**

The obvious challenges facing *Smart Nation* relate to privacy and cybersecurity - both gray areas wherever the collection of personal data using technology is concerned. Even the government has alluded to not knowing the full extent of cyber-risk involved, and appears to be taking a wait-and-see approach.

But for Singaporeans – who have steady faith in the government and are long accustomed to restrictions on their behavior and civil freedoms – a city under surveillance has many advantages, including a more efficient, open society, and greater peace of mind.

The question is: just *how much* privacy are citizens willing to compromise in return for utility, transparency, and predictability? See for yourself, in eight years' time.