Revealed: Singapore's plans for 2050

Exclusive interview with Aaron Maniam, Director of Industry Division, Ministry of Trade and Industry.

Peter Drucker once said that the best way to predict the future is to create it, and Singapore has taken this to heart. Departments across government have built dedicated 'horizon scanning' units for assessing future trends, and shaping their policies to plan ahead.

This includes units in the urban planning division to predict future labour flows and population growth; defence to consider future threats; health to consider changing demographics and delivery structures, and trade and industry, to plan a future economy.

GovInsider caught up with Aaron Maniam – Director of Industry Division, Ministry of Trade and Industry (MTI) – to discuss how the government is coping with a radical shift in the economy towards automation and digitisation. How does a Smart Nation make the most of these opportunities, and manage the fallout?

Planning in uncertainty

Maniam previously headed the nation's central horizon scanning unit before moving to the trade department, where he still works closely with the futures team. He says that horizon scanning teams have two key roles. First, they anticipate "uncertainties" – potential issues that could arise in the economy like a recession.

Their secret weapon in Singapore is the country's Risk Assessment and Horizon Scanning system, a Big Data tool that uses machine learning to sift through massive amounts of economic data, detecting patterns and signalling potential events before they occur.

This allows departments to prepare for 'black swans' – unforeseen events that can quickly and radically change conditions on the ground. In trade, for example, early indicators can allow teams to start planning potential responses, ensuring that government has "the capacity to weather the shock and bounce back as quickly as we can", Maniam says. The 2008 financial crises was one such instance, and the nation has learned a great deal from the fallout.

During the credit crunch, it was the first East Asian country to fall into recession. Singapore is particularly sensitive to economic shifts because of its reliance on global trade. However, resilience planning ensured that – unlike others in the region – it quickly recovered from negative growth to 12.46% GDP growth, exceeding even its 2005 growth level.

"One of the reasons why we were able to do that is because we made sure firms did not lay off their workers," Maniam explains. The Government had plans that subsidised employee costs and kept people in their jobs.

The country invested a record US$13.8 billion (S$20.5 billion) stimulus package on training employees and lowering employment costs for businesses through tax breaks. This kept citizens earning, and also ensured that workers were then equipped with skills that increased their value in the market, he says.

Wave of disruption

The second role of futures teams is to manage "predetermined elements" like changing labour markets or technological shifts affecting the global economy.

3D printing is one such shift, and the MTI is monitoring this closely. The technology has allowed cars and buildings to be built in days with minimal manpower and "in the longer term, if it becomes cheap enough at scale, then maybe all of us can 3D print the things we need", he believes.

That possibility threatens business models, and Maniam thinks it will radically alter consumer habits in an economy that has a strong retail sector. "I might be buying the service to 3D print, rather than the physical product itself", he says. This places a greater emphasis on the value of a design, rather than its manufacture or distribution through local outlets.

Equally, it will affect the nation's role as a logistics hub. What will be the role of ports in a world where people can manufacture their own products? Some of Singapore's traditional advantages from a port economy will be phased out, he believes, and the nation will then need to shift its economic model and reinvent a new role.

Robotics, too, have "immense value" to the nation's economy. The global robotics industry is projected to grow from about US$20 billion today to US$80 billion by 2025. A study by the Boston

Consulting Group also finds that robotics can boost manufacturing by up to 30 percent. Maniam thinks that if menial jobs can be done by automation, there is space for individuals to do more value-added work – and this changes the employment model for Singapore.

"A job is made out of many, many different tasks and roles", and robots don't have skills like empathy; synthesis; and the ability to appreciate complexity and draw links from common scenarios, he says. "If you have a human and a machine together, they will always beat the machine".

Government as a facilitator

To accommodate disruption, ultimately, the role of government is to do what "the market itself has no incentive to do", Maniam explains. This is achieved by building a resilient ecosystem so that firms can thrive in the country. There are many other disruptive technologies like big data, IoT, cloud and artificial intelligence, and they all overlap with one another, he adds.

To build such an ecosystem, he lines out five roles for the public sector: First, it needs to provide training and courses to retrain workers with new skills. The government has outlined a standard framework for courses in industries such as manufacturing, logistics and aerospace. In manufacturing for instance, employees receive hands-on training on how to work with robots.

Training especially needs to support those at risk of losing their job. The SkillsFuture programme also promotes lifelong learning among citizens by providing them with education and training credits worth US$370 (S$500), with further top-ups over their working life. This shifts the education model from training the young.

Second, the government needs to encourage knowledge-sharing among firms to build resilient industry. Initiatives like the 'Launchpad' pools together startups and incubators in a common workspace; meanwhile, the National Robotics Programme facilitates public-private partnerships to pilot innovative tech across healthcare, transport, environment and home security.

Third, public sector can directly provide financial assistance to companies when they're of strategic value to the economy – especially if they're in a new sector where the nation needs to specialise. For instance, SPRING, an agency under MTI, provides grants up to S$50,000 for startups to help them scale and compete across ASEAN.

Fourth, government will have to review existing policies to cope with new trends. In the case of 3D printing, laws on taxable income will have to change, and authorities will have to monitor how someone derives income from 3D printed products. Product ownership laws will also need to be spelled out clearly – is a product owned by the person who manufactured it, or the person who designed it?

Fifth, ministries need to constantly assess whether their regulations match the requirements of a new economy. Part of it is to learn from other countries, but if these are not available, then new standards should be tested before regulations are set, he says. "It's about minimising the harm that can come from different types of technology," he believes. Privacy laws, for example, are an area of great development in a digital economy.

These efforts won't show results at least until the next decade, he says, but they're an investment which government must make. Ministries understand that preparing for the future is just important as drawing insights and reacting to the present. "Government does not have a choice here, we must do both," Maniam believes.

As a city-state, Singapore's position has always been precarious in a global economy dominated by a few big nations and monopolies.

But nimble planning, constant questioning, and a willingness to invest are the Smart Nation's secret tools for building an economy fit for the 22nd Century.