

1960s



This was a period of uncertainty as Singapore faced the prospect of economic stagnation and the need to quickly create jobs for a rapidly expanding population. With no experience in manufacturing, it thus adopted an import-substitution strategy to create jobs in labour-intensive industries. Goh Keng Swee, then Singapore's finance minister, saw potential in Jurong's small hills, mangrove swamps, and crocodile-infested rivers. By 1963, the Jurong Industrial Estate was set up and it became home to factories such as the National Iron and Steel Mills (NatSteel), the Sugar Industry of Singapore (SIS) and Rentokil which produced timber fluid.

1970s



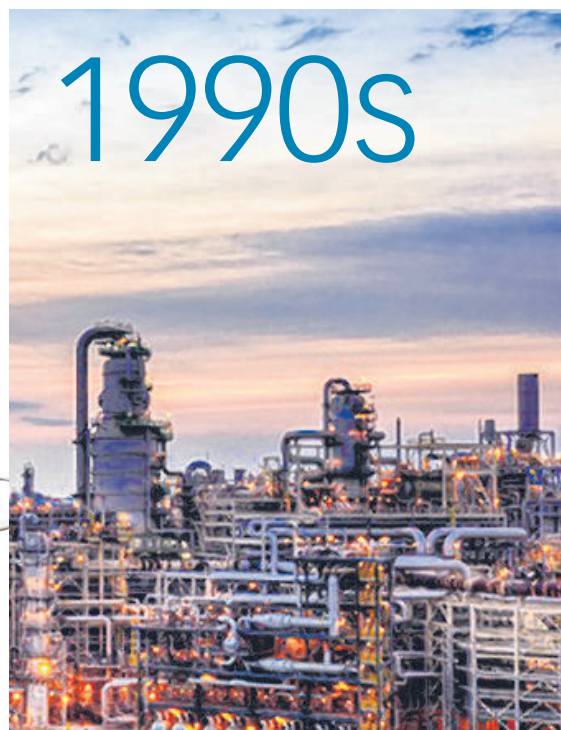
Singapore started to move towards more capital intensive and higher tech industries. There was a continued push to attract foreign investments, with companies such as Phillips, German camera manufacturer Rolleiflex, Hewlett-Packard (HP) and watch-maker Seiko setting up facilities in Singapore. By the end of the 1970s, the manufacturing sector continued to grow to about 25 per cent of the nation's gross domestic product.

1980s



Singapore shifted its strategy to focus on more knowledge-based industries, and more resources were directed to research and development activities. Then came the electronics evolution and Singapore experienced its first disk drive wave. Seagate was the first hard disk drive firm to set up in Singapore. Over time, the hard disk sector grew into a billion dollar industry. At its peak, the sector in Singapore produced 40 per cent of the world's hard disk drives. For those old enough to remember, the Motorola Jazz pagers were assembled here. Apple in this decade set up a S\$25 million outfit to make the Apple II, while HP manufactured scientific calculators.

1990s



Singapore moved to attract global petroleum, petrochemical and specialty chemical companies to the island. Today, over 100 global petroleum, petrochemical and specialty chemical companies are housed on Jurong Island, said to be one of the world's leading chemical manufacturing sites. Semiconductor wafer fabrication companies set up shop in the city-state too.

Manufacturing in Singapore through the decades

A LOOK at some of the iconic items made in Singapore across the past few decades shows how much the city-state has evolved. Over the last 60 years, the nation has shifted from creating labour-intensive goods to now providing next generation technologies and high value products.

The strategy to double down on high-value areas, such as the pharmaceutical,

tech and medical industries, seems to be working.

Last year, manufacturing's share of gross domestic product rose to 21.5 per cent, up from 20.5 per cent in 2019, thanks in part to growth in high value-added sectors such as pharmaceuticals and electronics. *The Business Times* looks back at the nation's manufacturing journey, in commemoration of Singapore's 56th birthday.

BY OLIVIA POH

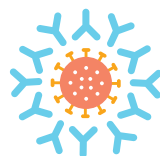
2000s



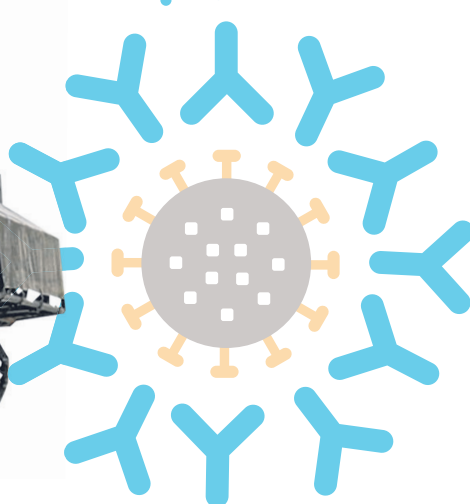
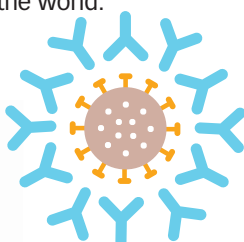
The noughties marked a push towards growing innovation-intensive activities such as biomedical sciences manufacturing. EDB brought global pharmaceutical and medical devices firms here to use Singapore as a base for their global markets. Big pharma – such as GlaxoSmithKline, Pfizer and MSD – established plants to make active pharmaceutical ingredients used in vaccines. The aerospace industry took flight and companies such as ST Engineering started manufacturing aircraft components for cabin interiors. The company also made SAR21 assault rifles (from 1999), 8x8 wheeled infantry carrier vehicles and fast missile crafts.



2010s



Biologics – or products made from living organisms – was identified as a new growth frontier of the pharmaceutical sector and a novel therapy of the future. The 2010s saw Novartis, Lonza, Roche, Amgen, AbbVie set up their biologics plants to produce monoclonal antibodies for the world.



2020 and beyond



Singapore's medical technology sector is growing. For instance, during the pandemic, homegrown startups such as Mirxes collaborated with ecosystem partners A*Star, Diagnostics Development Hub and Tan Tock Seng Hospital to mass produce the nation's first authorised Covid-19 RT-PCR test. Since February 2020, more than eight million Fortitude Kits have been deployed globally.

Dyson is in the midst of setting up its global head office in Singapore's St James Power Station, which will be home to its robotics and other research laboratories. It also has an advanced manufacturing facility in Jurong that builds its patented hyperdymium motors, which is used in products such as its cordless vacuums and hair dryers. The site produces one motor every two seconds.