

BY VIVIEN SHIAO

SINGAPORE'S EVER-MOVING FEAST

The food manufacturing sector here is going through a revolution, with forward-looking firms investing in R&D to meet needs and keep up with the latest food trends

TALK about food manufacturing in Singapore, and it is quite likely that one would conjure up an image of a traditional factory still stuck in the past, run by silver-haired workers toiling over primitive machines or steaming vats of chow. But step into food manufacturing plants operating here and be prepared to be blown away by how modern and cutting-edge the industry has become.

Instead of relying on manual processes and cheap labour, the sector is rapidly shedding its reputation as a sunset industry to emerge as one of the hottest areas to watch as innovation and technology shake things up.

Beyond just using machines to boost productivity gains, the entire food manufacturing sector is going through a revolution, with forward-looking firms investing in research and development (R&D) to meet needs and keep up with the latest food trends, such as health food and nutrition for the elderly.

Food manufacturing is not just about food *per se* – it spans an entire spectrum ranging from food waste to food packaging. Innovative firms in Singapore are making great strides on these fronts by coming up with eco-friendly solutions that reflect the shift in the mindset of consumers today.

This issue, we examine what the future of food manufacturing holds for Singapore and take a look at what small and medium-sized enterprises (SMEs) here are doing to push boundaries.

A TASTE OF THE PAST

As a nation of food lovers that takes gastronomy very seriously, it seems almost inevitable that food manufacturing has a significant role to play in Singapore.

In 2017, the sector contributed 1.1 per cent to the economy, or S\$4.3 billion to Singapore's gross domestic product (GDP), and employed over 48,000 workers. This is a S\$0.5 billion increase in value-add from 2016. Exports make up about 60 per cent of the industry's manufacturing sales.

Kee Ai Nah, executive director, Lifestyle & Consumer Cluster, Enterprise Singapore, says: "With the push towards a higher degree of automation, the jobs in food manufacturing have changed, many from manual and laborious tasks to less strenuous human

complements to technology."

Not only are firms working on their efficiency, they are also looking to stay ahead of the curve through innovation. A recent study commissioned by Enterprise Singapore found that at least one-third of food manufacturers are already doing so.

According to David Tan, president of the Singapore Food Manufacturers' Association (SFMA), there has been an "increased emphasis on innovation" of late. This can be seen in the creation of healthier or new products, as well as the development of food products in niche areas such as ready-to-eat meals, premium food gifts, and nutrition for the elderly.

Technology has also revolutionised manufacturing processes that allow food products to stay fresh for longer, giving consumers more convenience while opening the door for firms to export abroad at the same.

"Many consumers often associate the use of preservatives to extend shelf-life, but this is no longer true," says Mr Tan. For instance, the introduction of the non-thermal sterilisation process such as the High Pressure Processing (HPP) resource-sharing facility – a collaboration between the Warehouse Logistics Net Asia, the Food Innovation Resource Centre and Enterprise Singapore – enables food manufacturers to extend the shelf-life of food products and preserve their nutritional value.

The pay-per-use model allows SMEs to benefit from using state-of-the-art technology without needing to invest in the machinery upfront. Mr Tan points out that many local juice companies, including Juix Up, HIC Juice and Daily Juice, now preserve their cold-pressed juices using HPP technology.

HPP is part of a wider network of shared facilities that provide food manufacturers with ready infrastructure to test-bed new ideas and boost commercialisation efforts.

A small batch production facility within the JTC Food Hub @ Senoko will be ready by the end of 2019 where companies are able to rent advanced equipment on a pay-per-use basis to experiment and produce small batches of new products. According to Enterprise Singapore, more than 15 companies have expressed interest to use the facility.

Richard Khaw, deputy director, School of Chemical & Life Sciences, Nanyang Polytechnic (NYP), says: "It is no secret that



SMART EATS
Vending machine cafes, such as this one at Anchorvale Drive, is an example of how the food sector is using innovation and technology to shake things up

the consistent growth of Singapore's food industry would not have been possible without the country's strong reputation in food safety and quality."

In the near future, the adoption of technology such as blockchain for better traceability of food products is likely to become the norm, which will further build Singapore's reputation on that front, he adds. This comes on the back of strict food standards and regulations to heighten quality and reliability, as well as to improve market access.

With non-traditional food concepts on the rise such as food vending machines and ready-to-eat meals, food safety has become paramount. A spate of mass food poisoning cases broke out last November with a fatality in the most serious case resulting in the termination of a restaurant's licence by the National Environment Agency.

Says Mr Khaw: "By building a well-regulated food ecosystem and high-quality food, the industry will build trust and take Singapore a step closer to become Asia's leading food and nutrition hub."

TAKING A BITE OF THE WORLD

Two local food manufacturers that are proudly flying the Singapore flag are The Soup Spoon and Seng Hua Hng Foodstuff. Both firms say that they bank on the Singapore brand to pave their way overseas.

The Soup Spoon, while known for its food and beverage restaurant chain, manufactures ready-to-eat soups in Singapore and exports them around the world. Anna Lim, its executive director, says: "There is absolutely an advantage for food manufacturers to manufacture in Singapore, to leverage on the 'made in Singapore' branding."

Aside from Singapore's stellar reputation for quality and safety, it also has access to "good quality" imported ingredients to use in their soups, she adds. And with Singapore's free port status and the many free trade agreements signed, it is easier and cheaper to export products overseas, she explains. "Being here in Singapore, we can ensure our supply chain is done properly and hence have better control over our product quality too."

The advancement of technology which allows it to extend the shelf-life of soups from two weeks to six months in a chilled format has opened many doors for it to export its products, notes Ms Lim. And with the confidence that overseas consumers have in the Singapore brand, more are keen to purchase food products from local firms.

Ms Lim adds: "Developing a range of Singapore and Asian-based ready-to-eat meals in a self-venting vacuum skin pack format is something that not many have seen before, and this has gathered a lot of interest and it is something still very new on the global scene, giving the promise of no preservatives and extended shelf-life."

Places that the Soup Spoon exports to include Hong Kong, Bangladesh, Qatar, Sri Lanka, the Philippines, Cambodia, Vietnam and the Maldives. It also has plans to expand into China, Taiwan, Australia, the US, EU and UAE countries, Ms Lim adds.

"We intend to use Singapore as our base for manufacturing and have the soups exported overseas," she explains. "This way, we can control the consistency and quality of our soups and most important the intellectual property (IP)."

One project that she is currently working on is food and nutrition for the elderly, where she is also in the process of creating a series of foods delivered in a soup medium that is suitable for patients with dysphagia. This is a collaboration with Enterprise Singapore, Tan Tock Seng Hospital and NYP.

Family business Seng Hua Hng Foodstuff, known for its Camel Nuts brand, is another home-grown firm which similarly manufactures and exports its food products around the world. According to Poh Shih Yin, director of Seng Hua Hng



Foodstuff, the company exports to more than 20 countries in Asia and the Middle East.

"We have plans to be in all countries in the Asian continent as our products and flavours are currently more suited to the Asian palate," she says. She notes that with the advent of social media, it is "much easier" to reach out to consumers all around the world to create awareness of the brand.

As a food manufacturer, being aware of the latest food trends is key, she adds. In the nuts industry, some new developments that Seng Hua Hng Foodstuff are looking to respond to include the eating-on-the-go trend, due to increasingly hectic consumer lifestyles, and healthier products.

As a traditional brand that has been around for decades, it is also important to make sure that it stays relevant to younger demographics. "We like to pick the brains of the Millennials through collaboration with polytechnics and universities," she says. "Through project work by students, we get fresh ideas for new product development."

Institutes of higher learning (IHLs) are a "good knowledge resource" for the company, she points out. "We definitely cannot afford PhDs and scientists in-house, so collaboration with IHLs provide us the technical expertise that we cannot access otherwise," she explains.

However, the company does have its own in-house research and development team which works on new products. "Innovation

▲ THROUGH THE AGES
Camel Nuts is a traditional brand that has been around for decades, and is aware of the importance of staying relevant to younger demographics



"THE FUTURE OF FOOD MANUFACTURING HINGES ON HOW WE CAN BUILD AN INNOVATIVE CULTURE THAT IS VIBRANT AND HELPS COMPANIES TO BE SCALABLE AND SUSTAINABLE."

— Kee Ai Nah (left), executive director, Lifestyle & Consumer Cluster, Enterprise Singapore

◀ LONGER SELL-BY DATE

The advancement of technology which allows The Soup Spoon to extend the shelf-life of its soups from two weeks to six months in a chilled format has allowed it to export its products

for food products may be a new flavour, or it can be a new way of consuming traditional products, such as on-the-go packs or on-the-go nuts bars," she explained.

As for process innovation, this is usually conducted by attending fairs and market visits to find out more about the latest technology or solutions used elsewhere, she explains.

Both Seng Hua Hng Foodstuff and The Soup Spoon concur that manpower is an issue in the food industry, but digitalisation

and automation have helped. Not only has it cut down the need for additional labour, it also has helped to attract fresh blood.

Ms Poh notes that while there is still the mindset that the food industry is traditional and "tedious work", she believes that fostering a culture of innovation and change will encourage like-minded individuals to join the company.

As the company continues to modernise, it will need more skilled technicians and professional managers, which is what the Singapore talent pool is made of, she adds. "Smaller companies like us have agility and speed that large corporations do not have. This is another attraction for young talents who like the start-up culture and freedom for creation."

MORE THAN FOOD

Food manufacturing is more than just about producing what mainstream consumers eat. Some trends gaining traction include food waste valorisation, food packaging and elderly nutrition.

Tria is a Singapore-based company using recycled fibre to develop food packaging, targeting food and beverage (F&B) players with a sustainability mindset. Ng Pei Kang, founder of Tria, says: "Sustainable food packaging is catching on in the F&B industry but largely still a reaction to avoid consumer flak on petroleum-based products."

He points out that Singapore is making a step in the right direction as straws and lids are gradually being removed from major fast-food brands, but there are still plastics in the remaining packaging that will eventually end up going to the landfill.

However, he is cognisant that it is not an easy decision for businesses to switch to sustainable products and has adapted its approach to make it as easy as possible for clients. "For that, we have applied

empathy to the development of our products and offerings," he says. "We have to be sensitive to the value proposition of the F&B players, and offer a solution that matches up."

In its case, it led to the development of Bio24, a zero waste hassle-free solution for single-use hardware that does not require a change in consumer lifestyle nor change in F&B operations, he says. To keep prices competitive, its factory is set up in China while keeping the R&D and marketing activities in Singapore, he adds.

Another trend is food waste valorisation. UglyGood is a startup looking at ways to turn fruit pulp from juices into products such as animal feed and organic cleaning agent, creating a circular economy around food byproduct wastage in the F&B industry.

According to Jeremy Lee, UglyGood's director of business development, the startup has been able to divert over 50,000 kg of fruit waste away from the local landfill by leveraging on it as a valuable resource. It is currently focused on Singapore, but it intends to scale up to the rest of Asia in the future, Mr Lee adds.

"We believe that thinking global right from the beginning is imperative," he notes. "Of course, being in Singapore also gives us a great headstart, especially in terms of test bedding new innovations, building on our technical core competencies and intellectual property."

As a startup limited by resources, it applies a lean innovation model to its R&D efforts. It has been leveraging on collaborative projects with local research institutions and IHLs. One of its latest projects involves exploring bioprocessing partnerships with A*Star Biotrans to transform citrus peel byproducts into other higher value products such as essential oils and high value enzymes.

DAWN OF A NEW ERA

Even as the future of food manufacturing shines bright, competition is also likely to get stiffer. NYP's Mr Khaw notes: "The opening up of Asean will definitely create more competition for food manufacturers in Singapore as some of our neighbouring countries such as Thailand and Indonesia are also very strong in innovation and technology adoption."

But industry watchers say that Singapore can overcome this by improving productivity and zooming in on R&D to compete. Maintaining quality standards and collaboration through partnerships are also paramount for the sector to move ahead.

Enterprise Singapore's Mrs Kee says: "The future of food manufacturing hinges on how we can build an innovative culture that is vibrant and helps companies to be scalable and sustainable." With all these factors in place, it is not a stretch for Singapore to become Asia's leading food and nutrition hub, she notes.

SFMA's Mr Tan adds: "It is not all rosy – there are challenges for food manufacturers, and we often hear about the increase in utilities, shortage of land and increasing operation cost, among others. But having said that, I always believe that there is never a sunset industry – only sunset thinking." ■