

Unconventional Business: Farming in Urban Singapore

Key success factors and implications to potential ventures

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Urban farming is a strategic move by the Singapore government to build food resilience in a land-constrained city

Singapore is a small country with just 728.3km² of land. Due to competing land use needs, less than 1% of the country's total land area is used for farming. The majority of Singapore's food is imported from more than 170 countries¹. Despite having diversified food sources, the Covid-19 pandemic disrupted supply chains due to various virus containment measures, sparking off waves of panic buying as the public feared a shortage of food and essential items. More recently, an outbreak at the Pasir Panjang Wholesale Centre, which handles about half of Singapore's vegetable imports, led to a temporary supply disruption in September 2021. These events brought food security into the limelight as it has a direct impact on the livelihood of Singaporeans.

The Singapore Food Agency (SFA) revealed its ambitious '30 by 30' target in 2019. The goal is to locally produce 30% of Singapore's nutritional needs locally by 2030. A myriad of government schemes such as the S\$60 million Agri-food Cluster Transformation Fund and the S\$39.4 million '30x30 Express' grant were introduced to provide financial support to [innovative companies which have risen to the challenge](#). The SFA has also launched tenders for more than 10 carpark rooftops in 2020 and 2021 to be used as alternative spaces for urban farming.

On the demand side, consumers were generally receptive to purchasing locally cultivated vegetables that carried an 'SG Fresh Produce' Logo. Many upscale restaurants and hotels have incorporated local produce into their menus to reduce the carbon footprint of their food supply and ensure the freshness of their ingredients. The strong push by the government coupled with an increase in demand for locally produced vegetables contributed to a heightened interest in urban farming. As at October 2021, there are at least 20 urban farms in Singapore operating in both indoors and in rooftop environments.

Urban farms such as Sustenir and Edible Garden City have experienced a certain degree of success

Sustenir Agriculture was established in 2014². This urban farm was conceived when the co-founder came across a Facebook article on the future of vertical farming. This inspired him to leave a banking career in baking in pursuit of urban farming³. It took the company several iterations to alter the taste profile of its produce to appeal to the taste buds of local consumers. Today, Sustenir cultivates non-native vegetables such as kale and arugula in an indoor farm using controlled environment agriculture. It is best known for its kale products which retail at many supermarkets including Cold Storage and FairPrice Finest, and are even used in the menus of dining establishments such as SaladStop! and Les Amis Group.

¹ <https://www.sfa.gov.sg/food-farming/sgfoodstory/our-singapore-food-story-the-3-food-baskets>

² <https://www.mti.gov.sg/FutureEconomy/Leaders-of-Transformation/Sustenir-Agriculture>

³ <https://www.cnn.com/2019/01/11/cnn-transcript-benjamin-swann-co-founder-and-ceo-sustenir-agriculture.html>

Sustenir has also secured financial backing from Temasek Holdings and other institutional investors to catalyse its growth locally and regionally.

Edible Garden City was founded in 2012. It is a social enterprise that aims to create change in the environmental, social and community spaces while strengthening Singapore's food resilience. To date, it has built over 260 edible gardens by offering 'foodscaping' services to companies, and operates both indoor and outdoor farms including an 8,000m² farm at Queenstown and a rooftop farm at Funan Mall. Rather than selling to consumers through supermarkets like Sustenir, Edible Garden City focuses on B2B sales and supplies ingredients to more than 220 dining establishments spanning across local cafes to Michelin-starred restaurants.

Major challenges to overcome include high operating costs and stiff competition

Even though some urban farms such as Sustenir and Edible Garden City have been successful in getting their products to market, urban farms which aspire to create a viable business needs to be aware of the potential challenges that are unique to this industry.

The three main cost components of urban farms in Singapore are energy, manpower and rent. Energy is the primary cost driver for indoor farms that rely on a controlled environment to cultivate its crops. A significant amount of energy is required to ensure that conditions such as lighting, humidity and temperature are optimal so as to obtain a good harvest. Manpower costs are high due to a skilled workforce and a high cost of living in Singapore. Lastly, space constraints in Singapore contribute to the high rental cost of farming spaces. These cost concerns will make a tangible difference to profitability and highlighting the need for urban farms to adopt cost-effective measures when conceptualising their business models.

Following the announcement of the '30 by 30' goal, Singapore has seen the emergence of numerous new urban farms since 2019. One such new entrant is &ever, a German indoor vertical farming company that already has another operational farm in Kuwait. Using proceeds from the '30x30 Express' grant awarded in 2020, &ever is in the process of setting up an high-tech farm with the ability to produce up to 1.25 tons of vegetables a day using its proprietary grow systems⁴. I.F.F.I (Indoor Farm Factory Innovation), a local company which was awarded a similar grant, is also looking to set up a mega indoor farm that is expected to yield close to 1 ton of vegetables per day⁵. Looking ahead, the number and scale of new players will intensify competition in the urban farming space, which may lead to consolidation and smaller players exiting over time.

Knowing the potential pitfalls in this market, aspiring urban farms need to be cognizant of the following key success factors

Assortment

With the right technologies in place, urban farms can essentially cultivate any crop in a controlled environment. Rather than producing a wide array of crops to appeal to a broad consumer base, it may be more prudent for urban farms to position themselves in a niche market with a narrow assortment to serve a well-defined customer segment. The cost of producing the crops should also commensurate with the selling price to ensure a viable business model.

⁴ <https://www.todayonline.com/singapore/high-tech-vertical-farms-begin-operations-next-year-and-bring-fresher-leafy-greens>

⁵ <https://www.businesstimes.com.sg/companies-markets/emerging-enterprise-2020/planting-the-seeds-for-the-future-of-farming>

Sales channel

When coming to a decision on the assortment, urban farms need to consider how to best bring their produce to market. If the farm opts to sell B2B (e.g. to restaurants and hotels), it may be able to command a higher volume of sales to a single customer at the expense of a lower wholesale price. Conversely, choosing to sell B2C through supermarkets or even D2C via its own e-commerce site or a subscription model comes with its own set of considerations. It is thus imperative for urban farms to carefully weigh the pros and cons before coming a decision. Engaging a business consulting advisory firm may help different firms map out their overall strategy in greater clarity

Marketing

Even though urban farming is a relatively new concept, the end-product is a commodity that people consume on a regular basis. Consumers are generally unwilling to pay a premium due to the ubiquity of vegetables unless there is a clear differentiating factor. Marketing could be an important tool to aids brands in communicating their value proposition and to enhance its perceived value in the mind of its consumers.

Technology

Technology is a key enabler that sets the limits as to the type of crops which can be cultivated, while directly controlling the cost structure of the farm. Unique technologies such as autonomous drones provided by local start-up Polybee can be used for precision pollination, further stretching the variety of crops which can be grown in an indoor controlled environment.

IGPI can support your expansion in Singapore and SEA

Urban farming in Singapore is just one of the [many opportunities that lie in the fast-growing Southeast Asian region](#). Having a comprehensive understanding of the target country and industry will enable your business to evaluate opportunities and come to a sound business decision.

[IGPI](#) has an extensive track record in supporting large corporations, SMEs and start-ups in the ASEAN region since 2013. We offer a wide range of [business and strategy consulting services](#) including market entry advisory, new business creation and identifying local partners.

Some of our past experiences include:

- Entry support for a Singaporean start-up hoping to enter the Japanese market
- Creating a business strategy with a Singapore deep tech start-up for a Japanese specialized trading house
- SEA Point, a partnership between KK Fund and IGPI, which served as an accelerator program to help corporates collaborate with start-ups and SMEs across Southeast Asia

IGPI can support your business in realising its growth aspirations. [Get in touch](#) with our firm today!

About the authors

Mr. Ryota Yamazaki is the Director of IGPI Singapore. Before joining IGPI, Ryota worked in Deloitte Consulting in Singapore, where he was a leader in the areas of Consumer Business and Supply Chain & Logistics in Southeast Asia. His areas of expertise are Strategy & Operations such as market entry, Route-to-Market (RTM) strategy, business due diligence, and PMI. He started his career with A.P. Moller-Maersk Group as a management trainee and also worked for Kurt Salmon, where he had vast project experiences especially in Supply Chain & Logistics for the retail and consumer goods clients. Ryota graduated from the Faculty of Economics at Keio University.

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About IGPI

Industrial Growth Platform Inc. (IGPI) is a premier Japanese business consulting firm with presence and coverage across Asian markets. IGPI was established by former members of Industrial Revitalization Corporation of Japan (IRCJ) in 2007. IRCJ, a US \$100 billion Japanese sovereign wealth fund, is known as one of the most successful turn-around fund supported by the Japanese government.

In 2017, IGPI collaborated with Japan Bank for International Cooperation (JBIC) to form JBIC IG, providing investment advisory services and supporting overseas investment. In 2019, JBIC along with BaltCap has jointly established Nordic Ninja, a €100 million venture capital fund to focus on deep tech sectors such as autonomous mobility, digital health, AR/VR/MR, artificial intelligence, robotics and IoT in the Nordic and Baltic region. In 2019, IGPI established IGPI Technology to focus in the area of science and technology. The company invests in technological ventures and provides hands-on management support. The company also provides business development support towards commercialization and monetization of technologies.

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