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Food Technology: Opportunities in the International Food Industry

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Executive Summary

Technological innovations and changing consumer demands are driving a rapid evolution in the Food Technology industry. Innovations such as plant-based alternatives and cultivated meat have emerged as alternative food sources to address environmental concerns and provide diverse dietary options. This shift towards healthier and eco-friendly eating habits signifies a pivotal change in the global food landscape.

This report explores regional and global opportunities within the Food Technology industry, identifies and delves into the key challenges faced by industry players. It also highlights the importance of government support, grants, and funding on Singapore's evolving Food Technology industry.

Singapore, renowned for its stringent food safety standards and commitment to innovation, stands as a prominent player in the Food Technology ecosystem. The nation's strategic initiatives support the growth of Food Technology companies, particularly in areas like plant-based alternatives and cultivated meat, aimed at tackling challenges such as resource scarcity and climate change.

Singapore's proactive measures in addressing global food security and sustainability challenges through initiatives like the 'Singapore Green Plan 2030' underscore its commitment in pioneering advancements in areas such as vertical farming, urban agriculture, and alternative protein sources. With a focused approach on sustainable food production methods and alternative food sources, Singapore aims to achieve 30% nutritional self-sufficiency by 2030. Initiatives like the Novel Food Regulatory Framework introduced by the Singapore Food Agency (SFA) ensure safety and quality standards are met, fostering an environment conducive to innovation and entrepreneurship.

Singapore's strategic location in Southeast Asia further enhances its role as a gateway to regional and global markets, facilitating international partnerships and market expansion for Food Technology companies.

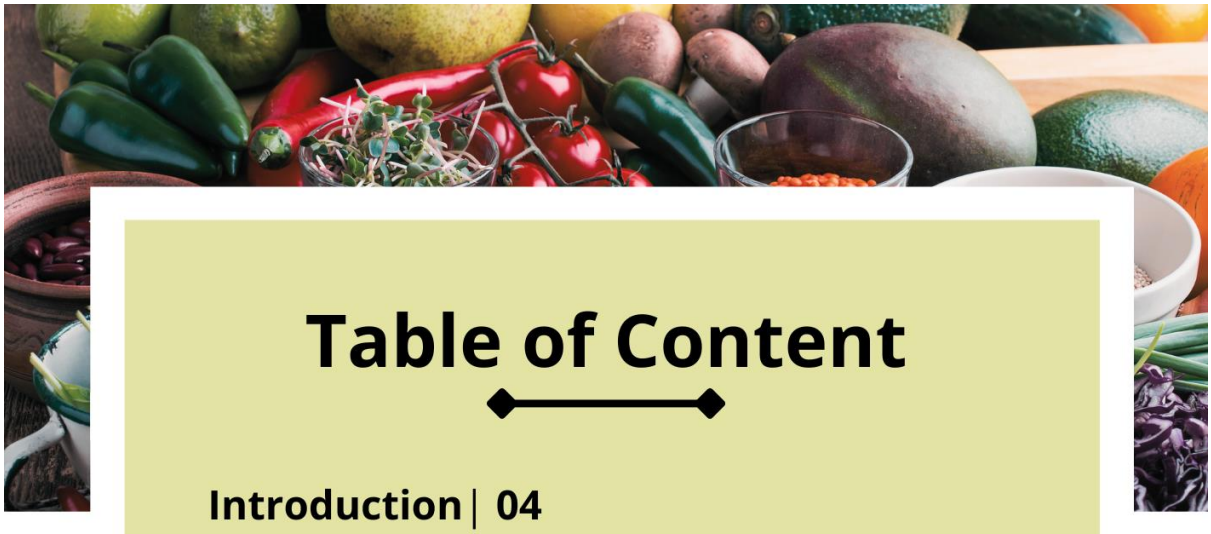


Table of Content

Introduction

1.1. Background

Coming off the back of technological advancements and changing consumer preferences, the Food Technology industry is rapidly evolving. Several impactful innovations and trends are reshaping the way we produce food. Food alternatives such as plant-based nutrition and cultivated meat address growing environmental concerns, yet appeal to consumers who prioritise sustainability and provides diverse options for dietary needs and preferences. These changes reflect a shift towards healthier and more environmentally friendly eating habits.

Singapore's reputation as a regional and global food hub, strengthened by the nation's commitment in maintaining high standards of food safety, quality, and innovation, positions it as a key player in the Food Technology ecosystem. This fosters an environment conducive to the growth of Food Technology companies. By staying ahead of the curve, Singapore can address pressing issues, including resource scarcity, climate change and the evolving demands of health-conscious consumers.

1.2. Research Methodology

Findings contained in this report were in part curated from insights derived from focus group discussions and one-on-one interviews conducted between October 2022 and August 2023. Senior stakeholders, such as company founders and C-suite executives within the food industry cluster across the value chain, shared their perceptions and insights on evolving expectations, opportunities, pain points and what it takes to grow bigger in this budding sector, amongst others.

All responses were anonymised and reported in aggregate.

1.3. Research Objectives

The areas looked at in this study:

a) Exploration of regional and global opportunities within the industry.

b) Identification of regulatory challenges across jurisdictions.

c) Key challenges faced by companies operating within the Food Technology space.

d) Understanding how government support, grants and funding helped in bolstering the growth of the industry.

Rising Opportunities

2.1. Singapore

Due to Singapore's natural resource constraints, there is heightened awareness and emphasis in directing efforts towards sustainable food production methods and alternative food sources. Alternative protein stands out as a viable route in achieving 30% nutritional self-sufficiency by 2030 as it requires less land and offers a more sustainable means of food production[1].

To encourage innovation while upholding the safety of these alternative food sources, the Novel Food Regulatory Framework[2] ensures that companies adhere to strict standards of food safety and quality before selling their products in the market.

Singapore's dedication in fostering a secure environment for the advancement of Food Technology companies is evident in its multi-faceted strategy. Investments in infrastructure and facilities, including research centres and food innovation hubs equip companies with the essential resources for research, development, and production activities[3]. The government also supports enterprises through grants, partnerships and talent development programmes, which further bolster the ecosystem for Food Technology companies. These initiatives are intended to encourage, foster and promote innovation and entrepreneurship while maintaining a steadfast focus on food safety and security. Through these concerted efforts, Singapore nurtures an environment wherein Food Technology companies can flourish and continue to contribute to the global food industry's progress.

Companies in Singapore are at the forefront of developing sustainable and environmentally friendly food production methods:

- Some companies aim to curate healthy and palatable food options as substitutes for commonly consumed items like eggs and fish.

- Staples which are high in carbohydrates, such as white rice, are common in Singapore and other Southeast Asian countries. Companies often look for opportunities in offering alternatives to these traditional staples to attract consumers seeking healthier options.

2.2. Southeast Asia

Aside from ensuring a secure environment for the growth of Food Technology companies, Singapore's strategic location in Southeast Asia serves as a gateway to regional and global markets, enabling Small and Medium Enterprises (SMEs) to expand their reach and establish international partnerships.

2.2.1. Thailand

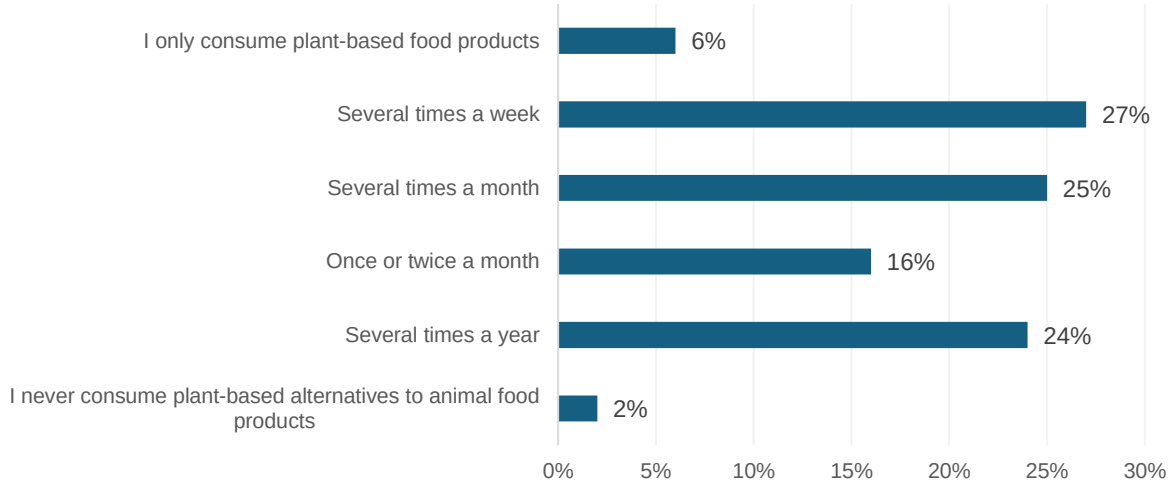
In Thailand, the growing popularity of plant-based diets and innovative plant-based food products represent a promising market for companies. By the end of 2024, the market value is expected to reach THB45 billion[4]. The compounded annual growth rate of the plant-based market, from 2019 to 2024, is estimated to be in the vicinity of 10%[4].

Collaboration with local partners is seen as a potential market entry strategy in catering to the demands and local palates of Thailand's health-conscious consumers.

2.2.2. Malaysia

Figure 1

Frequency of plant-based food consumption in Malaysia as of February 2024



(Source: Statista)

In Malaysia, statistics indicate that 74% of the population include plant-based options in their meals at least once or twice a month[5]. As consumers increasingly make informed decisions on their food preferences, Malaysia's alternative protein market has grown more promising. It is expected to grow at a compounded annual growth rate (CAGR) of 8.7% from 2024 to 2029[6].

While Southeast Asian countries have increasingly embraced health-consciousness and sustainable food sources, the market for alternative protein is still relatively nascent. Therein lies the opportunity for Food Technology companies to step in and step up in cultivating greater and deeper consumer awareness and understanding within the market.

2.3. Other Growing Regions

Companies also see opportunities in the markets of the Oceanic region, such as Australia, and as far as the western hemisphere, such as the United States (US). Rising demand in these regions also present opportunities for companies especially when such plant-based food options seem better understood and are more appealing among the masses.

2.3.1. Japan

Japan has a longstanding inclination towards naturally grown and locally sourced food products. Food neophobia, defined as a reluctance to consume unfamiliar foods, plays a crucial role in shaping consumer attitudes towards alternative proteins. Research has shown that individuals with strong food neophobic tendencies typically exhibit low dietary variety, have a higher number of disliked foods, less willingness to try new foods, and often hold negative attitudes towards cuisines from other cultures[7]. Further research is necessary in

[1] https://tinyurl.com/49ppy8kr
[2] https://www.sfa.gov.sg/food-information/novel-food/novel-food
[3] https://www2.deloitte.com/content/dam/Deloitte/sg/Documents/consumer-business/sg-cb-future-of-food-report.pdf
[4] https://tinyurl.com/45mskp2d
[5] https://www.statista.com/statistics/1075721/malaysia-frequency-of-plant-based-food-consumption/
[6] https://www.statista.com/outlook/cmo/food/meat/meat-substitutes/malaysia
[7] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11165137/

understanding and adapting the flavour profiles of alternative food products that align with culinary preferences, particularly in markets like Japan, to ensure wider acceptance of these products.

The lack of innovative food options might provide an opportunity for businesses to introduce new alternatives, presenting both unique challenges and opportunities for Food Technology companies seeking to market cultivated products in the country. The Japanese government has implemented various programmes, funding schemes, and regulatory reforms to foster innovation and expansion in the Food Technology industry[8]. Increasing exposure and familiarity with alternative proteins may help overcome some of the psychological barriers.

2.3.2. Europe and US

The shift towards making environmentally conscious food choices is clearly now not limited to any single region; it's a global trend. This trend is especially notable in countries with higher GDP and education levels, such as those in Europe and US[9]. Consumers have greater access to information and consequently are better informed about the environmental impact of their food choices.

The alternative protein market has shown significant growth and development across Europe and the US in recent years. In the European Union, sales of alternative proteins reached an impressive EUR6.5 billion in 2022[10], indicating strong consumer demand.

In the US, consumer eating habits are evolving, with a noticeable trend towards flexitarian diets. These diets, which prioritise plant-based foods while allowing occasional meat consumption, are gaining popularity due to growing concerns about health, environmental sustainability, and animal welfare[11]. This shift in consumer preferences has contributed to the continued growth of the alternative protein industry, particularly in the plant-based meat substitute segment. Established companies like ‘Beyond Meat’ and ‘Impossible Foods’ have maintained their strong market presence, reflecting the increasing acceptance of these products among American consumers[12].

[8] https://www.eu-japan.eu/sites/default/files/eubij/2024-03-foodtech-report.pdf
[9] https://www.ipsos.com/sites/default/files/ct/news/documents/2022-04/ipsos-earth-day-2022-wave-2-global-advisor-survey-report.pdf
[10] https://gfieurope.org/alternative-proteins-in-the-european-union/
[11] https://gfi.org/resource/consumer-insights/
[12] https://www2.deloitte.com/nl/nl/pages/consumer/articles/alternative-proteins.html

Evolving Expectations

3.1. Meeting Consumers' Expectations

Consumers worldwide are becoming more aware of their dietary choices and are actively looking for options that meet their health and environmental goals. This shift in food preferences has created a somewhat favourable environment for innovative food products that now play an important role in meeting the growing diversity of consumer expectations.

By emphasising on these two aspects, companies can effectively address consumer preferences, particularly in regions where there is a growing interest in plant-based diets:

Sustainability and Innovation	Emphasise on sustainable food production practices and offer innovative solutions to address environmental concerns and health-conscious consumer preferences.
Understanding Local Cultural Preferences	Understand local tastes and customs, as well as addressing consumer concerns such as affordability and accessibility, particularly in regions like Southeast Asia where there is a growing interest in plant-based diets.

3.2. Tailored Marketing Strategies for Different Consumer Groups

Population demographics, preferences, and behaviours are key factors that must be thoroughly analysed and understood to effectively appeal to the target audience. In augmenting these evidence-based analyses, the crafting of compelling marketing messages is also opined to be a key downstream effort in capturing the attention and interest of consumers. It is deemed important to be able to 'speak' to the values that customers hold especially in areas where health and environmental benefits are touted.

3.3. Educate, Not Confuse

The essence in marketing alternative food products is inextricably linked to educating consumers on what exactly is alternative food[13]. Consumers may be unfamiliar with these products as it is relatively new in many markets. Simplifying the message and 'speaking the language' will help empower consumers with the necessary knowledge, allowing them to make better informed decisions on alternative food choices.

Educating consumers about alternative proteins can also help with customer engagement and brand awareness. These educational initiatives include informing consumers about relevant key facts related to health benefits, environmental impact as well as the ethical aspects of their products. Such campaigns and initiatives can be launched through platforms on social media, websites, and through collaborations with influencers or nutrition experts.

Traditional word-of-mouth marketing is an effective strategy. When individuals understand and experience the benefits of the products, they are more inclined to promote them to their

[13] https://www.mdpi.com/2304-8158/11/8/1167

networks. Positive reviews and recommendations from satisfied customers can significantly contribute to a company's growth and success, creating a multiplier effect.

3.4. In-Market Distributor Support

Working with distributors provide valuable insights into the local market and help companies navigate the unique local landscape. Distributors have a better understanding of the local culture, the purchasing needs and market behaviour of the specific location, allowing for a more unique, efficient and targeted positioning of products.

Selling Globally

4.1. Importance of a Strong Distributor Network

Fostering a strong distributor network is critical to the success of Food Technology companies looking to expand internationally.

By investing time in building a strong distributor network coupled with comprehensive product information, better collaborations can be fostered. These distributors can then better support the promotion and sale of products.

> *"It is our responsibility to try to know about the market as well as we can and give advice to the distributor from the product point of view." (Food Innovation Company)*

Local distributors often have in-depth understanding of the market trends that are location specific and will be able to advise on how to sell products differently and efficiently. As intermediaries between companies and consumers, they play a vital role in market penetration as they can provide valuable insights and help companies navigate the varied landscapes unique to each respective location.

4.2. Understanding and Navigating Regulations

Each country has its unique set of food regulations and product classifications. Understanding and adhering to food regulations is integral to any successful 'go-to-market' strategy.

Singapore has a strong regulatory framework that is known for its stringency and emphasis on safety. Broadly, many businesses have assumed the spirit of such regulatory ethos when venturing overseas. Notwithstanding, it remains imperative for businesses to pay close attention to each country's specific regulatory requirements and cultural nuances to reformulate and adapt their products corresponding to the requirements, preferences and norms of each market. Navigating the various standards for halal certification standards in Muslim markets, for instance, is one example of how companies must continually stay attuned to different regulatory requirements as well as the varying layers of complexity. In such an example, it also necessitates a nuanced understanding of religious and cultural preferences.

4.2.1. The Current State of Novel Food Regulation

The diverse categorisation of food products also presents a significant challenge.

For example, the classification of plant-based food products may differ from traditional categories, and this increases the challenge for companies when navigating and complying with specific labelling and regulatory requirements in different countries.

Navigating the regulatory landscape may become even more intricate when considering new food alternatives such as cell-based products.

> *"There is a lot of regulatory barriers because our product is very new. It might not fall into a very clear bracket. There is always this issue of where/how we should categorise our product." (Food Innovation Company)*

It is important to identify the appropriate product codes and classifications to ensure proper labelling and compliance with the respective regulatory bodies of each country. This may involve working closely with local agencies, to seek guidance, and stay updated on any changes or revisions to the regulations.

These novel food products may require the establishment of entirely new food regulations to govern manufacturing, labelling, and safety standards. Commercialisation and industry growth may invariably be stifled because only a few countries globally currently have a novel food regulatory framework set in place[14].

Countries with Existing Novel Food Frameworks	
Australia and New Zealand	• Australia and New Zealand operate under a shared food regulatory framework, managed by the agency Food Standards Australia New Zealand (FSANZ). • Under FSANZ's "novel foods" regulation, cultivated meat and seafood manufacturers must apply for pre-market approval. This requires a safety assessment by FSANZ of the production process, likely lasting at least 14 months.
Brazil	• The Brazilian Health Regulatory Agency, ANVISA, issued Resolution RDC 839/2023, which establishes new guidelines for demonstrating the safety and obtaining approval for novel foods and ingredients in the Brazilian market.
Canada	• Cultivated meat producers must obtain pre-market approval through a three-part process.

[14] https://gfi-apac.org/novel-food-regulations-around-the-world/

	• Plant-based meat products require labels such as "simulated", indicate the meat or poultry type and the phrase "contains no meat" or "contains no poultry". These labels must be prominently displayed near the product name, with additional nutrition labeling requirements for added nutrients. • Advise to consult with Health Canada's Food Directorate to discuss the requirements for a novel food submission for cultivated meat or seafood.
China	• A set of voluntary standards, "The Group Standard for Plant-Based Meat Products," were implemented by the Chinese Institute of Food Science and Technology providing detailed definitions, categorisation, basic regulatory requirements, and labelling rules on plant-based food.
European Union (EU)	• The EU regulates novel foods, including cultivated meat, under Regulation 2015/2283. Genetically modified cultivated meat products fall under separate rules. Applications go through the European Commission and the European Food Safety Authority (EFSA) for safety assessment, with final approval requiring agreement from EU member states. • To assist applicants in preparing their submissions, (EFSA) has released scientific guidance along with an administrative guidance document that includes checklists. • The application process for novel food approval in the EU takes at least 18 months. Once approved, the product can be sold in all 27 EU countries, as well as Iceland, Liechtenstein, Norway, and Switzerland.
India	• Under the Approval of Non-Specified Food and Food Ingredients Regulations (NSF Regulations), companies are required to apply for approval before commencing with manufacturing, producing or importing any novel food product. Thereafter, companies can apply for central licensing to sell the products to consumers.
Israel	• The novel foods framework by Israel's National Food Service (NFS) under its Ministry of Health regulates all novel foods and ingredients. Applications were evaluated on a case-by-case basis.

	• Granted the world's first regulatory approval for the production and marketing of cultivated beef in 2024.
Singapore	• First country in the world to approve cultivated meat for sale. • SFA has published a Novel Food Framework in 2019 and updated it regularly – "Requirements for the Safety Assessment of Novel Foods and Novel Food Ingredients". • Applications for approval of cultivated meat and fermentation-enabled products are presently evaluated on a case-by-case basis. The approval process typically spans from 9 to 12 months, assuming that all necessary information in the safety dossiers have been provided. • SFA mandates that companies marketing pre-packaged alternative proteins use appropriate qualifying terms on their product packaging, such as "plant-based" or "derived from plants," to accurately convey their composition. This requirement will also apply to cultivated meat products.
South Korea	• The Ministry of Food and Drug Safety of Republic of Korea has started to accept applications for approval of cultivated meat in 2024.
United Kingdom (UK)	• The UK Food Standards Agency (FSA) will regulate cultivated meat like the EU, focusing on risk assessments and authorisations for novel and genetically modified foods. Final approvals in the UK will be made by government ministers.
United States (US)	• US Department of Agriculture (USDA) and Food and Drug Administration (FDA) share the regulatory jurisdiction of cultivated products. • FDA will oversee the earlier stages of cultivated meat production and USDA will ensure safety in the later stages such as packaging and labelling etc.

(Source: Good Food Institute (GFI) APAC)

Identifying & Overcoming Barriers

5.1. Talent Crunch and Finding the Right Skillsets

Recruiting talent from overseas presents its own unique challenges. Companies highlighted the challenges of finding individuals with the requisite expertise in this area. Nurturing and finding talent in the field of food sciences and technology can be costly and time-consuming. As a result, many companies often seek to bridge the talent gap by recruiting overseas professionals with the necessary knowledge and skills. However, overcoming potential cultural and language barriers, and ensuring a seamless integration of foreign hires into the local workforce can be an intricate affair. Nonetheless, this approach remains a valuable solution for filling critical skill gaps in the industry.

5.1.1. 'Skills-to-Market'

Aside from technical food expertise, professionals with good business development skills are also essential in the Food Technology industry. These individuals can help to play a crucial role in effectively marketing and promoting novel food products to both consumers and within the business-to-business (B2B) segment. In this regard, companies also face challenges in the recruitment of personnel with adequate in-depth understanding and technical knowledge to help market and sell innovative food products that are still relatively nascent in the food industry.

> *"One of my biggest challenges is to find suitable people for business and development. We are selling something new; you need to have the right people to be able to understand the technology and able to sell new products. We have hired people with years of experience, good resumes, but they don't know how to sell our product." (Food Innovation Company)*

It is worth noting that distributors may not be able to fully grasp the unique features or benefits of products, and this may lead to potential differences in opinions and consequently a misalignment of expectations between the company and the distributor. As a result, it is critical to recognise that it takes time for distributors to fully comprehend and appreciate the uniqueness and benefits of new products, especially if they are ground-breaking or differ significantly from conventional food options.

5.1.2. A Competitive Remuneration Package

The issue of compensation further compounds the talent crunch in the Food Technology industry.

The offering of competitive salaries, comparable to that in the other bio-technology sectors, may be needed to attract appropriate talent with specialised skills and knowledge required for niche areas within the Food Technology field. Offering competitive compensation packages is instrumental in ensuring that Singapore remains an attractive destination for individuals with specialised skills. This can ultimately bolster the sector's development.

5.1.3. Bolstering the Talent Pipeline

Addressing the talent shortage in the Food Technology industry necessitates a multi-pronged approach involving support initiatives:

Early Education and Awareness

By incorporating food science concepts into the school curricula, the younger generation will gain greater awareness and understanding of workings within this space. This will also cultivate early interest in the field of food sciences. Doing so exposes students to the diverse and exciting opportunities within the Food Technology industry at an early age, inspire the next generation of talent pipeline, and equip these talent prospects with the necessary knowledge to pursue careers in this dynamic field.

Career Conversion Programmes

Career Conversion Programmes can focus on the upskilling of current professionals in the food industry, which can facilitate companies' seamless entry into the Food Technology industry. Such initiatives, however, necessitate a commitment from both individuals and the industry to stay continuously engaged in training and development.

Refinement of University Programmes

Universities play a pivotal role in preparing future talent for the dynamic Food Technology industry. Institutions of higher learning can consider refining their programmes to align with the evolving demands of the sector, incorporating cutting-edge technologies and practices, and fostering collaboration with Food Technology industry experts and companies. By doing so, these institutions can attract and produce graduates who are well-equipped to join the Food Technology industry.

5.2. Premium Pricing of Alternative Food Products

Companies often face challenges when it comes to setting the appropriate price for their products, especially for cultivated food products, as substantial capital expenditure are invested into research and development (R&D). Companies investing heavily in R&D are likely to pass the cost on to consumers, resulting in price premiums. Hence, cultivated food products are often less affordable in comparison to conventional food. This may deter cost-conscious consumers. In a 2022 survey conducted by Rakuten Insight, 45% of respondents from Singapore cited cost as the primary reason for not consuming plant-based food[15].

It is necessary to consider the purchasing power of the targeted consumer groups and their willingness to spend on alternative food products of a higher price premium. Companies' in-

[15] https://www.statista.com/statistics/1076195/singapore-reasons-against-plant-based-food/

market strategies and approaches may be influenced by the level of purchasing power across different markets, hence it is important to adapt accordingly.

Understanding how consumers prioritise pricing and how they perceive the value of alternative food products will help to achieve a balance between profitability and competitiveness. Companies can strategise their business approach by thinking 'out-of-the-box', reducing R&D and production costs along the supply chain to narrow the price gap between conventional and alternative food products. While such measures will invariably take some time, successful outcomes may likely increase consumers' purchasing intent of the alternative food products. One example cited during the focus group discussion with Food Technology companies was the creation of hybrid food products from cell-based and/or plant-based food sources.

> *"When it comes to pricing, cultivated fish will be a premium; we are looking at slightly more than 2 times that of premium of fish in general, which made it not palatable for the pockets of the consumers. That's when our strategy kicks in. At the initial stage, we will focus on developing hybrid products. We will combine plant-based meat with 30% of cell-based meat to reduce the cost of the end product, because there is lesser amount of cell-based meat." (Cultivated Meat Company)*

In conclusion, marketing innovative food products involves a multi-faceted approach. Companies that effectively communicate the value and uniqueness of their products while engaging with consumers' rising concerns on alternative food are better positioned to thrive in the evolving food industry.

The Path Forward

6.1. Building Trust to Grow Demand

Reasons for choosing cultivated food products primarily revolve around sustainability and health considerations[16]. Simultaneously, an emerging cohort of consumers is driven by a genuine interest to explore and savour innovative food product offerings.

People with dietary restrictions, such as allergies, intolerances, or specific dietary choices (e.g. vegan, gluten-free), are also important demographic profiles for Food Technology practitioners to consider. These consumers often face challenges in finding suitable food options that meet their dietary needs. Companies can develop products that specifically address these dietary restrictions, providing safer alternatives.

Given the increasing significance of these demographic profiles, it is crucial to build trust, which will raise demand among these consumer groups.

[16] https://www.foodnavigator-asia.com/Article/2024/01/10/cultivated-meat-concerns-cost-health-impact-and-religious-factors-raised-by-singaporeans

Transparency is key; providing consumers with comprehensive information about alternative proteins through clear and informative labelling instils confidence in the product. In addition, rigorous safety testing and quality assurance measures are essential to further bolster consumer confidence in alternative proteins.

	Consumer Behaviour / Expectations	**Approach**
Transparency and understanding in the type of food consumed	Consumer preferences and behaviours are evolving, and there is a growing demand from consumers today wanting to know more about the ingredients, sourcing, and production processes behind what they consume.	Companies can work with technology solutions providers, allowing for 'food traceability' from point to point. This helps to provide transparency on the food supply chain and authentication of certifications regarding food sources.
Clear and informative labelling	Using buzzwords such as 'organic', 'vegan' and 'plant-based' can be a double-edged sword as these may prompt the consumers to actively seek more information on the quality and safety of these innovative food products they purchase.	One vital aspect of marketing is the provision of detailed ingredient information, nutritional facts, and product source. Such transparency can help build trust and credibility with consumers.
Safety testing and quality assurance	Ensure that rigorous safety testing and quality assurance measures are adopted in the production of plant-based and cell-based foods. Companies should conduct safety studies, quality checks, and adhere to Good Manufacturing Practices (GMP) to ensure that their products meet or exceed established safety standards.	Communicating these efforts to consumers through product labels, websites, and promotional materials helps build trust in the safety and quality of the food. Companies that adhere to food safety and labelling regulations also demonstrate their commitment to consumer protection.

What More Can Be Done

7.1. Support and Funding

Government grants and funding support are reported to be useful during the focus group discussions. Collaborations with consultants, as well as access to grants, are deemed as important components that can help facilitate companies discover possibilities and solutions, automate production and elevate food safety standards. Non-monetary support, such as flexibility in regulatory approach and streamlined processes such as paper submissions, is equally important to foster an efficient and business-enabling environment for companies.

The provision of appropriate funding for companies at various stages of development is deemed important. New start-ups, for example, may likely prefer more capital investment in terms of technological development, but companies in the scale-up phase may prefer to recruit talent, for example, researchers and scientists. Companies highlighted the need for balance between grant utilisation and obligations regarding the extent and frequency of reporting on such utilisation.

> *"It (government grants) has helped us a lot, in many ways. Though sometimes it is more rigid, but this is Singapore style, once you got it, it will be very fast; they will back you up." (Plant-based Food Company)*

7.2. Public-Private Partnerships

Another suggested support was to enable and encourage more public-private partnerships, in which companies can interact, engage and partner with Institutes of Higher Learning to co-develop intriguing and innovative solutions for the food industry. One example is the successful tripartite arrangement between SFA, Agency for Science, Technology and Research (A*STAR) and the Nanyang Technological University (NTU) which demonstrates the good level of support for companies. As an extension, engaging with larger food companies through additional platforms such as seminars and in-market discussions can also help to scale up the industry as a whole and provide a clearer direction to new start-ups. This can serve as a guide for companies in the 'deep technology' arena, as well as to understand what other technologies are available in the market that can help scale up businesses in the food industry.

It is also important for companies to work in tandem with government initiatives. This can help bolster consumer awareness and drive demand for alternative food products, as consumers become more conscious of the broader implications of their dietary choices.

Epilogue

Amidst global shifts towards more sustainable and healthier food choices, the Food Technology industry presents significant opportunities. Companies can prioritise transparency in their operations, ensure clear labelling and adhere to rigorous safety measures to build consumer trust. Addressing regulatory challenges through strategic partnerships and navigating diverse market preferences remain essential for sustained growth. Government support and funding initiatives can play a role in fostering innovation and overcoming industry barriers. By aligning with evolving consumer expectations and leveraging technological advancements, Food Technology companies can effectively navigate complexities and capitalise on emerging opportunities worldwide.