

# The Asia Food Challenge Understanding the New Asian Consumer

Growing affluence, evolving tastes and technology are changing the way Asian consumers buy and enjoy food. This vast, diverse market offers exciting opportunities for both new and established brands.



TEMASEK





## Foreword

In this latest edition of The Asia Food Challenge, we consider the expectations and behaviour of Asian consumers and how this will drive the strategies of agri-food businesses and investors in this exciting and fast-growing region.

This report looks at the key emerging trends in the sector, from food safety, healthy diets, and alternative protein to online commerce, convenience, and supply chain traceability.

Our findings are augmented by data from a survey of 3,600 consumers across 10 Asian countries, as well as Australia and New Zealand. The survey seeks to understand these consumers' complex and changing relationships with food.

In addition to the study, we analysed over 3000 publicly traded food and beverage companies globally to understand key financial trends and trading multiples. We also spoke with an extensive list of senior executives and leading experts in the food sector.



# Executive Summary

Asia is set to experience a seismic shift in food trends over the next decade, as consumers become more affluent, sophisticated and demanding, driving US\$2.4 trillion of Asia's incremental food spend by 2030

## The Asia Food Challenge

In our inaugural report *'The Asia Food Challenge: Harvesting the Future'* in 2019, we highlighted the doubling of Asian consumers' food spend to over US\$8 trillion by 2030, as well as the US\$800 billion in upstream investment needed to meet it<sup>1</sup>.

In this year's report, we focus on the importance of the Asian consumer, highlighting the exciting opportunities abound for agri-businesses seeking to satisfy a diverse and fast-evolving set of markets. Consumer choices will drive 55 percent of the US\$4.4 trillion incremental food spend in the next decade.

To meet this fast-growing, consumer-driven spend, we estimate that an additional US\$750 billion in incremental investment will be required above existing levels by 2030, across the entire value chain. This brings the total investment required to US\$1.55 trillion by 2030. Addressing consumer needs will be a crucial factor in directing this massive investment, according to our research, which is based on a survey of 3,600 consumers across 10 Asian countries, Australia and New Zealand, as well as conversations with senior executives and experts.

A deeper, more granular grasp of consumers' behaviour and food trends across Asia's heterogenous markets will be needed to allocate capital efficiently and capture higher returns. Value creation has never been more important than in today's



increasingly competitive and ever-changing environment. Having a well-defined plan will enable business leaders and investors to maximise these opportunities and plan for a more resilient future. Those who focus on creating value for their business, their shareholders and customers will in turn create value for society and the entire food ecosystem.

### 2019 – 2030

**\$4.4 trillion**

incremental food spend by 2030

**\$2.4 trillion**

of which is actively consumer-driven

**\$750 billion**




cumulative investment required

<sup>1</sup> World Bank, IMF, OECD-FAO, USDA, Capital IQ, PwC analysis, expert interviews

## Shaping of the new sophisticated Asian consumer

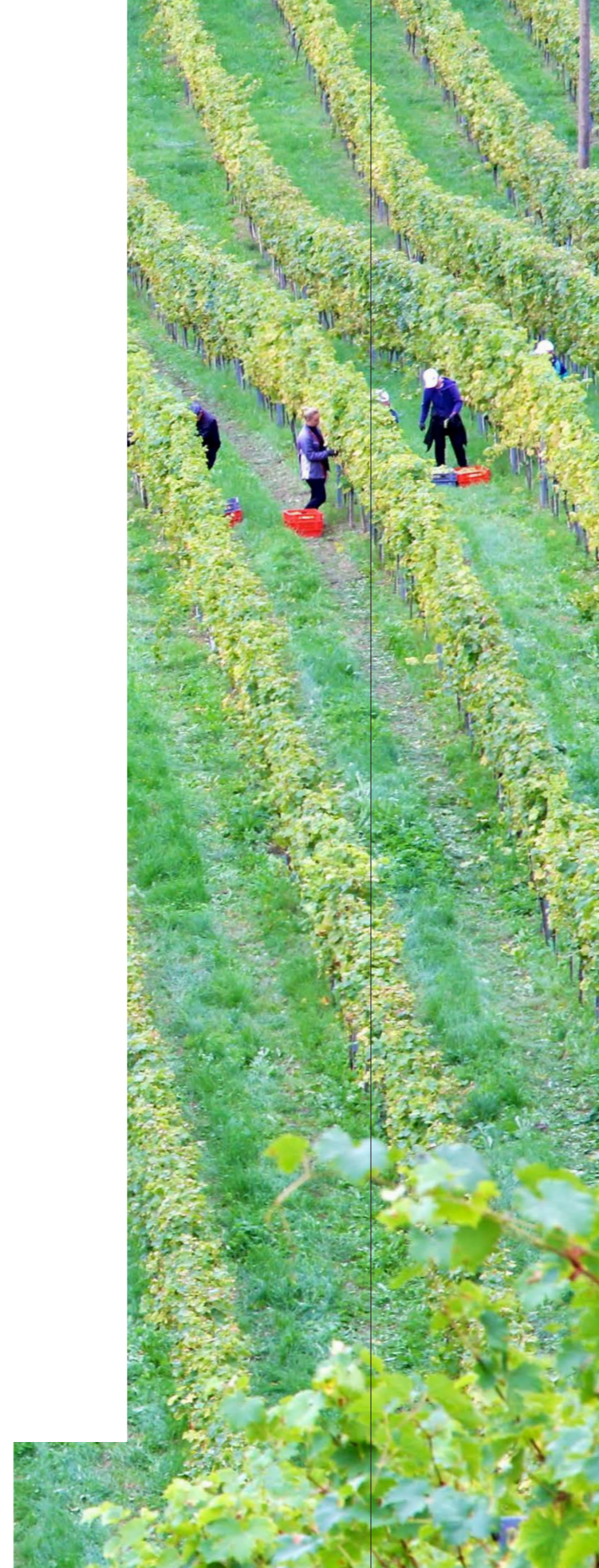
Consumers today are more discerning about the food they eat, influenced by changing demographics, rising affluence and growing incomes. For Asian consumers, the last decade was about trading up – spending growing disposable income on more expensive, tastier food. But in this decade, as our 2020 survey shows, priorities have changed. In particular, many consumers have become more value-seeking. Over half of the consumers we surveyed no longer just list “price” and “taste” as their key purchasing criteria, but demand additional attributes as they become more sophisticated.

### Key Consumer Trends

- 
**Healthier diets**  
 Replacing processed foods, red meat, and sugar with healthier alternatives and products with higher nutritional values
- 
**Fresh foods**  
 Choosing quality products associated with freshness
- 
**Safe and traceable sources**  
 Requiring greater food safety and product validation measures
- 
**Sustainable consumption**  
 Tackling the environmental impact of food consumption
- 
**Alternative protein**  
 Growing interest in innovative plant-based and cultured meat alternatives
- 
**Online purchasing**  
 Increasing use of e-commerce to enable convenient food purchasing and delivery

## How do consumers make choices

While the supply and investment gap outlined above is a call for action and collaboration, it is important to recognise that this demand is consumer-driven. Consumers and their changing preferences are the real stars in this story. Based on extensive research, we have distilled the critical shifts in six broad areas:



Asian consumers are shifting to healthier lifestyles and consumption habits. Many are replacing red meat and sugar with fruit, vegetables and healthy snacks, while selectively spending more on foods that offer traits they value, such as freshness and nutrition. They are still highly concerned about food safety, demanding more accountability about their food sources.

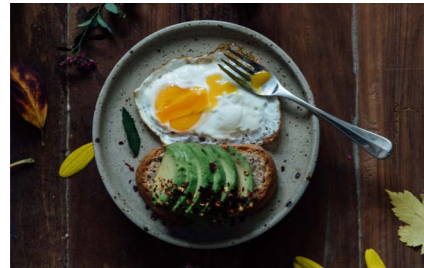


This emphasis on transparency also extends to the environmental impact of food production, as more Asians opt for more sustainable food consumption behaviours such as avoiding food wastage and buying local. The need for more sustainable food options has also bolstered interest in plant-based protein among Asian consumers, who are more open to vegetarian or flexitarian diets. Rounding off these six trends is online food purchasing, which Asian consumers have embraced, especially during the pandemic, as online food delivery and supply chain innovations offer greater convenience and speed.

These six trends are not isolated: they are often overlapping and significantly influence the other trends. But they are essential to how food and eating will change in Asia over the next decade. Covid-19 has accelerated these trends across Asia, further altering consumer lifestyles and preferences and forcing businesses to adapt.



## The fundamentals: taste and price



There is no question that taste and price are the most fundamental drivers in Asian consumers' decision making. Without the right taste profile and the right price, brands and agri-food players have little chance to get onto the radar of consumers in this highly competitive region.

However, these two factors are increasingly just "gate keepers". While they are important to consumers, they no longer differentiate the winners from the rest of the pack. Our discussions with many industry experts have led us to conclude that successful players will need to combine taste and price with the six emerging trends to meet the higher expectations of the new consumer.

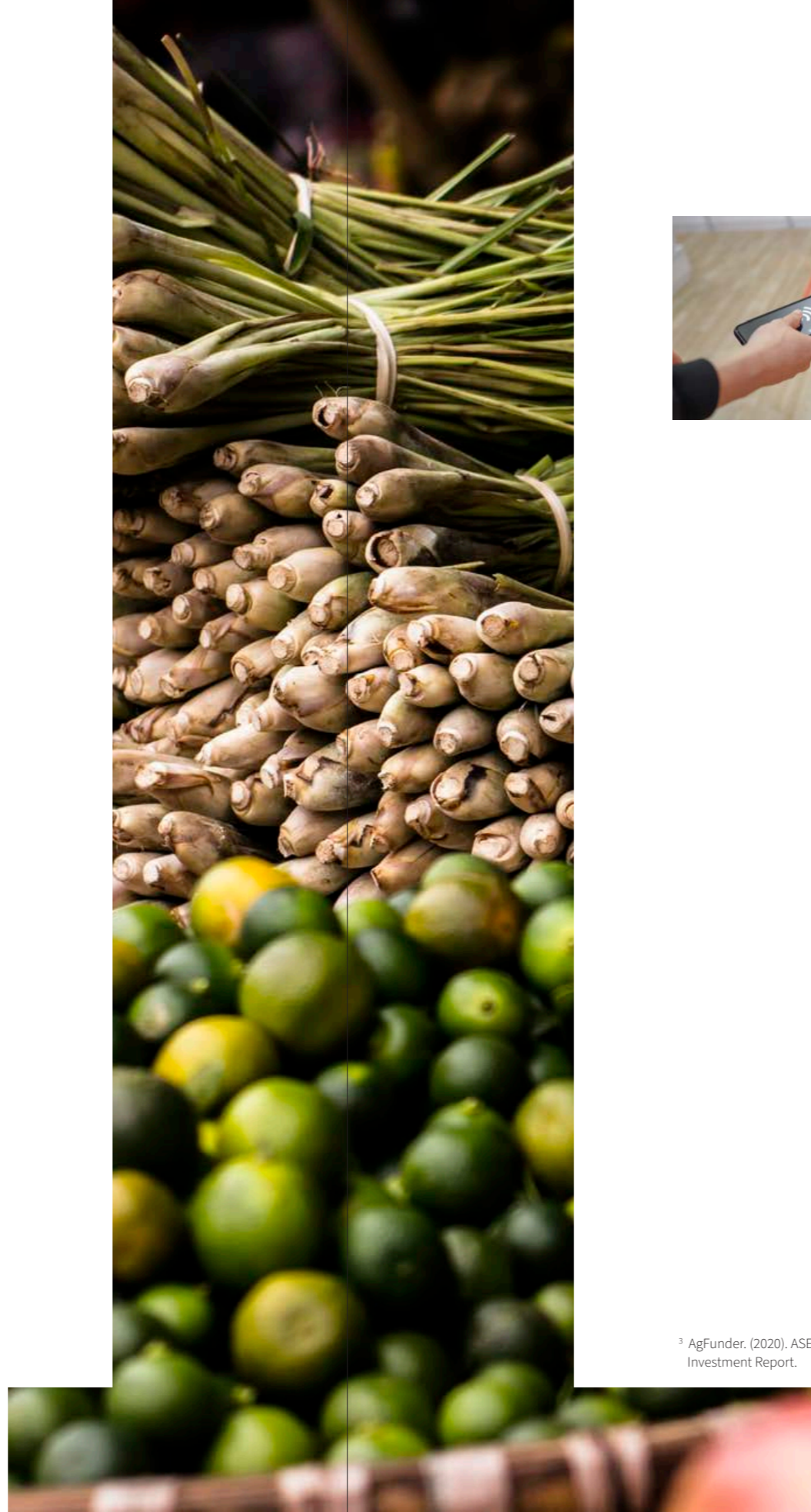
<sup>2</sup> The Economist (2020). Global Food Security Index.

## Catering to Asia's diversity

Asian shoppers' preferences within these six areas, such as their concepts of "health" and "quality", can diverge widely across markets. For instance, while health-related food brands have enjoyed a 12 percent valuation premium on average in the last five years, consumers surveyed show marked differences in their willingness to pay for health. Shoppers in markets like Singapore and Japan are considerably less committed to paying a premium than consumers in China, likely because they have the highest food quality and safety standards in Asia<sup>2</sup> and consumers have trust in their enforcement.

Differences in willingness to pay between territories could also be due to a plethora of factors, such as heightened food safety concerns or the lack of understanding about the composition or importance of a healthy diet.

Catering to this large, diverse and dynamic market requires an intimate understanding of common regional trends and local nuances.



## Investable opportunities



With agri- and food-tech investments quadrupling between 2014 and 2019 in Southeast Asia<sup>3</sup>, it is clear that investors and business owners will play a pivotal role in the future of the industry, developing new products and business models that are highly responsive to the unique, needs of sophisticated Asian consumers.

The market is ripe for opportunities in innovation and investment, and looks attractive to business leaders and investors alike.

When considering the key trends, our research shows that companies with a broad emphasis on health, digital, and sustainable offerings have enjoyed valuation premiums over the last five years, compared with companies that did not.

Similarly, within the nascent, high-growth alternative protein industry, we see high enterprise value-to-revenue multiples compared to traditional packaged food and meat businesses. While alternative protein valuations have been observed to trade at higher multiples than traditional protein companies, it is important to note that given the low number of transactions and the lack of publicly available data to date, it is difficult to get an accurate picture of such multiples at present.

Business leaders and investors will need to prioritise value creation, leveraging insights from the six key trends to drive value for themselves, their customers and society. Meeting the US\$750 billion consumer-driven investment requirement by 2030 will require creativity from business leaders and investors along the whole value chain.

<sup>3</sup> AgFunder. (2020). ASEAN 2020 AgriFoodTech Investment Report.



# Contents

1. The Asian food opportunity
  - 1.1 The Asia Food Challenge
  - 1.2 Asia's turbo-charged food spend drivers
  - 1.3 The investment gap
2. Meet the multi-faceted new Asian consumer
  - 2.1 Bigger spend with 250 million new citizens and the world's largest middle-class
  - 2.2 The power of the consumer
  - 2.3 From affordability to value-seeking
  - 2.4 A higher bar
  - 2.5 Taste+ Combo
3. Six trends shaping the future of food
  - 3.1 Health is wealth
  - 3.2 Taking a fresh look at quality
  - 3.3 Safe and sure
  - 3.4 Sustainable consumption
  - 3.5 Alternative protein
  - 3.6 Online marketplace
  - 3.7 The Covid-19 effect
4. Hearty investment appetites
5. Strategies for feeding the new Asian consumer
6. Conclusion





# 1

## The Asian food opportunity





## 1.1 The Asia Food Challenge

In the 2019 report *“The Asia Food Challenge: Harvesting the Future”*, we focused on the scale of the challenge at a macro level – how to feed the growing millions. But food is also heavily demand-driven. Thus, for agri-food businesses and investors, understanding the factors influencing consumer behaviour is crucial.

Our last report showed that Asia is expected to more than double its total spending on food from US\$4 trillion in 2019 to over US\$8 trillion by 2030. That growth picture remains very much intact even as the world was plunged into an unprecedented pandemic.



## 1.2 Asia's turbo-charged food spend drivers

Macroeconomic trends such as a burgeoning population and ongoing food inflation are driving Asia's food consumption patterns. These factors will account for US\$2 trillion of Asia's incremental US\$4.4 trillion in food spend by 2030, our research shows.

But the strongest driver of spend is the new Asian consumer, whose fast-evolving food choices warrant significant attention and further study.

Around 55 percent of incremental food spend, or US\$2.4 trillion, will be actively driven by consumer-conscious behaviour. The larger quantities of food purchased by consumers over the next decade will help push up this food spend. But the most crucial factor will be the conscious decisions made by Asian consumers to pay incremental value for foods they prefer.

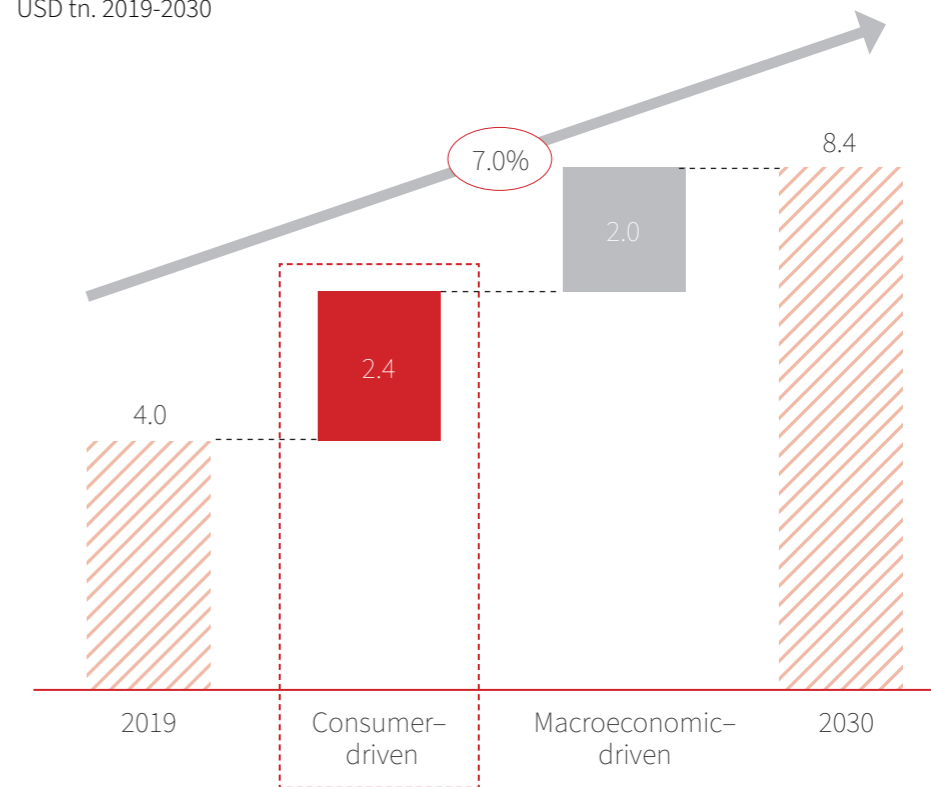
Consumers will demand more from the products and services they consume. They insist on healthier, safer or more sustainable food options; greater convenience such as ready-made meals and online food purchasing; and more modern channels like supermarkets and convenience stores rather than wet markets.

Such consumer-driven choices will be the single most significant contributor to the region's 7 percent CAGR growth in food spend between 2019 and 2030.



## Rising regional food spend is driven by both consumer and macroeconomic trends

Total Asia food spend growth by driver group  
USD tn. 2019-2030



Notes: Asia includes China, India, Japan, South Korea and Southeast Asia  
Source: OECD-FAO, PwC Analysis

## 1.3 The investment gap

To meet this fast-growing consumer-led spending, we estimate an additional cumulative investment of US\$750 billion<sup>4</sup> above current levels will be needed over the next decade.

While this investment will need to come from across the value chain, we expect a vast majority - about 60 percent of this amount, or US\$450 billion - will be required downstream.

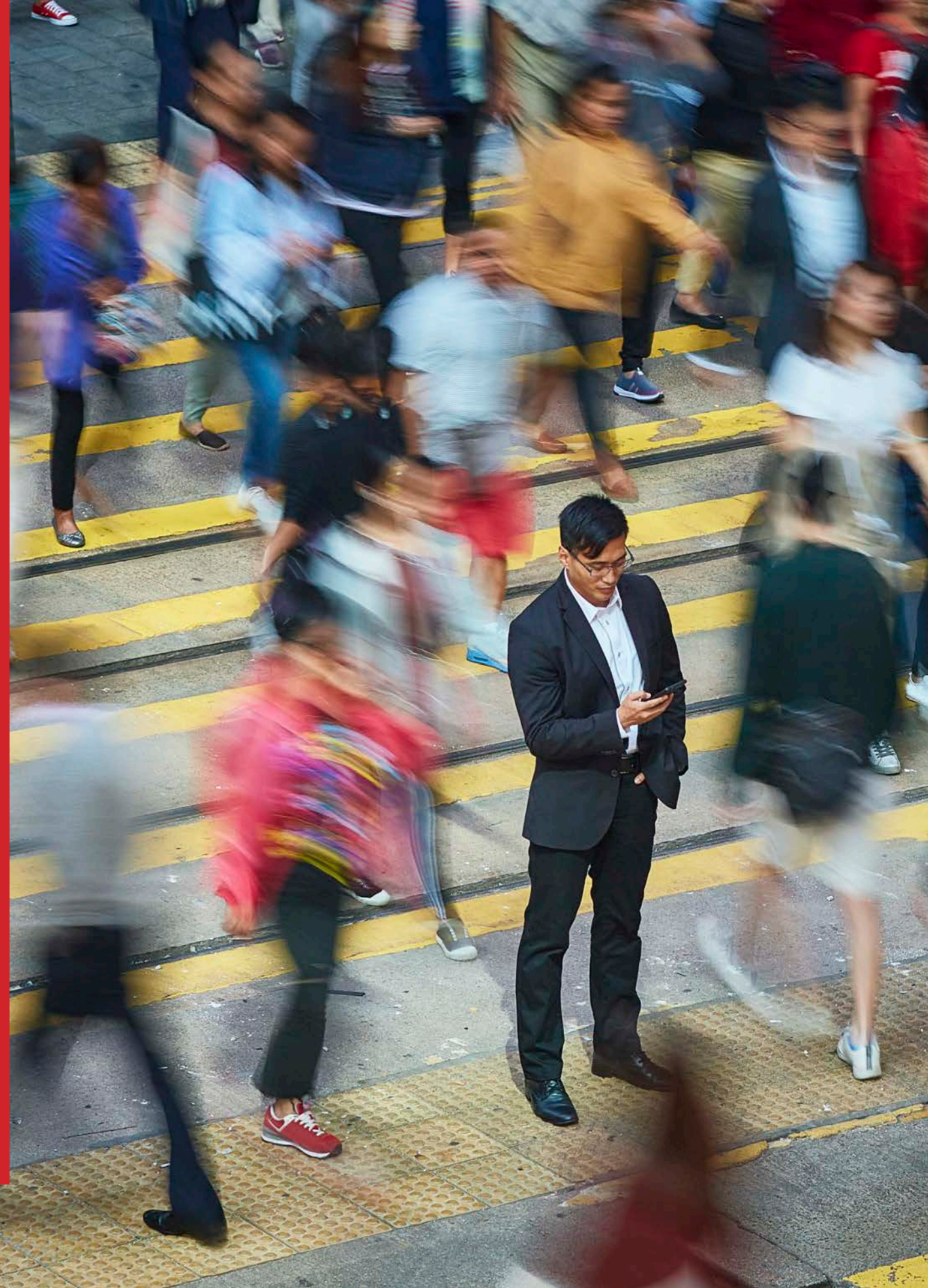
Taking into account both macro-economic and consumer drivers and looking across the full value chain at both upstream and downstream segments, this brings the total incremental investment requirement to over US\$1.55 trillion in the next decade.

<sup>4</sup> World Bank, IMF, OECD-FAO, USDA, Capital IQ, PwC analysis, expert interviews



# 2

Meet the multi-faceted  
new Asian consumer





## 2.1 Bigger spend with 250 million new citizens and the world's largest middle-class

Asia has become the largest region in the global food market, with its market share growing from 42 percent in 2014 to 50 percent in 2020<sup>5</sup>. Consumers will spend an additional US\$4.4 trillion on food over the next 10 years, as massive demographic changes and evolving consumer needs drive up demand for larger quantities and better quality food.

Asia will add another 250 million new citizens, equivalent to Indonesia's population, by 2030. These 4.5 billion people across Asia will consume more and become more discerning about their food choices.

The region's affluence is growing - 65 percent of the world's middle-class population will reside in Asia<sup>6</sup> in 10 years. However, it is important to consider the long-term impact of Covid-19 on lower income classes, which is not yet clear. ADB reports suggest that 75 million to 80 million consumers in developing Asia have been pushed into extreme poverty since the pandemic began<sup>7</sup>.


It is also urbanising faster than any other region, with traditional multi-generational households slowly breaking down as younger generations of empowered, educated, and sophisticated consumers move to cities. Increasing numbers will live in smaller households, either alone or with friends, impacting how consumers buy and consume food. China's household size has recently hit a record low - with family sizes averaging 2.62 members versus 3.1 a decade ago<sup>8</sup>.

Another important driver to consider is female participation rates in the workplace. In Southeast Asia, female participation in the workplace has either remained stable or increased steadily for cohorts aged between 25-54 years old. However, participation rates decreased sharply for females between the ages of 15 to 24 in the last 20 years<sup>9</sup>. This can be explained by the increasing number of women pursuing higher education. While they will face a delayed entry into the labour force, they will do so at a higher income level. Thus, it is important to consider the impact of the increasing numbers of young, better educated females on consumption trends. This, along with the increasing likelihood of delayed marriage and childbirth, will continue to have an impact on household attributes and consumer attitudes.

At the same time, Asia is ageing. China is expected to have over 350 million people aged 65 and above by 2050<sup>10</sup> - more than the entire population of the United States. In Japan, 25 percent of the population is already above 65, a figure that is set to rise to 40 percent by 2060. A similar story is playing out in Singapore and Thailand.

Our analysis shows that macroeconomic and demographic trends - namely, population growth and like-for-like price inflation - will contribute 3.3 percentage points of Asia's 7 percent CAGR growth in food spend between 2019 to 2030.

### Demographic changes shaping Asian consumer behaviour

 <b>Growing populations:</b> bigger demand for food	 <b>Growing middle-class:</b> higher food quality expectations	 <b>Younger, educated generation of consumers:</b> more selective tastes
 <b>More urbanities with smaller household sizes:</b> growing demand for convenient food options	 <b>Ageing populations:</b> greater demand for vitamins, dietary supplements and products promoting mobility, cognitive and heart health	

<sup>5</sup> GlobalData  
<sup>6</sup> Global Economy and Development at Brookings. (2017). The Unprecedented Expansion of the Global Middle Class.  
<sup>7</sup> ADB. (2021). Key Indicators for Asia and the Pacific 2021. ADB  
<sup>8</sup> Li, L. (2021). Smaller families becoming the new normal. China Daily  
<sup>9</sup> International Labour Organisation, Rabobank Analysis  
<sup>10</sup> World Bank. (2018). World Bank Report Offers Options for Elderly Care in China World Bank, Our World in Data

## 2.2 The power of the consumer

Investors should pay even more attention to Asia's increasingly sophisticated consumers, who will be the biggest driver of this 7 percent growth, accounting for 3.7 percentage points.

Not surprisingly, China's huge population is expected to see the most significant increase in consumer-led food spend, forking out US\$1.2 trillion between 2019 and 2030, as our research shows.

India, the world's second-most populous country, will lead the region in growth rates in consumer-driven

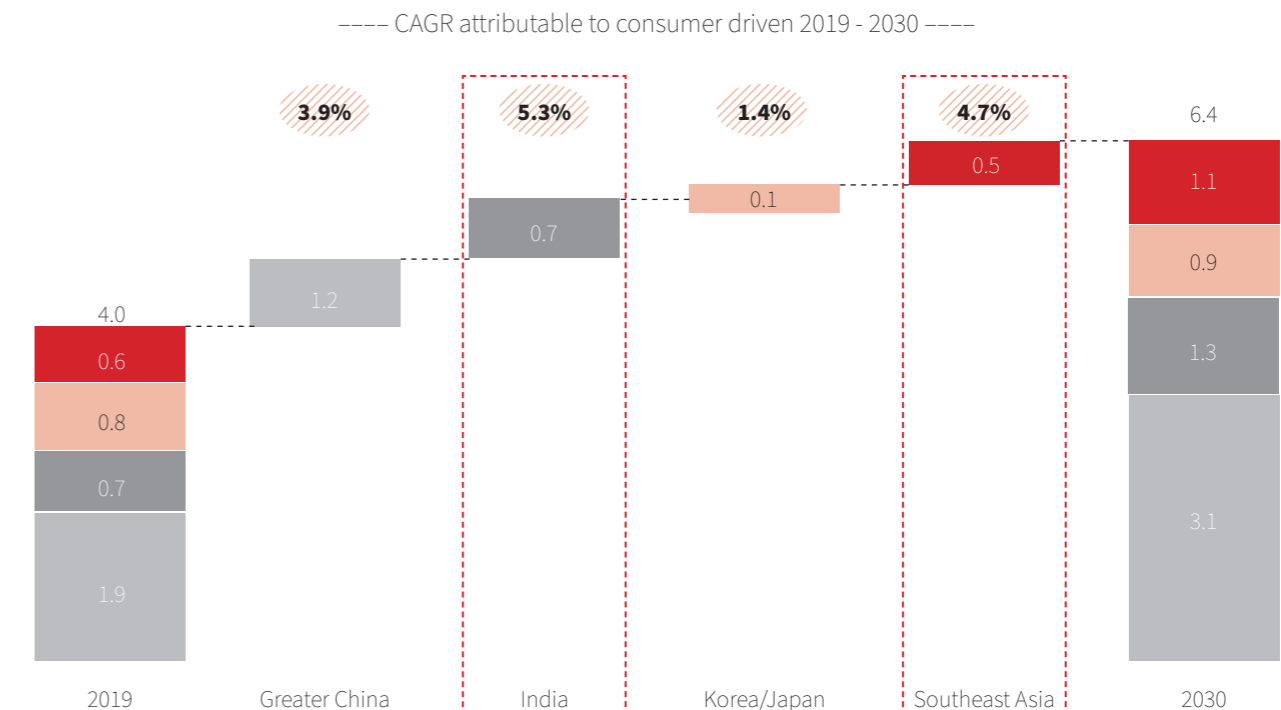
food spend, posting a 5.3 percentage CAGR expansion over the next decade. This represents an increase of US\$700 billion.

Southeast Asian markets are forecast to come in second with a 4.7 percent CAGR growth rate between 2019 and 2030, beating China's expansion of 3.9 percent over the same period.

In contrast, the more mature markets of Japan and Korea will grow just 1.4 percent, representing a combined increase of just US\$100 billion.

### India and Southeast Asia are likely to experience the most robust consumer-driven growth in food spending

Total consumer-driven food spend growth by country USD tn, 2019-30



Notes: Asia includes China, India, Japan, South Korea and Southeast Asia  
Source: OECD-FAO, PwC Analysis



## 2.3 From affordability to value-seeking

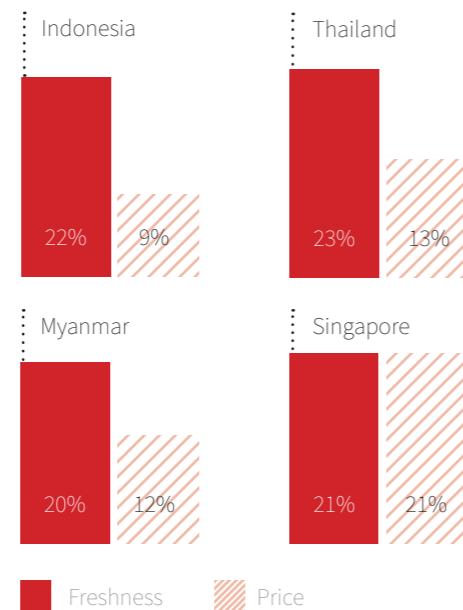
Asian consumers may have greater disposable income, but they are also more careful about how they spend it. It is risky to assume that newly affluent shoppers will simply pile their baskets high with expensive produce. Today's – and tomorrow's – consumers are becoming more informed about food choices.

Our regional survey indicates that consumers across every market rank "value for money" above "cheapest option available" as a purchasing criterion. In short, they will only trade up if a product is perceived to be of higher quality or has additional health benefits.

To understand what drives food spend growth rates in different markets, we need to look more closely at how Asian consumers' perceived values and priorities change, and how they diverge across markets.

In China, consumer spending growth had slowed since the previous decade, when newly affluent households splurged on expensive produce. Nowadays, Chinese consumers are more discerning in what they are willing to pay for, with almost one in three listing "freshness" as their top priority. That said, the Chinese are less price-sensitive than consumers in other countries, with just 4 percent saying "value for money" or "cheapest option available" was their top criteria.

Fresh is best – consumers in Southeast Asian markets place higher or equal importance on "freshness" over price factors when making a purchasing decision



Source: PwC Survey 2020

Similarly and perhaps surprisingly, consumers in many Southeast Asian markets tend to place more importance, if not the same on "freshness", versus price factors.

Malaysian shoppers surveyed bucked this pattern with a slightly higher proportion putting price factors (17 percent) above freshness (16 percent).

Consumers in more developed economies such as Australia, New Zealand and Japan were less concerned with freshness. Many of them picked price factors as their top criterion while paying attention to taste.



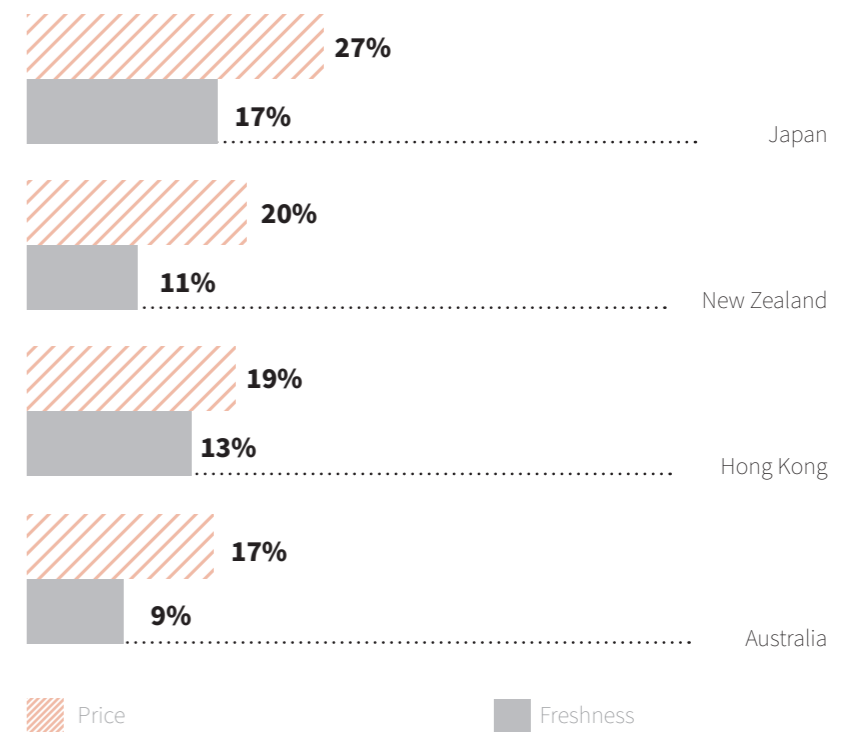
### Cherry-picking premium foods

Aspirational Chinese consumers eager to trade up on health products are known to splurge on Reid Fruits' Tasmanian cherries, which are marketed as a premium product air-flown to maximise freshness. Upscale customers pay as much as

**US\$80-100** for a 5 kg box.

Source: PwC analysis based on market research

Price is right – consumers in developed markets across Asia Pacific place greater emphasis on price factors over other purchasing criteria



Source: PwC Survey 2020



## 2.4 A higher bar



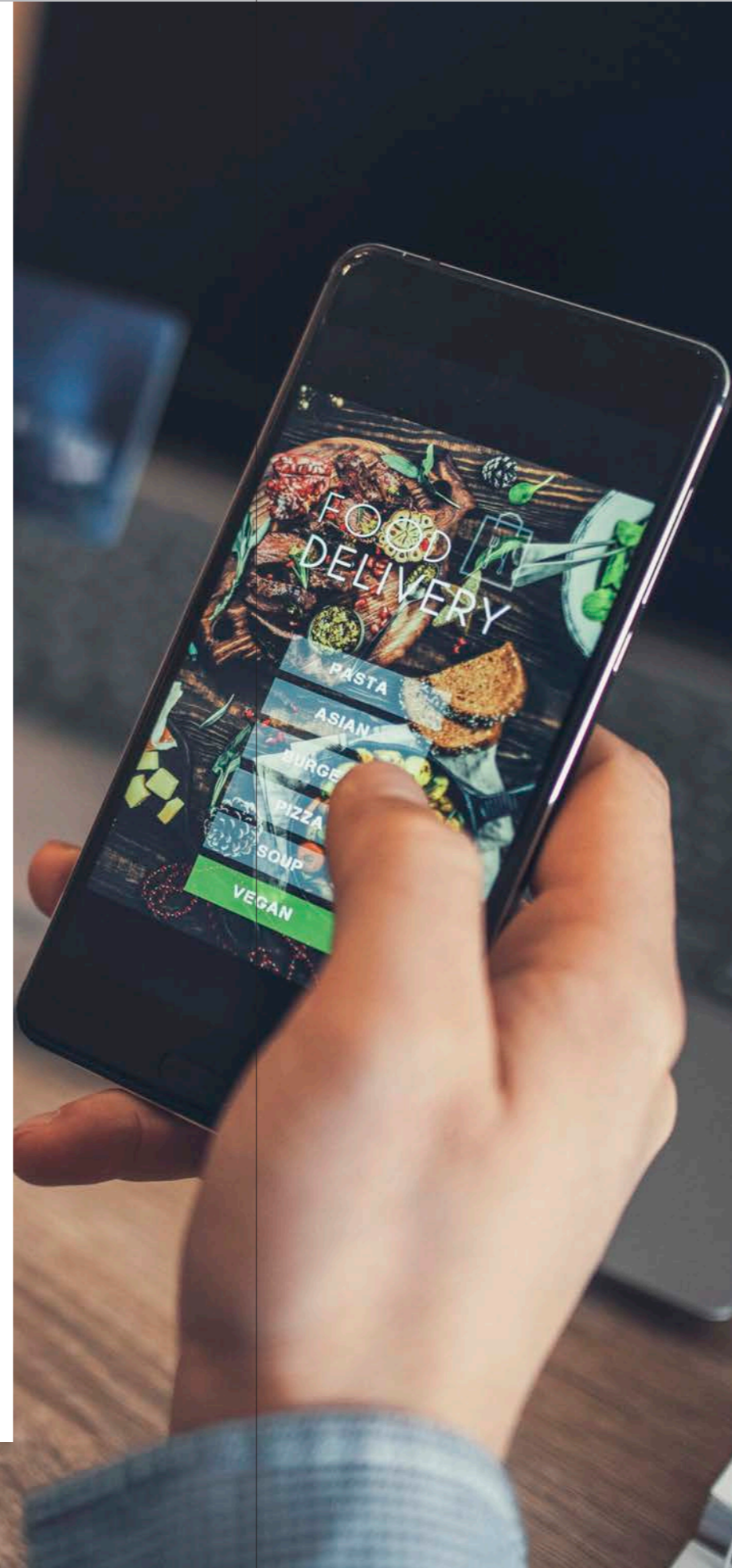
Asian consumers' purchasing criteria are set to become more demanding as they imbibe new food experiences and varieties through their hyper-connected lifestyles.

Their increasingly frequent travels and overseas exposure, as well as the exponential growth of digital and mobile penetration across the region, is having an enormous impact on consumption behaviour. Mobile phones are ubiquitous in Asia – for all generations. Access to news, social media and global streaming are not only exposing them to new consumption habits, but also making them more informed consumers. This has, in turn, raised their expectations around new food experiences, cuisines, and the availability of seasonal produce year-round, as well as informed them on key issues such as food safety and responsible sourcing.

Some food brands are already capitalising on consumers' willingness to pay a premium for higher food standards and functional attributes as well as taste experience. For instance, some are offering safe infant milk formula marked up with a "trust" premium and selling air-flown fresh fish in upscale Chinese supermarkets.

Another example is the many varieties of bottled water that have emerged in recent years. Traditionally, consumers were provided with a few choices of local branded water. Today, brands offer a plethora of categories, including natural, distilled, sparkling, flavoured, ion, vitamin and sports.

Agri-food players must rethink the way they produce, package, deliver and serve food to consumers, who are more digitally savvy and connected on social media; expect convenience; and continue to evolve their consumption habits.



## 2.5 Taste+ Combo

To truly appeal to Asia's new, sophisticated consumers, investors and agri-food businesses will need to concoct the right combination of values such as freshness, nutrition and safety for each market.

Taste and price will always remain the most fundamental drivers of choice. Indeed, without these, all other factors are redundant. Understanding local and emerging flavours will be critically important to domestic and international

players under pressure to defend and grow market share.

However, as competition heats up in Asia's lucrative food markets, a focus on taste and price alone is far from enough. Agri-food companies and investors will need to drill deep into the different ways Asia's heterogeneous markets are exhibiting these six key food trends, as outlined in the next chapter.

"Taste is still the number one factor, whether it's in the west or in Asia – people will not buy your product if it doesn't taste good. Beyond taste, the requirements and applications are very different as a result of cultural factors. Making burgers, tacos and meatballs in the US is very different to making stir fry and dim sum."

– Impossible Foods



# 3

Six trends shaping the  
future of food





### 3.1 Health is Wealth

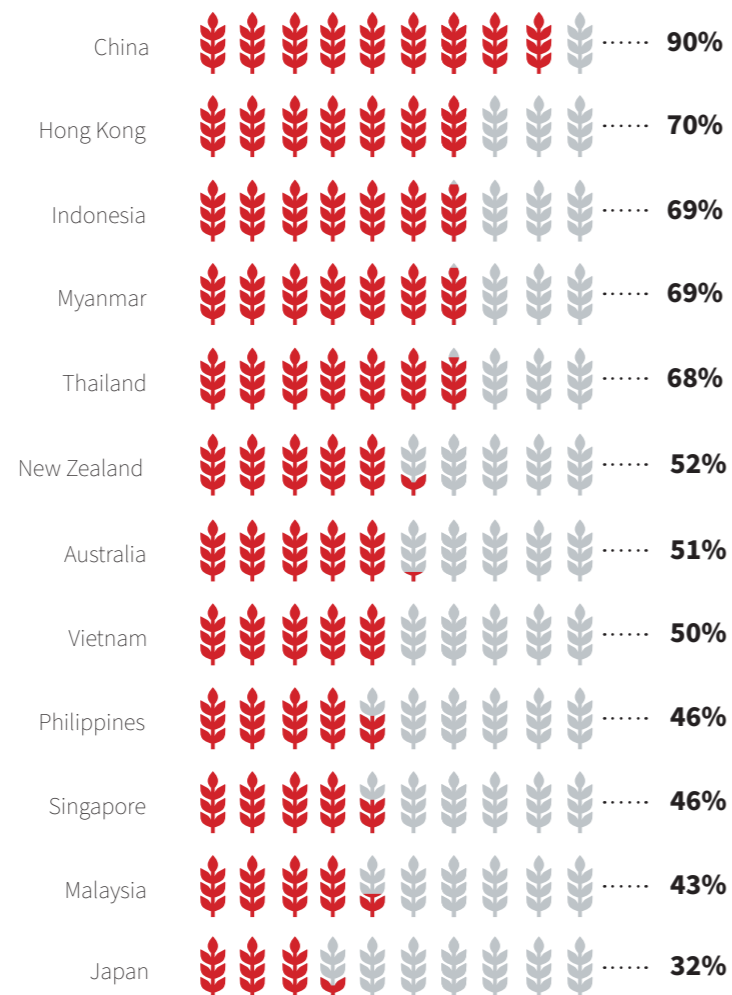
Demand for healthy food is fast rising. As incidences of obesity and diabetes continue to grow, Asians embrace food that promotes a healthy lifestyle.

In China alone, diabetes is estimated to cost over US\$100 billion per year in healthcare costs and lost productivity<sup>11</sup>. In Southeast Asia, Malaysia has one of the world's highest per capita sugar consumption levels<sup>12</sup>, and Thailand consumes four times the WHO's recommended amount of sugar intake<sup>13</sup>.

Governments are keen to educate citizens on the benefits of good nutrition, with consumers consequently demanding healthier products. Singapore is expecting to be the first country in the world to ban advertisements on high sugar packaged drinks, as well as require such products to carry an "unhealthy" label for transparency<sup>14</sup>.

More than half of the consumers in the markets surveyed indicated a willingness to pay a higher price for food perceived to be good for their health.

Consumers likely to pay a premium for better quality healthier food in the next 12 months



Source: PwC Survey 2020

<sup>11</sup> International Diabetes Federation. (2019). IDF Diabetes Atlas.  
<sup>12</sup> OECD. (2020). OECD-FAO Agricultural Outlook 2020-2029. OECD  
<sup>13</sup> Pisuthippan, A. (2019). The problem of Thailand's sweet tooth. Bangkok Post  
<sup>14</sup> Ministry of Health. (2019). MOH TO INTRODUCE MEASURES TO REDUCE SUGAR INTAKE FROM PRE-PACKAGED SUGAR-SWEETENED BEVERAGES; Khalik, S. (2019) War on diabetes: Unhealthy label for high-sugar drinks, total ban on ads to be introduced in Singapore. The Straits Times

Our research shows that some health-related food brands have enjoyed valuation premiums<sup>15</sup> of as much as 30 percent, as well as improved multiples and faster growth.

We expect this favourable situation to continue for health products, especially in sizeable markets with a large middle-income class, such as Australia, Japan and China.

An overwhelming 90 percent of Chinese consumers say they are "likely" or "highly likely" to pay more for better quality, healthier foods than their peers.

While a lower proportion of Japanese and Australian consumers were willing to fork out more. Health brands in these countries are still expected to enjoy fast growth due to other factors such as the nutritional needs of an ageing population – a segment ripe for penetration – as well as their tendency to consider a broader range of health factors such as balanced diets, exercise, and mental fitness.

"Helping the aging population select an optimal diet and food choices could have a significant impact in the future. Maintaining cognition and mobility are paramount to a good quality of life – and diet plays a critical role."

– Director, Clinical Nutrition Research Centre (CNRC), Singapore

#### From chips to chickpeas

Across the board, all Asian markets surveyed showed a clear shift towards healthier eating habits. Consumers define this as:

1. Cooking more frequently at home and ordering fewer take-aways – which are often perceived to be higher in grease, fat, salt, and sugar content than home-cooked meals
2. Replacing red meat with fruits and vegetables
3. Cutting down sugar and opting for healthier snacks

While all the Asian countries polled displayed this shift towards healthier diets over the last three years, the most notable improvements were seen in China, Indonesia and Thailand. Fruit consumption in China, for instance, increased for 78 percent of respondents, compared to three years ago. Per capita consumption of fresh fruit in China increased by 33 percent from 2014 to 2019<sup>16</sup>. Meanwhile, consumers in Indonesia said they are twice more likely to cook at home today than in the past. A breakdown of Asian consumers' diets showed that while they are snacking more, many seek to feed those cravings with healthier options.

#### How companies are capitalising on this healthy snack trend

India's largest snack maker **Haldiram Snacks** has entered into a joint venture in 2021 with South African health food company Futurelife to expand its local snack portfolio with health products such as granola, protein powders

China's **Tmall** grew its mixed nuts snacks category by 77 percent in one year to US\$900 million in 2019, on the back of strong consumer appetite for nuts such as almonds and walnuts, which Chinese believe to be particularly healthy for their skin and brain

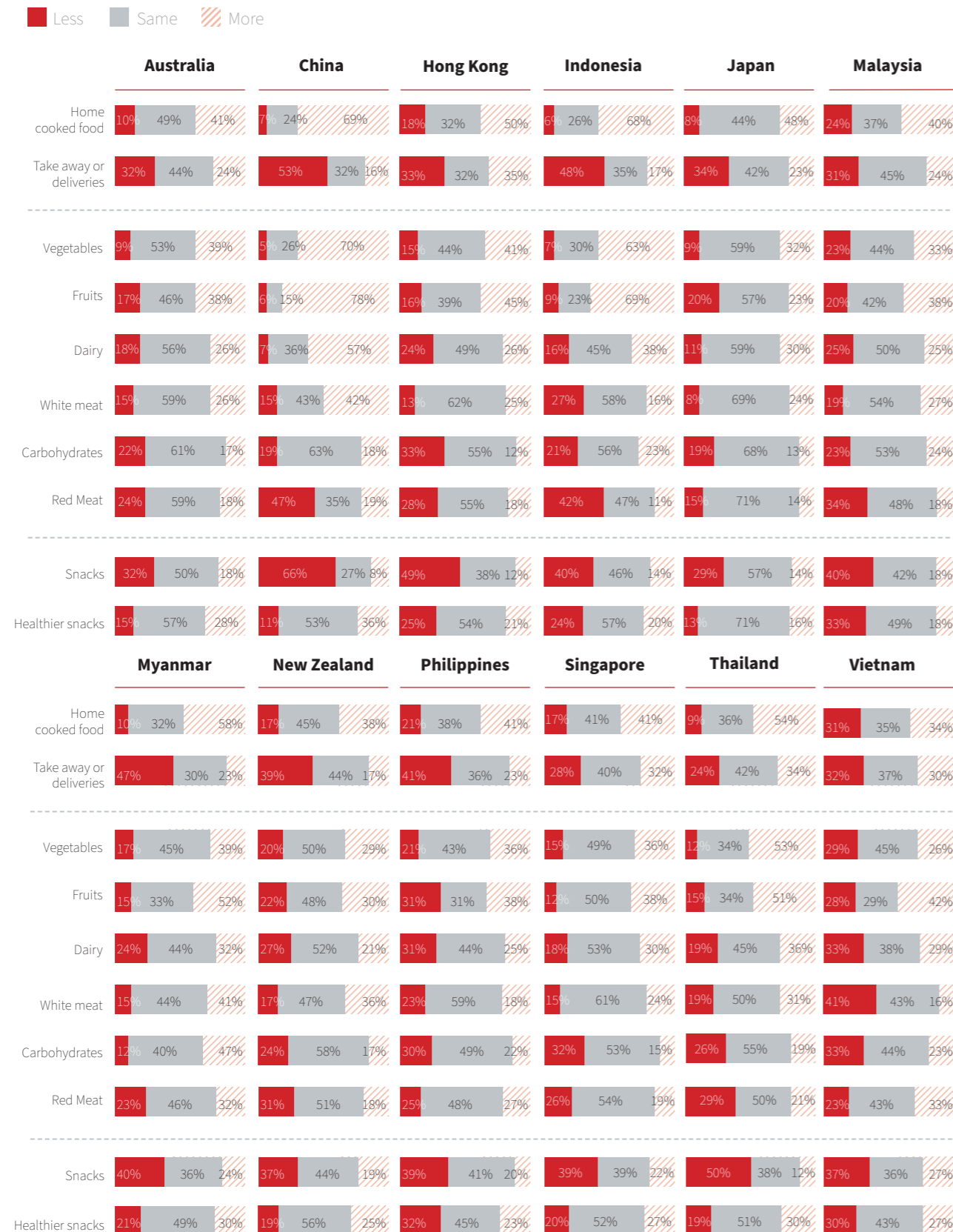
Source: Shashidhar, A. (2021). Murrura to granola! Haldiram's sets eyes on India's health food market. Business Today; Tmall web scraping data analysis



<sup>15</sup> Capital IQ and PwC Analysis  
<sup>16</sup> National Bureau of Statistics of China. (2020). China Statistical Yearbook.



There have been considerable shifts in dietary preferences across Asia Pacific, compared to three years ago



Note: Preferences relate to pre-COVID shifts

Source: PwC Survey 2020

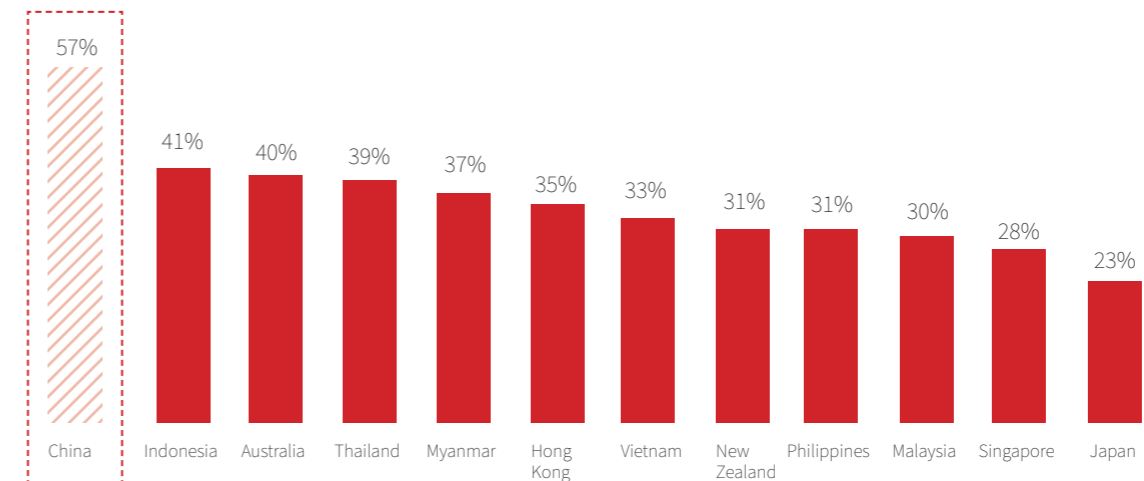


**Nutri-value**

Consumers are increasingly conscious about the nutritional content of their food, with China topping our poll of Asian consumers who check nutritional content on food more frequently than they did three years ago.

More than half of Chinese consumers check a product's nutritional values and potential impact on health before making a purchase

% of people who chose to check nutritional values and potential impact on health



Source: PwC Survey 2020

Consumers are consciously buying food products that support their efforts to improve their diets. Our survey shows that Chinese, Indonesian, and Thai consumers are most interested in cutting down sugar, preservatives, and food additives in their diets while adding supplements.

In response, companies tailor products to offer the nutritional traits that consumers in individual markets value the most. The same product can look quite different across Asia's heterogeneous markets.

**How businesses are capitalising on the Nutri-value trend:**

**Nestlé** launched a no-added-sugar version of its Milo drink in Thailand, in response to the government's public health policy on reducing sugar intake. In Australia, where consumers associate quality with taste but still insist on healthier versions of the products they enjoy, Nestlé introduced a 30 percent less added sugar version of Milo by replacing cane sugar with stevia.

Source: Nestlé



**How businesses are capitalising on the Nutri-value trend:**

**Genki Forest**, a Chinese bottled beverage start-up, is competing with Coca Cola and PepsiCo by selling sodas that have zero calories and are sugar-free with no artificial sweeteners. It generated sales of about US\$450 million in 2020, is valued at US\$6 billion, and has expanded into more than 40 countries.

Vitamin maker **Blackmores** has successfully expanded beyond its home ANZ market and earned more sales from its international business in 2020 than from its home market. The company aims to continue building its international presence such as in Indonesia, India and Vietnam.

*Source: Rui, M. (2021). Data-driven iteration helped China's Genki forest become a \$6B beverage giant in 5 years. TechCrunch; Blackmores*



New food categories with attractive premiums are still abound for investors tuned into Asian consumers' evolving tastes. Take sports protein, for instance. With Asia's physical activity spend tipped to enjoy the fastest growth rates globally over the next few years<sup>17</sup> and governments promoting exercise as a way of life, sports protein is emerging as a popular market segment, especially in China, Japan and South Korea<sup>18</sup>.

**How businesses are capitalising on the Sports and protein trend:**

**Nestlé** has also launched Milo XTRA in Australia, a chocolate drink product which includes 25 percent more protein, marketed to help "active Aussies" go the extra distance in their sports. It can be priced roughly 7 percent more than the original.

*Source: Nestlé*



**Differing perceptions of health**

Still, agri-food companies that merely package their products as "healthy" to a general Asian audience are unlikely to gain much traction. Consumers' interpretations of "health" differ widely across the region, where diverse cultures and socio-economic conditions give rise to a spectrum of healthy diet and lifestyle choices.

Not surprisingly, many of the consumers we surveyed across Asia are in favour of a healthier lifestyle involving a balanced diet and regular exercise.

However, they also revealed some interesting insights about what aspects of health they value more than others:

- A well-balanced diet in Japan: Consumers are focused on balancing diet proportionately across the five food groups. Price-sensitive consumers do not mind consuming processed or frozen fruit and vegetables rather than fresh ones, as well as nutritional value products such as high-fibre cereal<sup>19</sup>.
- A well-balanced diet with premium ingredients in China: Consumers are largely still in the "trade-up" phase where they are willing to pay more for better quality food across the five food groups. While take-away foods have grown rapidly, many Chinese consumers still view home-cooked meals as being healthier.

- Reducing sugar intake in Malaysia and Thailand: Consumers are keen to indulge less by reducing sugar in their diets; in Thailand, consumers are also keen to cut out fatty foods.
- Eating to stay fit in Singapore: Our survey respondents put exercise in first place as they focus on preventative measures. In line with national initiatives to encourage exercise and fitness, Singaporeans are the most active in Asia<sup>20</sup>.
- Focusing on nutrition in Indonesia: Consumers are largely focused on the quality of ingredients and their nutritional values. With the fourth-highest burden of acute malnutrition in the world<sup>21</sup>, Indonesians are more open to reformulated food that offers higher nutritional content without compromising on taste.

There is also an inevitable gap between intention and action. Our survey found that less than four out of ten Singaporeans who rank "eating less processed food" as important are following this up in practice. Similarly, in Vietnam, "cutting back on meat" is considered a high priority, yet just 8 percent of respondents say they are managing to do so. A combination of lack of alternative foods, and poor dietary education, presents opportunities for agri-food businesses.

<sup>19</sup> European Union. (2019). The Food and Beverage Market Entry Handbook: Japan. European Commission  
<sup>20</sup> AIA. (2020). Singaporeans Doubled Down On Keeping Healthy Amid COVID-19 With 3 In 4 Making Improvements In Their Health As A Result. AIA.  
<sup>21</sup> Bait, BR, Jee HR, Roshita, A, Amaheka, R, Chrisnadarmani, V, Lino, MR. (2019). Community engagement to manage acute malnutrition: implementation research in Kupang district, Indonesia. World Health Organisation.



## 3.2 Taking a fresh look at quality

According to our survey, “quality” remains the single most important factor when buying food. Just as there are varying perceptions of health, consumers across the region also have different interpretations of quality according to age, geography, and lifestyle.

In Australia and New Zealand, quality tends to mean taste, whereas in Asia it often refers to freshness. Higher than any other market in the region, a third of Chinese respondents say this is their most important grocery purchase criteria.

However, even within the “freshness” category, there are differences in consumers' willingness to pay a premium as we saw in the previous chapter of this report.

In China, freshness is often defined as the shortest farm-to-table duration, hence the popularity of “*nong jia le*”, or farm food tourism, where consumers can harvest vegetables, fish and even poultry grown on family farms and immediately have the ingredients cooked into a meal in the farmer's kitchen. Chinese consumers also generally regard frozen foods as not being truly ‘fresh’, even though companies are trying to change this perception by promoting flash-frozen foods that are generally more hygienic while keeping nutritional content intact.

In Vietnam, where local cuisine features vegetables and meat briefly cooked or eaten raw, freshly-picked produce is often seen as the gold standard.

In markets like Singapore and Australia, consumers are generally willing to go by the production and expiry dates on groceries and non-processed packaged foods to determine freshness.

In India's relatively poor infrastructure, complicated supply chains and under-developed cold chain systems have raised public concern about fresh food contamination issues. Today,

however, locally sourced produce is seen as a “fresh” option for many consumers, even if such products are sold in *kiranas* (mom-and-pop stores) without optimal refrigeration systems.

Retailers are in a race to improve their supply chains, and halve the time taken to get newly harvested food onto store shelves or directly into consumers' kitchens.

### How businesses capitalise on the fresh food trend

**Ninjacart**, an Indian start-up, is meeting this demand by enabling restaurants, small stores, retailers and homes to buy fresh produce directly from farmers. The produce is delivered through a last-mile delivery network enabled by big data. Its success so far in getting produce from farms to stores in less than 12 hours, bypassing costly cold chain infrastructure, has helped it to secure a further round of funding in late 2020 from Walmart and Indian e-commerce firm Flipkart, reportedly in the region of US\$30 million.

Chinese grocery chain, **Pagoda**, sources high-quality fresh fruits from around the world, with more than 4000 stores. It sells five times more fresh fruit than Walmart. **QianDaMa**, a fresh-only retailer, offers meat and other produce that has arrived in the store that day, with no overnight storage.

*Source: The Economic Times. (2020). Flipkart, Walmart invest \$30 million in Ninjacart. The Economic Times; Nagarajan, T. (2021). How fresh is our food? The Hindu Business Line*



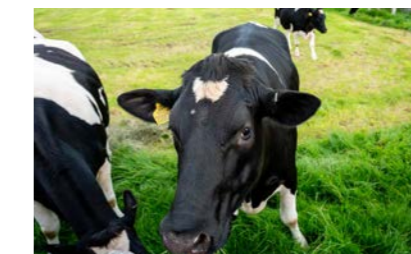
### Selectively paying more for freshness

In response to demands for quality manifested in freshness, we have seen many examples of upgrading products. Consumers have become more discerning in picking individual varieties within a food category that they deem the most beneficial to health.

Take the wildly popular bubble tea, for instance. Asian consumers are becoming more selective, picking freshly brewed varieties over the cheaper pre-mixed, sugar-heavy mixtures. They are also more willing to pay a premium for brands like Heytea, which brew teas with a fruit base using large fresh fruit pieces.

### How businesses capitalise on the fresh food trend

Southeast Asian and Chinese consumers are now valuing fresh milk over milk powder. **Lepur Greek yoghurt** has achieved strong growth in recent years, despite charging two to three times more than cheaper alternatives.



## 3.3 Safe and sure

### A life and death concern

While ingredients and quality are important, these attributes are still not as critical as food safety for some Asian consumers. They continue to be haunted by food scares such as China's infant milk scandal, E.coli and African swine fever, as well as a proliferation of counterfeit products such as shellfish injected with gel-like substances to increase its weight and value in Vietnam.

Across the Asia-Pacific region, almost three-quarters of respondents in a 2020 study<sup>22</sup> cite illness and death caused by contamination as their biggest concern for risks posed by food supply chains. In Southeast Asia alone, the UN estimates 150 million food-related illnesses and 175,000 deaths annually<sup>23</sup>.

Not surprisingly, our survey found that Vietnam consumers, followed by Japan and Hong Kong, are the most concerned about where their food products are made when considering this factor as a sole purchasing criterion.

"The British Council reported that 70% of Vietnam's 16 to 30-year-olds rank food safety as their biggest concern, on par with job security<sup>24</sup>"

<sup>22</sup> Zebra Technologies. (2020). Zebra Study: Only Two in 10 Consumers Have Complete Confidence Their Food is Safe to Eat. Zebra Technologies

<sup>23</sup> World Health Organisation. (2020). Food safety in South-East Asia. WHO

<sup>24</sup> British Council. (2020). Next Generation – Vietnam. British Council



### Checking their sources

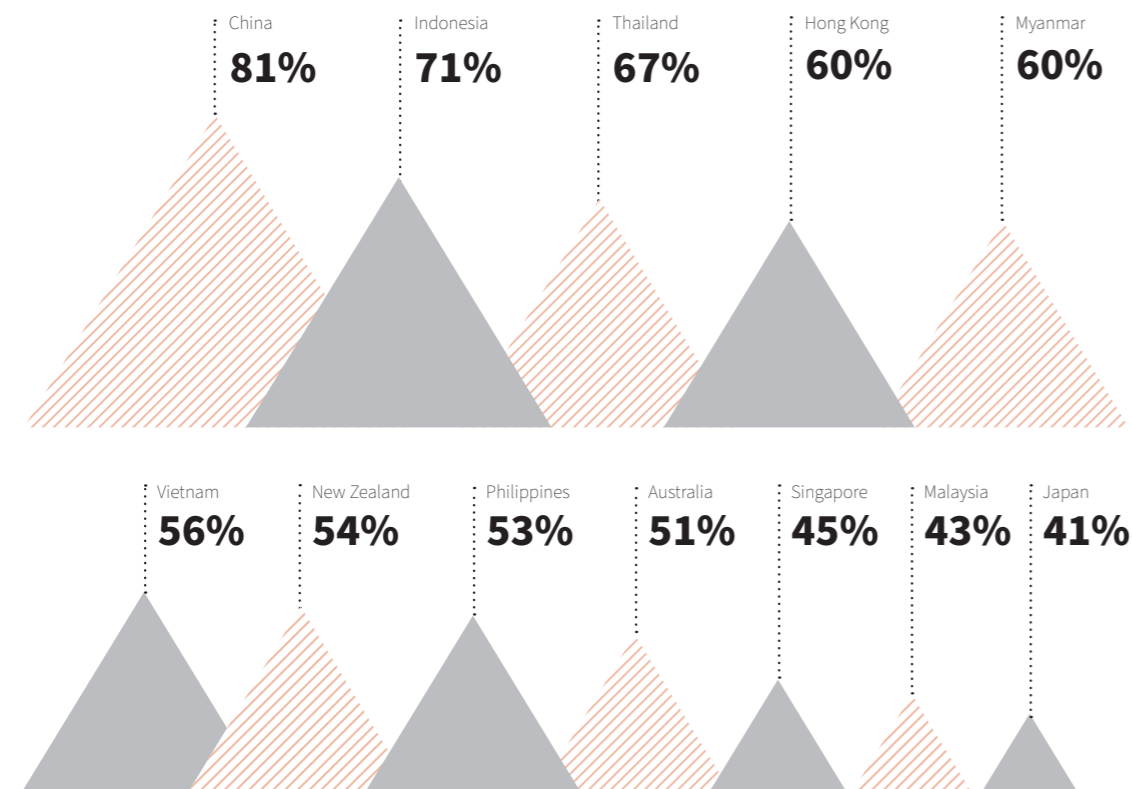
More than 40 percent of Asian consumers we surveyed are concerned about where their food is sourced from, with 81 percent of Chinese respondents indicating they would trace food sources over the next 12 months.

Many consumers have even made source-checking a habit, with 69 percent of Chinese consumers and 51 percent in Indonesia doing this as part of their typical daily routine.



Over 40% of Asian consumers are likely to trace their food sources due to safety concerns going forward

% respondents – likely and very likely



Source: PwC Survey 2020

### Demanding more accountability from companies

Asian consumers and governments have been putting pressure on agri-food companies to be more accountable and transparent about food sources and improve safety checks.

In response, more firms are leveraging technology to provide safe and traceable food solutions. Investments will need to be made into the traceability and authentication of products, through digitalisation and serialisation, for agri-food brands to build up trust and credibility with consumers.

### Businesses capitalising on the food traceability trend

New Zealand dairy giant **Fonterra** has adopted a cloud-based strategy to improve its food safety and quality operations. It is also using X-ray technology to enhance traceability.

Australian firm **Two Hands** has developed a tamper-evident Smart Tag to authenticate products. It also offers a platform for food providers to directly interact with the end-customer.

**Pinduoduo**, one of China's largest e-commerce platforms has recently partnered with Singapore's Institute of Food and Biotechnology Innovation to develop a test that will detect contaminants (such as pesticides) in fresh produce.

Source: Fonterra; Two Hands; and Pinduoduo

### Shifting "trust" premiums

Consumers across Asia demand greater reassurance that food is safe, and are turning to brands they feel they can trust – sometimes at the expense of domestic providers. Boosted by consumers' willingness to pay a "trust" premium for food bought directly from their source to avoid counterfeits, China's cross-border e-commerce and "daigou" – a consumer-to-consumer relationship where intermediaries buy overseas goods for locals at a fee – had seen strong demand in recent years, although there are uncertainties for this channel in the future.

China's domestic food businesses have redoubled efforts to rebuild trust. Infant milk producer Fei He has invested heavily in quality control and transparency, while formula maker Synutra built plants in France to enhance consumer confidence<sup>25</sup>.

Such efforts appear to be paying off, with more Chinese consumers displaying more confidence in food safety standards. Our survey found that while Chinese consumers are still keen to trace food sources, they now rank ingredients and quality as more important than food safety. This preference may also reflect the growing assurance from improved traceability information and stricter food regulations enforced by the Chinese authorities.

This shift also implies that agri-food businesses will have to work even harder to earn the trust premium from consumers using different formats in future. They will need to prove the integrity and transparency of their supply chains to address persistent safety concerns, whilst at the same time, find the most appealing combination of attributes, such as taste plus traceability and freshness, to retain brand loyalty in markets like Vietnam and China.

Until recently, much of Asia's grocery shopping was carried out in "wet" markets. However, with the surge in popularity of supermarkets, agricultural players such as Dole, Zespri and Steggles are branding fresh vegetables, fruit and chicken respectively, offering consumers reassurance – at a price premium.

The surge in "daigou" transformed modest-sized Australian and New Zealand brands like milk producer A2 into larger regional food companies seemingly overnight.

<sup>25</sup> Bender, R. (2014). France Has a Formula for China's Baby-Milk Needs. The Wall Street Journal



### 3.4 Sustainable consumption

As Asian consumers become more informed and discerning, they are also increasingly aware of the environmental impact of their food consumption.

Consumers expect a lower carbon footprint from logistics providers, grocers and manufacturers. They want agri-food companies to have sustainable, traceable supply chains and to use eco-friendly, recyclable packaging. In meeting this challenge, we see bountiful opportunities to provide new types of food, as well as making substantial improvements in reducing food losses and waste, packaging and logistics.

Global food systems are responsible for more than a third of the world's greenhouse gas emissions<sup>26</sup>. Food loss and waste are the largest carbon emitters on the planet, creating an estimated 8 to 10 percent of total annual global greenhouse gas emissions<sup>27</sup> – around four times that of aviation.

In China alone, more than 35 billion kilograms of food is lost per year throughout the value chain of households, warehouse storage, transport and processing<sup>28</sup>. This is enough to feed as much as 100 million people<sup>29</sup>, or the entire population of Vietnam.

As Asian countries such as China, Japan and South Korea commit to carbon neutrality by 2025 to 2060, the food sector must play its part in achieving this goal. China, for instance, has launched a “clean plate” campaign targeting “extreme eaters” and “wasteful diners”.

However, the key challenge here is that culturally-embedded norms of food waste can be hard to break. Many Asian societies view an excess of food as a symbol of generosity and abundance in both family and business settings.

#### Greener appetites

On the bright side, more consumers have displayed a willingness to change their habits, with a World Economic Forum consumer survey reporting that 80 percent of respondents across Southeast Asian countries value sustainability and have altered lifestyles to be more eco-friendly. This proportion was even higher among affluent urban respondents, at 90 percent<sup>30</sup>.

Our survey also confirms the changing attitudes of Asian consumers. Respondents listed avoiding food waste, limiting packaging and buying locally produced food as some of the top sustainability trends they are most concerned about and are likely to practice when making food choices.

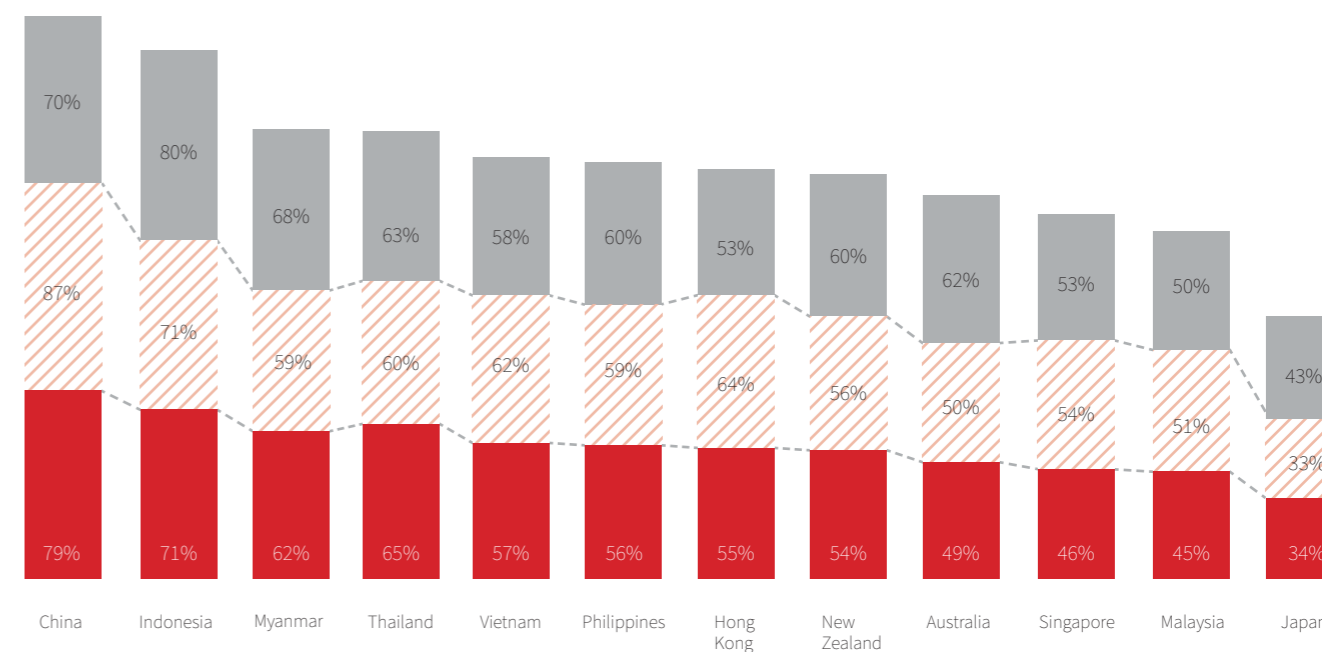
This gives retailers and food companies new opportunities to reduce their carbon footprint and offer sustainable options by improving packaging, waste reduction and logistics. For example, many restaurant and delivery companies are moving towards biodegradable or recyclable packaging, cutlery and straws, and are asking customers to use their own containers where possible.

Chinese consumers, followed by Indonesians, appear to be the most concerned about sustainability and the environment, scoring the highest across most of the factors in the survey.



Chinese, followed by Indonesian consumers are the most concerned when it comes to sustainability

% respondents – likely and very likely



Source: PwC Survey 2020

- Most concerned about the environmental impact e.g. use of plastic / recycled packaging
- Most likely to change their consumption behaviour to avoid food waste
- Most eager to buy local rather than imported in the near future

Some current food trends could make waste harder to control – most notably the demand for fresh, natural produce, which could shorten shelf life due to fewer preservatives. Additionally, the rise of online groceries and food deliveries may disengage consumers from the physical process of shopping, causing them to buy more than they need, thereby creating new challenges of food and packaging waste.

According to a Chinese government survey, Asian consumers’ high environmental awareness is not necessarily reflected in their purchasing behaviour. Similarly, our survey indicates that environmental and wastage factors trail far behind price, quality and health on their list of purchase priorities. Rising affluence could push these issues higher up the agenda, following the trends in more mature economies.

<sup>26</sup> FAO. (2021). Food systems account for more than one third of global greenhouse gas emissions. FAO  
<sup>27</sup> UNEP. (2021). UNEP Food Waste Index Report 2021. UNEP; ATAG. (2021). Facts & Figures. ATAG  
<sup>28</sup> Jiang, H. (2015). Reduction of food loss and waste urgent in China. FAO  
<sup>29</sup> Piesse, M. (2017). The Wasteful Dragon: Food Loss and Waste in China. Future Directions International  
<sup>30</sup> World Economic Forum, Bain & Company. (2020). Future of Consumption in Fast-Growth Consumer Markets. WEF



**How businesses are capitalising on the sustainable food trend:**

Singapore-based start-up **UglyFood** has sought to address the food wastage problem in the city state, where almost one-fifth of imported food is unsold. It seeks to limit wastage by saving this so-called ugly produce from the landfill and selling them direct to consumers at prices up to 40 percent less than those in supermarkets.

New online grocery models are removing the middleman so that fresh produce is picked from the source “just in time” – only when required, reducing wastage and transport emissions. India’s **FreshToHome** sources fresh fruit, vegetables, fish and meat from farms and fishermen and delivers directly to consumers, reducing the supply chain to just 24 to 36 hours.

Zero-waste grocery stores such as Australia-owned **The Source Bulk Foods** and **Scoop Wholefoods** require consumers to bring their own refillable containers to purchase dried foods and household products.

**Pure Salmon**, an 8F Asset Management portfolio company, raised funds in 2020 to invest into rolling out Recirculating Aquaculture Systems (RAS) salmon facilities globally. It aims to eventually produce up to 260,000 tonnes of salmon per year from its land-based salmon farms. RAS allows Pure Salmon to reduce the need for using any antibiotics or pesticides.

*Source: UglyFood; Singh, M. (2019). India's FreshToHome raises \$20M to grow its fish, meat, vegetable and milk e-commerce platform. TechCrunch; Mathur, N. (2020). FreshToHome raises \$121 million to expand in India, UAE. Mint; FishFarmingExpert. (2018). Private equity firm launches 260,000-tonne RAS 'mission'. Pure Salmon*



“Young consumers today care about health, the environmental and animal welfare – this is becoming a new lifestyle. It’s not necessarily one or the other, they want to feel good about what they are eating. This is not just limited to the young, they have some influence over their parents as well, who are particularly sensitive to health issues such as cholesterol intake from meat as they age.”

– Founder, Green Monday





## 3.5 Alternative protein

While rising income levels may lead to increasing demand for meat in countries such as the Philippines, Myanmar and Vietnam, our survey still shows a marked shift across the region towards less meat consumption, as more Asian consumers seek a more balanced diet. For instance, almost half of Chinese respondents say they eat less red meat than three years ago. The shift towards a more vegetarian diet provides great opportunities for plant-based or lab-grown alternative protein.

### Plant-based popularity

Growing demand for plant-based diets and protein across Asia is driven mainly by younger, more affluent consumers, who are increasingly critical of meat production's potential health and environmental impacts.

Our survey shows that Australia, New Zealand, China, Hong Kong and much of Southeast Asia are potential markets for alternative protein, as more consumers cut their meat intake over the last three years.

 **1 in 4** consumers surveyed across Australia and Southeast Asia said they consume less meat than 3 years ago. In China, that figure is an extraordinary 1 in every 2 consumers

### Common reasons of reducing meat intake:



**1** Health risks and the link associated between the overconsumption of red meat and cardiovascular disease.



**2** Awareness around the environmental impact of meat consumption and its role as a significant contributor to global greenhouse gas emissions.

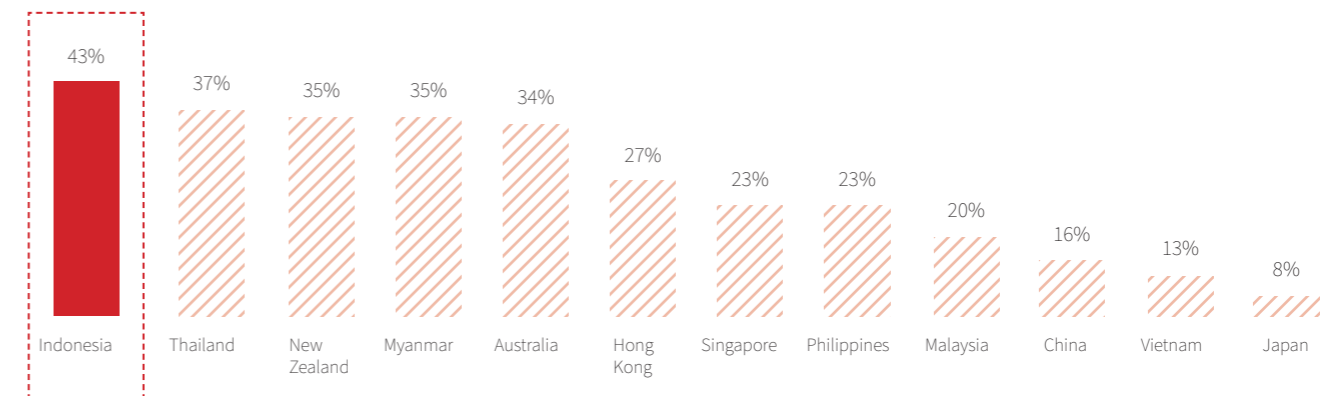


**3** Greater appreciation of alternative protein sources which have a lower impact on the environment.

Meanwhile, more consumers embrace semi or total vegetarianism, with 43 percent of Indonesian consumers willing to adopt a vegan or vegetarian diet in the next 12 months, and 48 percent of Chinese consumers inclined to a flexitarian diet.

Growing in popularity, over 40% of Indonesian consumers indicated their likeliness in becoming a vegan or vegetarian in the next 12 months

% respondents – likely and very likely



Source: PwC Survey 2020

Even in Hong Kong, where consumers surveyed were less inclined to veganism than their Asian peers, demand for vegan food has increased. Meals delivery platform Deliveroo in Hong Kong recorded a 104 percent year-on-year increase in vegan orders in 2020. It also more than tripled its number of partner restaurants offering vegan options<sup>31</sup>.

### The alternative way forward for protein

Asian markets for plant-based protein are still relatively nascent, even though countries like China and India have a long tradition of such cuisine, which includes tofu, chickpeas and lentils. More research will be needed to localise the taste of plant-based foods and culinary applications.

Some Asian regulators are responding to this trend and facilitating its commercialisation with food safety in mind, especially in the area of lab-grown protein. Singapore has led the charge by granting the world's first approval to EatJust to produce and sell cell-cultured meat products<sup>32</sup> in December 2020.

### How businesses are capitalising on the sustainable food trend:

**Beyond Meat** became the world's first vegan meat alternative to list on the US stock market in 2019, representing a milestone for the wider plant-based industry. Already in over 50 global markets, their products in Asia are largely made available through hospitality partnerships with the likes of Starbucks and Yum China.

**Omnipork** is tailoring products specifically for Asian consumer tastes and textures. For instance, it has created "alternative pork" products like ground meat, dumplings and luncheon meat which are more popular items on Asian menus.

After debuting in Asia's top restaurants, sales of **Impossible Foods'** plant-based burger increased by more than sixfold in Asia in 2019. Impossible Foods launched its flagship product – Impossible Burger – in grocery stores across Singapore and Hong Kong, as well as on local online grocer platform RedMart in 2020.

Source: Beyond Meat; Omnipork; Impossible Foods

<sup>31</sup> Vegconomist. (2020). Deliveroo Hong Kong Sees 104% Growth of Vegan Options Since Pandemic. Vegconomist

<sup>32</sup> Tan, A. (2020). In a world first, cultured chicken meat approved for sale in Singapore. The Straits Times





### More education, higher premium

Asian consumers will need a significant amount of education about alternative protein to convince them to pay a higher premium. A 2020 study in the Netherlands indicates that the more consumers know about the benefits of cell-based protein, the higher they are willing to pay. Researchers at the Maastricht University found that 58 percent of study participants said they would pay more – an average premium of 37 percent – for cell-based meat after listening to a detailed presentation<sup>33</sup>.

While plant-based products still command a much higher premium than traditional meat, their prices are expected to decline over time as their relatively high costs benefit from significant economies of scale.

Indeed, Impossible Foods has already cited higher production efficiency for its ability to slash prices for the third time in a year. In January 2021, it announced it would cut international prices by double digits for retailers in Hong Kong, Macau, Singapore and Canada, as “part of its mission to displace ground beef”. Even more price cuts are coming to make its products “more affordable than meat from livestock”, it promised<sup>34</sup>.

Whilst alternative protein provides many environmental and health benefits, businesses need to continue to develop these products, ensuring they increasingly outweigh the negative impacts of traditional protein consumption. Further research and development will be required to enhance the overall health benefits of alternative protein products, tackling their high sodium and fat content.

## 3.6 Online Marketplace

While online shopping remains a small proportion of food sales in Asia, the Covid-19 pandemic has given it a long shot in the arm. The pandemic pushed more consumers to cook at home and order groceries, meal kits and take-out food online – habits that could stick permanently as technology advances make it increasingly easy and convenient for consumers to continue purchasing online.

With increasingly long working hours, smaller household sizes and further growth in urbanisation, these models are well positioned to address consumer demands for convenience, particularly among millennials.

### An increasingly digital food journey

Online grocery sales are the fastest-growing category within the region's retail e-commerce sector, with CAGR growth of 30 percent expected between 2019 and 2024<sup>35</sup>.

Meanwhile, online food delivery platforms in Southeast Asia are expected to reach US\$20 billion by 2025 – representing a growth of approximately 50 times in just ten years<sup>36</sup>. China's food delivery market is expected to reach about US\$300 billion<sup>37</sup> in the same period.

The real turbo boost for these providers is not Covid-19, but innovations in supply chain management. This will allow these players to meet consumers' expectations of convenience, speed, choice and freshness – key determinants of whether they choose to buy food online or in stores.

Southeast Asia has seen the rise of several “super apps” such as Grab, which has diversified its portfolio from ride-hailing into online food delivery services GrabMart, GrabFood and GrabKitchen. But no single provider has dominated the market so far.

We expect the next decade to herald rapid growth and substantial investment as online food services compete for market share.

To address inefficiency issues in the highly fragmented food delivery industry, where many restaurants and pick-up locations hamper delivery speeds, companies are turning to “cloud kitchens”. These are centralised shared kitchens dedicated to food delivery orders, slashing operating costs.

This model, while still in its early stages, is catching on fast in the Asia-Pacific region. Beijing-based Panda Selected has opened over 120 shared kitchens since launching in 2016<sup>38</sup>, and Indonesia's Gojek has recently partnered with India-based Rebel Foods to build 100 such kitchens across Indonesia<sup>39</sup>.

The global cloud kitchen market is expected to grow at a CAGR of 19 percent between 2020 and 2024, with APAC contributing 59 percent of growth<sup>40</sup>.

### How businesses are capitalising on the online food purchasing trend

**Hema** and **RTmart** – both leaders in fresh food deliveries – use their brick-and-mortar stores as fulfilment centres for rapid order processing, promising a 30-minute delivery for customers living within five kilometres of a store. This format is ideal for densely-populated cities like Shanghai, where consumers make frequent, low-volume purchases.

**Food Panda** ensures a delivery time of 20 minutes by tapping on inventory in “dark stores” or warehouses dedicated to online shopping products. In Singapore, Food Panda purchases goods directly from big suppliers such as Coca Cola, PNG, and Unilever to have greater flexibility to adjust supply based on consumers' demands.

*Source: Salim, Z. (2019). Why Foodpanda Is Offering Grocery Delivery In S'pore After Honestbee's Prominent Failure. Vulcan Post; The Straits Times. (2021). Get groceries delivered to your doorstep in just 30 minutes, any time, any day*

<sup>33</sup> Maastricht University. (2020). People will pay a premium for cultured meat if given the right information. Maastricht University

<sup>34</sup> Impossible Foods. (2021). With increasing economies of scale, Impossible Foods' delivers double-digit price reductions for the second time in one year; Kamil, A. (2021). Impossible Foods slashes price for retailers in Singapore by up to 30 per cent. TODAY Online.

<sup>35</sup> eConomy SEA 2019. (2019). Google, Temasek and Bain & Company.

<sup>36</sup> eConomy SEA 2019. (2019). Google, Temasek and Bain & Company.

<sup>37</sup> i-research, Meituan Annual Report, Rabobank estimates

<sup>38</sup> Fannin, R. (2019). Chinese Startup With New Business Model For Shared Kitchens Attracts \$50 Million In VC. Forbes

<sup>39</sup> Bloomberg. (2019). Rebel Foods, Gojek to open 100 Indonesian cloud kitchens. The Straits Times

<sup>40</sup> Technavio. (2020). Cloud Kitchen Market by Type and Geography - Forecast and Analysis 2020-2024. Technavio



### Innovations in convenience to suit busy urban lifestyles

With their increasingly hectic city lifestyles, more Asian consumers are seeking convenient ways to get their meals without sacrificing their taste and health priorities. Some are turning to meal kits, which deliver prepared ingredients with recipes to cut down time spent grocery shopping and prepping so that consumers can get down to cooking. For a niche segment of consumers who want freshly-cooked meals without the hassle of cooking, meal subscriptions offer the option to receive one to three fully-prepared meals delivered to their door each day.

The meal kit and meal subscription industries are still nascent in Asia. Still, as demographics shift and younger, time-strapped families seek healthy alternatives to take-out food, this industry is gaining traction fast in some markets, especially in densely populated cities like Seoul.

**Korea:** The meal kit market will grow to approximately US\$600 million in 2024, up from US\$85 million in 2019<sup>41</sup>, according to Korea's Rural Economic Institute.

**Vietnam:** Consumers are most likely to utilise meal plans each week (from 1-2 times per week to over five times per week) compared to their peers, our survey shows.

**China:** Retailers and restaurants started offering prepared ingredient kits during the pandemic, with Alibaba subsidiary Hema – also known as FreshHippo – setting up a dedicated meal kits business.

**Singapore:** Nosh, a meal subscription provider, reported that it had seen the "strongest demand in its four-year existence" since the Covid-19 pandemic<sup>42</sup> despite stiff competition from readily available and low-priced take-out meals in the city-state.

**Australia:** The meal-kit industry is estimated to be worth more than US\$300 million a year – 9 percent of total food and online grocery sales – and is growing at an annual rate of 40 percent<sup>43</sup>. Leading players such as HelloFresh and Marley Spoon – which grew by 92 percent in the quarter to June 2020<sup>44</sup> – are developing more mass-market pricing propositions<sup>45</sup>. Meanwhile, meal subscriptions, which cater to a more niche segment of consumers, are starting to take off among the affluent. Such subscriptions can come at a 50 to 100 percent price premium over regular take-away meals.



<sup>41</sup> Sooyeon. (2020). Demand for meal kits spiking amid coronavirus pandemic. Yonhap News Agency, Korea Rural Economic Institute  
<sup>42</sup> Whitehead, K. (2020). Three Hong Kong meal delivery services helping the homebound stay healthy. South China Morning Post  
<sup>43</sup> B&T Magazine. (2020). Nielsen: Meal kits increasingly popular amongst Australian Consumers, up 40%. Bandt.  
<sup>44</sup> Mitchell, S. (2020). HelloFresh expands as meal kit orders soar. The Australian Financial Review  
<sup>45</sup> Evans, S. (2020). Marley Spoon goes cheaper for WA entry. The Australian Financial Review

## 3.7 The Covid-19 effect

Covid-19 appears to have accelerated all six key food trends across Asia as healthy eating and food safety has become a key priority for all stakeholders, from consumers to governing bodies.

Physical health has gained increasing importance for many people during the pandemic. A poll of Singaporean residents in 2021 indicated that three quarters viewed physical health as a critical priority and that people are eating healthier and exercising more<sup>46</sup>. Furthermore, 44 percent of respondents are also feeling physically healthier than pre-pandemic.

Covid-19 accelerated the trend towards home cooking in Singapore, especially during the country's lockdown in early 2020, with supermarkets benefiting from increased purchases for groceries. Hypermarkets and supermarkets saw a 36 percent growth in sales in March 2020 when compared to March 2019<sup>47</sup>.

Covid-19 also sparked food safety concerns, as some outbreaks were linked to imported chilled and frozen food. This prompted the Chinese government to implement a track-and-trace system for cold-chain imported food, with Beijing rolling out a digital strategy to allow staff and consumers to check their products' origin, route, and nucleic test report via QR code<sup>48</sup>. Meanwhile, some consumers' concerns about the link between meat and a potential virus outbreak have prompted increased interest in alternative meat sources<sup>49</sup>.

The pandemic has exposed shortcomings in global supply chains to Asia, as well as in other parts of the world. Many retailers have suffered stock-outs and difficulties transporting products due to aviation, port and border disruptions.

Covid-19 has also prompted accelerated investment into increasing local food production in countries such as Singapore, which is taking new steps to meet its food sustainability and security goals. The virus outbreak

prompted the Singaporean government to expedite its "30 x 30" goal of meeting 30 percent of the country's nutritional needs by 2030, as well as to commit over US\$20 million in express grants for farmers to ramp up the production of eggs, leafy vegetables and fish within six to 24 months between 2020 and 2022<sup>50</sup>.

Lockdown measures and safety concerns have also driven consumers to purchase groceries online. For example, over half of the consumers in China indicated that they bought food and groceries more frequently when the initial lockdown measures were put in place.

The trend towards online groceries has benefited e-commerce players such as Alibaba, which doubled its sales of online groceries during the annual sales blitz in June 2020, compared to the same period in 2019. The strong growth in the online groceries categories also prompted Alibaba to invest US\$3.6 billion for a controlling stake in supermarket chain Sun Art Retail Group, in order to integrate Sun Art's physical stores with Alibaba's online platform<sup>51</sup>.

Further afield, UK-based online grocery retailer Ocado envisions that this trend is here to stay. It pledged a further US\$40 million in July 2021 to accelerate investments in its technology and online platforms<sup>52</sup>.

While we have seen Covid-19 vastly accelerate these trends, and economic activity pick up as global vaccination efforts progress and border restrictions loosen, we still need to be mindful that consumer behaviours can change in light of increased risk and uncertainty.

ADB reports suggest that 75 million to 80 million consumers in developing Asia have been pushed into extreme poverty since the start of the Covid-19 pandemic<sup>53</sup>, while others across the region have experienced a reduction in income. In the event of continued global lockdown measures and tightening restrictions, we could see consumers reverting back to the cheapest option available as price sensitivity increases.

<sup>46</sup> Yeo, E.K. (2021). Singapore residents exercising more and eating healthier now compared with last year: Poll. The Straits Times  
<sup>47</sup> Heng, M. (2020). Home cooking whets increasing appetite for grocery shopping. The Straits Times  
<sup>48</sup> Bing, C. (2020). Beijing launches track-and-trace system for imported cold chain food. CGTN  
<sup>49</sup> Shibata, N, Phoonphongphiphat, A and Watanabe, S, Nikkei staff writers. (2020). Coronavirus accelerates demand in Asia for plant-based meat. Nikkei Asia  
<sup>50</sup> Singapore Food Agency. (2020). Levelling up Singapore's food supply resilience.  
<sup>51</sup> Pham, S. (2020). Alibaba is spending more than \$3 billion to dominate online groceries in China. CNN  
<sup>52</sup> Ocado Group. (2021). Ocado Group FY21 Half Year Results Announcement.  
<sup>53</sup> ADB. (2021). Key Indicators for Asia and the Pacific 2021.



# 4

## Hearty investment appetites








**Investment is on the right track**

With agri- and food-tech investment growing at a rapid 377 percent clip to a projected US\$30.5 billion in 2020 from US\$6.4 billion in 2014<sup>54</sup>, it is clear investors are a driving force in Asia's food industry even amid the Covid-19 pandemic.

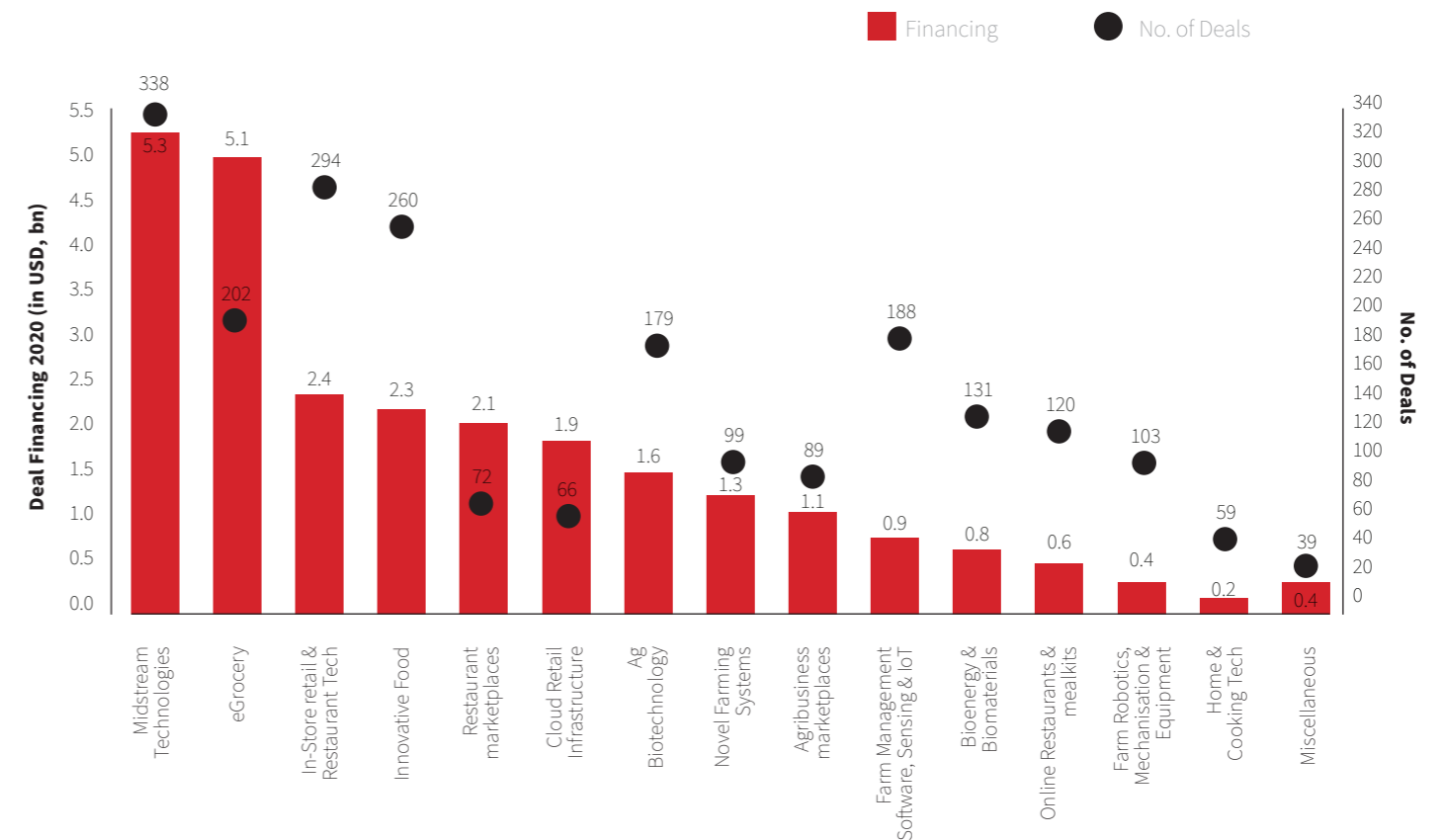
Investors including private equity, family offices, venture capital, and sovereign wealth funds have all played a pivotal role in transferring knowledge and expertise across the food sector, translating market demand into capital allocation, and helping to bridge the gap between academia, corporates and governments.

Their directed investments reflect a keen interest in the six new food trends outlined in our report.

Industry segment	Investment highlights	Key Food trend reflected in deal activity
 Innovative food	<b>US\$2.3 billion:</b> Innovative food investment more than doubled year-over-year e.g. Impossible Foods raised US\$700 million alone across two funding rounds.	Growing interest and consumer education about plant-based, alternative protein as a sustainable – and tasty – food source.
 Online grocery platforms	<b>US\$5.1 billion:</b> Second-largest deal volume in terms of investment and number of deals – 57% went to China's eGrocery players.	Investment in the online marketplace was driven by aggressive pandemic demand – particularly from consumers in China.  This digital trend is synergised with sustainability, and there is growing interest in "ugly produce" eGrocers, with players such as US-based Misfits Marlet and Imperfect Foods receiving sizeable investments in 2020.
 Midstream technologies such as logistics and transport	<b>US\$5.3 billion:</b> Enormous deal volume in terms of investment and number of deals.	Increasing concern in food safety on various food supply chain issues such as infections in meat-packing plants during the pandemic.  Investors are heavily investing in companies that are focused on increasing supply chain efficiencies. For example, Lineage Logistics, a company with a network of cold storage facilities and automated warehouses, raised US\$1.6 billion in 2020.

Source: AgFunder. (2021). 2021 AgFunder AgriFoodTech Investment Report.

2021 Agfunder AgriFoodTech Investment Report – 2020 Deal Volume and Activity



Source: AgFunder. (2021). 2021 AgFunder AgriFoodTech Investment Report.

**But there is still a long way to go**

While investments across the region continue to gather pace, significantly more funds will be needed to enable the US\$2.4 trillion consumer-driven food spend by 2030. Our research has demonstrated that most of this behaviour is shaped by the six trends outlined in this report.

We foresee that consumer-driven trends will require an additional response of US\$750 billion over the next decade to 2030, and these funds need to be directed in a targeted approach to serve a new generation of sophisticated Asian consumers.

Food brands and retailers will face growing consumer demands for healthy, fresh, safe, sustainable and convenient produce. Hence, they will need to invest in creating healthier versions of existing food items, cold chain logistics, implementing traceable supply chain infrastructure, and developing or improving their existing omnichannel.



<sup>54</sup> AgFunder. (2021). 2021 AgFunder AgriFoodTech Investment Report.



FMCG companies will need to continue to leverage their financial capability to invest in R&D that generates healthier food options with the right combination of taste and consumer appeal.

Our research shows that publicly traded global food and beverage companies with an emphasis on health-based products such as organic, nutritional and sugar-free have enjoyed a valuation premium of an average of 12 percent over the last five years compared to those who did not emphasise health-based offerings<sup>55</sup>.

Those making a stronger push in their online offerings, providing e-commerce, digital and mobile options saw an indicative average premium of 13 percent between 2015 and 2020. This trend will likely grow going forward, accelerated in part by the pandemic.

Companies providing green produce which are free of pesticides and hormones, as well as those producing sustainable, eco-friendly and alternative protein products saw the highest multiples. They enjoyed indicative average premiums of 30 percent between 2015 and 2020, indicating the high value of sustainable offerings in the market.

Those providing more traditional fresh produce, including fruit, vegetables, meat and milk, saw indicative multiples trade at a discount of 12 percent over the same period. However, the decline was not as sharp compared to companies providing processed and packaged foods, which

traded at an average discount of 26 percent, indicating the higher demand for healthier, fresh offerings in the market.

Given the nascent and high growth nature of the alternative protein industry, the likes of publicly traded Beyond Meat and Tattooed Chef have seen high enterprise value-to-revenue multiples of 22.2x and 9.5x respectively. In comparison, for traditional packaged foods and meats businesses, enterprise-value-to-revenue multiples have averaged between 1.6x and 1.8x and enterprise-to-EBITDA multiples between 11.7x and 12.7x over the last five years<sup>56</sup>. While alternative protein valuations are observed to trade at higher multiples than traditional protein companies, it is important to note that given the low number of transactions and lack of publicly available data to date, it is difficult to get an accurate picture of such multiples at present.

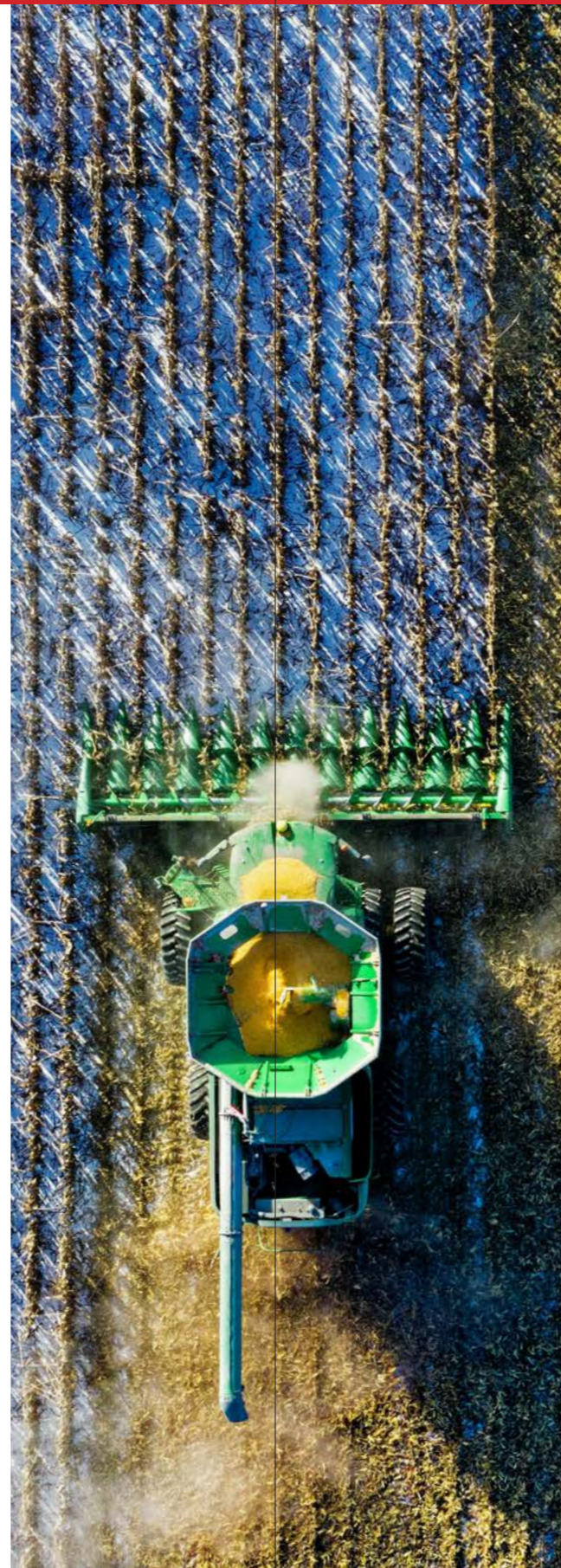
Investment funds and large food corporates are likely to step up their investments in the alternative protein segment. They ploughed over US\$230 million into Asia-based alternative protein start-ups between November 2019 and November 2020 - an increase of over 350 percent in funding compared to the combined amount invested during the previous three years<sup>57</sup>. With the global market for alternative meat estimated to reach US\$140 billion by 2029<sup>58</sup>, we can expect to see significant investments in improving accessibility, nutrition, acceptance, and price for end consumers.

<sup>55</sup> Research approach: The valuation multiples for over 3000 publicly traded global food and beverage companies were analysed at an aggregate level. Assessing their average multiples between 2015-2020, we pulled out companies related to Health, Online, Sustainable and Fresh, and compared their multiples against the remaining companies that do not provide such offerings. It is important to note that the analysis above represents broad industry trends and does not support any pricing or valuation discussions. Further analysis will be required for a specific target, factoring in a wide range of considerations such as size, scale, geographical coverage, value chain positioning, products etc. Source: Capital IQ and PwC Analysis

<sup>56</sup> For the alternative protein industry: Enterprise value-to-revenue multiples for publicly traded alternative protein companies are compared to enterprise-to-revenue and enterprise-to-EBITDA valuation multiples for traditional packaged foods and meats companies. Enterprise value-to-EBITDA for alternative protein is not meaningful. Source: Capital IQ

<sup>57</sup> Green Queen and Klar, M. (2020). APAC Alternative Protein Start-Ups Raise US\$230m in Past 12 Months. (links: <https://agrifoodinnovation.com/apac-alt-protein-report>; <https://www.getrevue.co/profile/michalklar/issues/future-food-now-12-alt-protein-funding-2020-in-asia-pacific-249842>)

<sup>58</sup> Frank, T. (2019). Alternative meat to become \$140 billion industry in a decade, Barclays predicts. CNBC.



### How investors are capitalising on the alternative protein trend

**Next Gen**, a plant-based chicken start-up, successfully led two rounds of seed funding in 2020, raising US\$30 million in total. It has rolled out its first plant-based chicken brand, "Tindle," which is available in Singapore, Hong Kong and Macau, while it is also planning to expand its presence into the US.

**Growthwell**, traditionally a vegetarian-focused food provider, has made in-roads into plant-based meat and seafood manufacturing. It raised US\$8 million in 2020 to fuel its expansion while also partnering with Country Foods to grow its distribution footprint. Growthwell also invested in an Israeli start-up, "ChickP", to develop chickpea-based protein products.

*Source: Shu, C. (2021) Next Gen Foods to launch its plant-based chicken in the US after raising a \$20M seed extension from investors like GGV. TechCrunch; The Straits Times. (2020). Plant-based meat maker Growthwell snares \$11.4m in Temasek-led funding round. The Straits Times; Ellis, J. (2020) Singapore's Growthwell gets \$8m in Temasek-led round, invests in Israeli alternative protein startup. AgFunder*

### Creating value remains a priority

Whether you are the owner of an agri-business or food-tech company or an investor looking for the next opportunity within the Asia-Pacific food industry, observing and implementing these six key trends will be crucial for maintaining and maximising enterprise and shareholder value.

Global deal activity has trebled since the beginning of the pandemic, with capability-driven M&A transactions at the forefront as organisations look to acquire critical capabilities. Grocery, health and well-being have been some of the strongest performing M&A categories in the first half of 2021, with intense activity in brands focusing on providing sustainable and healthy products to consumers and society<sup>59</sup>.

Understanding consumer preferences and changing behaviours has never been more vital to an organisation's future strategy and success. Meeting the needs of consumers in this era and the next decade will require new platforms, products, business models and government policies that did not exist five years ago – or perhaps even today.

The rapid onset of Covid-19 has forced a period of intense transformation. Businesses that want to improve the value of their business and insulate further from future shocks should take advantage of this opportunity and purposefully prioritise value creation.

<sup>59</sup> PwC Global M&A Trends: 2021 Mid-year Update



# 5

## Strategies for feeding the new Asian consumer





All players in the Asian food ecosystem – from investors to agri-business producers, food tech companies, retailers, governments and research institutes – have vested interests in meeting the needs of consumers and will play different roles in its development.

Here are four critical areas that Asia's food ecosystem participants will need to focus their attention on:



"Consumer education is the key challenge to growth for healthy food segment. Consumers in Asia need a better, science-based understanding of their nutritional needs and the ingredients used in their food. But the evolution will take time, possibly as much as 10 years."

– Co-Founder, HOOW Foods

## 5.1 Education, research and development

Consumer education will be vital to reinforcing evidence-based healthy habits and informing consumers about the benefits of reducing waste and consuming sustainable foods.

Governments and academia can play a vital role in influencing consumption habits and active lifestyles while devising policies and taxation measures to reduce unhealthy habits or harmful ingredients in food products.

Governments should continue to improve food safety frameworks and implement robust monitoring and enforcement measures in order to instill trust and ensure the safe delivery of food to consumers.

Perhaps one of the most important tactics in driving the future of change will be the provision of grants and incentives to create an innovation-rich environment. Providing greater access to resources, expertise, partners and funding will help the government tackle major societal issues such as food security, food safety and citizen wellbeing.

To cater to the demands of increasingly informed consumers, food producers will need to invest extensively in R&D to develop healthier alternatives that retain local taste appeal. They will also need to find innovative ways to extend the shelf-life of products and reduce food loss through the production and transportation process.

## 5.2 Operations

Developing sufficient and sustainable operations will remain a priority for businesses and countries moving forward, as Asia's agri-food industry struggles to keep up with its consumption growth. The region is heavily reliant on agri-food imports flowing through long supply chains from the Americas, Europe and Africa, and was thus significantly impacted by Covid-19 and geopolitical tensions.

The focus will be on producing more with less. Investment will be required in building economies of scale onshore, closer to consumer demand. This will help to address food security concerns, satisfy consumer feedback to purchase more locally produced goods, as well as help reduce the price barrier for emerging food categories such as plant-based meat.

Food supply chain transformation will be a major investment theme for the next decade. Grocery retailers must develop global sourcing and procurement capabilities and invest in capacities such as warehouses and cold-chain infrastructure. Their target: to provide fresh, safe, varied, high-quality products all year around.

Logistics and delivery players will need to develop more intelligent tools, technologies and strategies along the supply chain to support retailers' and consumers' demands for safe, responsibly-sourced and timely delivered fresh produce.

The sustainability of operations will become increasingly important, from production to distribution. Agri-food companies will need to upgrade their supply chains to withstand the challenges of climate change and environmental degradation, as well as to ensure the steady flow of food across Asia. Strategies to address sustainable sourcing, food loss and waste, and eco-friendly packaging will be top of mind.

## 5.3 Digital transformation

Retailers and food companies alike must embrace digital as a core capability – optimising existing assets, digitising supply chains, and improving customer engagement.

Investing in digital sales channels and improving existing infrastructure and instore automation will allow businesses to increase throughput and capacity, enhance efficiencies, and reduce cost and wastage.

Digitising supply chains will enable full transparency, reduce layers, and improve delivery speed and information exchange between consumers and food producers – empowering both parties in the process.

Companies will also need to invest deeply in omni-channel capabilities to improve customer experience,

especially for last mile delivery. Emerging logistics and fulfilment models such as automated shops and robotic servers, smart warehouses, autonomous vehicles (including drones) will increase efficiencies and response times. Leveraging data from booking systems, reviews and customer relationship management (CRM) systems will allow brands to track consumer trends and target customers more effectively.

## 5.4 Partnerships

An ecosystem partnership enabled by investors, corporates, governments and academia can support start-ups in bringing innovation rapidly to market in emerging categories. Food-tech start-ups, wary of investing in costly, fixed manufacturing assets can look to partner with co-manufacturers to scale up and reduce costs.

Emerging food categories like plant-based protein will require partnerships across the value chain. For example, inadequate "wet extraction" and "high moisture extrusion" technologies in Asia will require partnerships with global providers. This is a similar case for novel ingredients in other alternative protein categories.

We may even see existing distributors and co-manufacturers dedicating production lines to food-tech, such as alternative protein or fermentation for cultured meat or single-cell proteins.

Emerging brands are also partnering with established names in the hospitality sector in the form of co-branding with cafes, restaurants and convenience stores. Chains such as Starbucks have partnered with the likes of Beyond Meat, Oatly and Omnipork to feature new plant-alternatives on their menu – riding the wave of healthy living. In Taiwan, FamilyMart and Omnipork have launched co-branded ready-to-eat meals<sup>60</sup>.

"Climate change poses a real risk to food supply in Southeast Asia and is top of mind for us. The volatility in weather patterns – between floods and drought – means we need to build a more resilient supply chain and become even more global than today."

– President, Dole Packaged Food

<sup>60</sup> Vegconomist. (2020). Omnipork Partners With Taiwan's FamilyMart to Launch Instant Meals Into 3600 Outlets



# 6

## Conclusion





To meet the US\$2.4 trillion in consumer-driven food spend and additional US\$750 billion investment gap over the next decade, investors and agri-food firms will need to devise targeted strategies informed by insights about Asia's heterogeneous markets and fast-changing food palette.



Investors can help to provide the growth capital essential to support start-ups and existing agri-food players penetrate new Asian markets, whereas Governments and academia have a central role to play in educating consumers and fostering an innovation-led environment to develop solutions to such challenges.

Serving the new Asian palette, adopting new business models in the digital era, and investing in emerging agri-food trends on the horizon will act as an essential guide for those investing in this space.

There will be significant opportunities for all players in the agri-food ecosystem. Companies will need to consider Asian consumers' rapidly changing preferences in order to optimise product portfolio, with new product development focusing on serving consumer needs over product attributes. For corporates and business owners, capability-driven M&As or partnerships will allow businesses to satisfy changing preferences by repositioning themselves through acquiring new skills and venturing into new markets.

There is no doubt that Covid-19 has accelerated these trends, especially those driving the digital adoption and need for convenience. That said, the uncertainty of the pandemic rages on. Countries are still tackling ongoing economic activity restrictions and local lockdowns, while the global growth outlook looks mixed due to an uneven pace of recovery. Europe's strong catch-up in vaccination rates has allowed for the quicker reopening of services, resulting in recent

growth projections being revised upwards for 2021 to 2022.

The US, despite being one of the quickest among advanced economies to return to pre-Covid levels of activity, has recently seen a more mixed picture in terms of its recovery. Global growth projections have been revised down slightly due to supply chain issues, as well as a resurgence of Covid-19 cases – perhaps due to extensive differences in vaccination rates between states, coupled with a swift re-opening in early 2021.

With extensive vaccination programs underway globally, there is a brighter outlook on the horizon. Naturally, as more countries across Asia get up to speed in their own programs, and lockdown restrictions ease, there is hope that consumer spend will begin to rise across the region.

Businesses that use this period of transformation to reshape their business models and accelerate change will emerge stronger from the pandemic.

Feeding Asia's 4.5 billion consumers in 2030 will continue to be a massive challenge, but for those who invest creatively in trends driving the future of Asian food, it will be a rewarding one.





## Report Authors

### PwC

#### Richard Skinner

Richard leads PwC's Deals Strategy & Operations team across Asia Pacific and has worked with governments, corporates and financial investors throughout the agri-food value chain. richard.skinner@pwc.com

#### Jacky Lui

Jacky is a Partner in PwC's Deals Strategy & Operations team focusing on consumer markets. He has extensive experience advising retail and F&B clients in China and Asia-Pacific. jacky.cy.lui@hk.pwc.com

### Rabobank

#### Ping Chew

Ping is Rabobank Asia Head of Food and Agribusiness Research, where his team harbour rich local F&A knowledge to engage in deep dialogues with key stakeholders along the entire agri-food chain. ping.chew@rabobank.com

### Temasek

#### Anuj Maheshwari

Anuj is Managing Director at Temasek, part of the leadership team that makes investments in agri-food companies globally and helps these companies grow and create meaningful impact through their businesses. anuj@temasek.com.sg

## About the report

This report was jointly written by PwC, Rabobank and Temasek.

As part of our research, our consumer survey gathered responses from over 3,600 consumers across 10 Asian countries, as well as Australia and New Zealand. The survey, which seeks to understand these consumers' complex and changing relationship with food, collected demographic data covering all income levels, education levels, occupations and household sizes. There is a potential risk of bias given the limitations of collecting such data during Covid-19 and ability to contact individuals during this time.

In addition to the study, we analysed over 3000 publicly traded food and beverage companies globally to understand key financial trends and trading multiples. We also spoke with an extensive list of senior executives and leading experts in the food sector.

The information in this report is provided on an "as is" basis and does not constitute professional advice. This document was produced by PwC Singapore, Temasek, Coöperatieve Rabobank U.A., Singapore Branch ("Rabobank") and other third parties involved as of the date of writing and are subject to change. It has been prepared solely for information purposes over a limited time period to provide a perspective on the market. Projected market and financial information, analyses and conclusions contained herein should not be construed as definitive forecasts or guarantees of future performance or results. This report does not constitute financial or investment advice and any information provided is not intended to be sufficient for you to rely on to make a decision. This report should not be construed as legal, tax, financial or accounting advice. We recommend that you consider the appropriateness of the information in this report having regard to your specific circumstances and obtain independent advice before making any decision. The information and opinions contained in this report have been compiled or arrived at from sources believed to be reliable. PwC Singapore, Temasek, Rabobank or any of their affiliates or any third party involved makes no representation or warranty, either expressed or implied, as to the accuracy or completeness of the information in the report and shall not be liable for any loss arising from the use hereof. PwC Singapore, Temasek and Rabobank do not endorse any of the financial analysis in this report. PwC internal data was not used in the development of this report. To the extent permitted by law, neither PwC Singapore, Temasek, Rabobank nor any of their affiliates accept any liability whatsoever for any direct or consequential loss howsoever arising from any use of this report or its contents or otherwise arising in connection therewith.



TEMASEK