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Access Economics



## Shaping our slice of heaven

Industries of opportunity

November 2017



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# Executive summary

The first edition of our new series identifies and discusses growth prospects of key New Zealand industries, which offer some of the best opportunities for future economic prosperity.

Welcome to the first edition of *Shaping our slice of heaven*, a new series from Deloitte Access Economics in New Zealand. The first edition, entitled *Industries of opportunity*, identifies and discusses growth prospects across key Kiwi industries. These industries offer some of the best opportunities for the country's future economic prosperity.

The New Zealand economy has experienced solid economic growth of late and is now in its seventh consecutive year of expansion. But low productivity and an ageing population, along with increasing protectionist rhetoric coming from some of our traditional trading partners, has the potential to stall New Zealand's economic progress.

So where can New Zealand look to maximise its future economic prosperity? This report identifies the industries that are expected to experience above average global growth in the next twenty years. It also assesses the comparative advantage of industries here. We believe New Zealand's industries of opportunity lie at the intersection of global growth and national economic advantage.

These industries of opportunity are:

- Tourism
- Agribusiness
- Food processing
- International education
- Advanced manufacturing





## We believe New Zealand's industries of opportunity lie at the intersection of global growth and national economic advantage

Each of the industries of opportunity listed above are expected to achieve above average global growth, in large part due to the rise of the middle class in emerging economies, an ageing population and the expected pace of global growth in each particular industry. Consumers around the world want many things New Zealand can offer – excellent agricultural and food products, high quality education, the latest health technologies and unique tourism experiences.

This report is a call to action. There are competitors waiting in the wings if we are complacent.

### **New Zealand's prosperity map**

The five industries we have identified are at the heart of our prosperity map. They provide New Zealand with the best chances to successfully turn local advantages into global opportunities. We project these industries to grow globally at annual rates between 3.66% (international education) and 3.88% (tourism) from 2017 to 2037. This compares to a projected annual growth of global gross domestic product (GGDP) of 3.4% over the same period.

The comparative advantage an industry enjoys is crucial to identifying its growth opportunities. We provide an advantage score for each industry, where a higher score indicates a higher level of advantage, based on data that evaluates performance in key areas relative to competitors. These five industries have advantage scores between 8.7 (advanced manufacturing) and 16.4 (agribusiness), compared to the collective advantage score for the New Zealand economy of 5.6.

### **Tourism**

Tourism is New Zealand's largest export industry and a major contributor to economic prosperity. We have given it the second highest industry advantage score and it is projected to be one of the world's fastest growing industries.

Opportunities to take full advantage of future growth include better understanding of how the sharing economy is changing the industry, preparing for increasing demand for tourism from Asia and ensuring New Zealand continues to offer a unique visitor experience and more affordable direct air access. Challenges include renewing the infrastructure that supports tourism and maintaining the international visibility of New Zealand as a tourist destination.

### **Agribusiness**

We have given agribusiness the highest industry advantage score for New Zealand and the industry will be among the fastest growing worldwide over the next twenty years. New Zealand can be a long-term winner in agribusiness by focussing its strategy more on growing value than growing volume, and we identify practical solutions to contribute to this shift.

However, there are a number of disruptors with the potential to transform the industry and affect any value-driven strategy. Global megatrends including demographic shifts, climate change and greater value chain integration will intensify disruption in the industry, while new customer preferences and the development of agricultural technologies are accelerating the speed of disruption.

### **Food processing**

New Zealand is in a good position to take full advantage of opportunities in the food processing industry. Consumers are increasingly looking beyond the traditional preferences of price, taste and convenience, to include health and wellness, safety, social impact and experience. This shift in what lies behind food purchasing decisions presents a meaningful opportunity for the food processing industry. New Zealand offers a diverse range of products that address these evolving drivers.

However, future success will require both adapting to changing demographics and consumer preferences, as well as managing in an increasingly global and complex business environment. New Zealand food processors will need to collaborate across the value chain more effectively, while adapting to a marketing environment influenced by the reach of new media and social networks.

### International education

New Zealand has been able to achieve success in the international education industry. This industry is currently the fourth largest export earner, and there are over 130,000 international students participating at all levels of education.

But students are more mobile and flexible about the location and timing of their study than ever before. And technology is changing the way education is purchased, experienced and consumed, extending international education markets beyond their established geographic and service boundaries.

The changing nature of the international education landscape means New Zealand's opportunity is evolving. Focussing on targeted strategies for international collaboration and being in front of the innovation curve for online studies could help deliver significant benefits for New Zealand's international education industry.

### Advanced manufacturing

New Zealand is in a good position to take advantage of the opportunities within this industry. The advanced manufacturing industry is a revelation in New Zealand, having experienced significant growth in export earnings, as well as a material increase in foreign direct investment (FDI), in recent years. Health technology is the industry's largest export sector, followed by generic pharmaceuticals and scientific technology.

## The answers lie in understanding where companies are positioned today, and identifying the best ways to move towards areas of higher growth and greater advantage

But there are big challenges to address. To take full advantage of the global opportunities in the industry, New Zealand needs to be internationally connected through trade and investment, and the flow of people and ideas. Business and government will need to take bold steps to realise the full opportunity that exists in the industry. This can help advanced manufacturing support greater diversification of exports and become one of the biggest drivers of prosperity.

### Next steps

*Shaping our slice of heaven: Industries of opportunity* analyses where global opportunities and New Zealand's advantages will coincide to create growth opportunities for the economy. Recognising that New Zealand's prospects are as bright as they were a decade ago is not in itself enough. How can New Zealand businesses and government apply these insights to their specific situations? How can New Zealand take a longer-term view and what does that mean in practice?

The answers lie in understanding where companies are positioned today, and identifying the best ways to move towards areas of higher growth and greater advantage. Government can play a role here, but it is worth underscoring that although government policies can help, success or failure lies more in the actions of the business community.

It is important to consider how businesses and government might take full advantage of the opportunities identified in this report "within New Zealand". We believe it is just as important to articulate a "within New Zealand story" as it is to have an outward focussed "New Zealand story". Business and government need to develop strategies to consider how New Zealand's regions can work both separately and together to be more productive, and collectively, more competitive. It is not enough to develop regional economic development plans in silos; rather, they need to exist within an overarching framework.

Our core message is that while global or domestic opportunity and structural advantages are necessary, they are not sufficient. To ensure success, we need to build on New Zealand's areas of advantage to maintain and improve performance relative to global competitors.





# Make the most of global economic trends

## Kia Tu! Kia Maia! Seize the day!

The ushering in of the Asian Century offers New Zealand unprecedented opportunities for growth. Three of the world's five largest economies, China, Japan and India, are in the Asia-Pacific region. These three countries, together with the United States, are expected to account for around half of the world's total economic growth in the next two years. While China has been a key driver of global growth during the beginning of this century, an Indian summer is coming. Like China and Japan before it, India is poised to lead a third great wave of Asian expansion, driven in part by a surge of young people entering their workforce — young people who are more educated than ever before.<sup>1</sup>

People in these countries want many things New Zealand can offer – excellent agricultural and food products, high quality education and unique tourism experiences. This report identifies the industries in New Zealand with high growth and where we have a comparative advantage. The confluence of global high growth industries and New Zealand's comparative advantage is where we think the best opportunities are to drive the country's future economic prosperity. Taking advantage of these opportunities will increase New Zealand's competitiveness on the world stage in a changing global economy. But this report is also a call to action. There are competitors waiting in the wings if we are complacent.

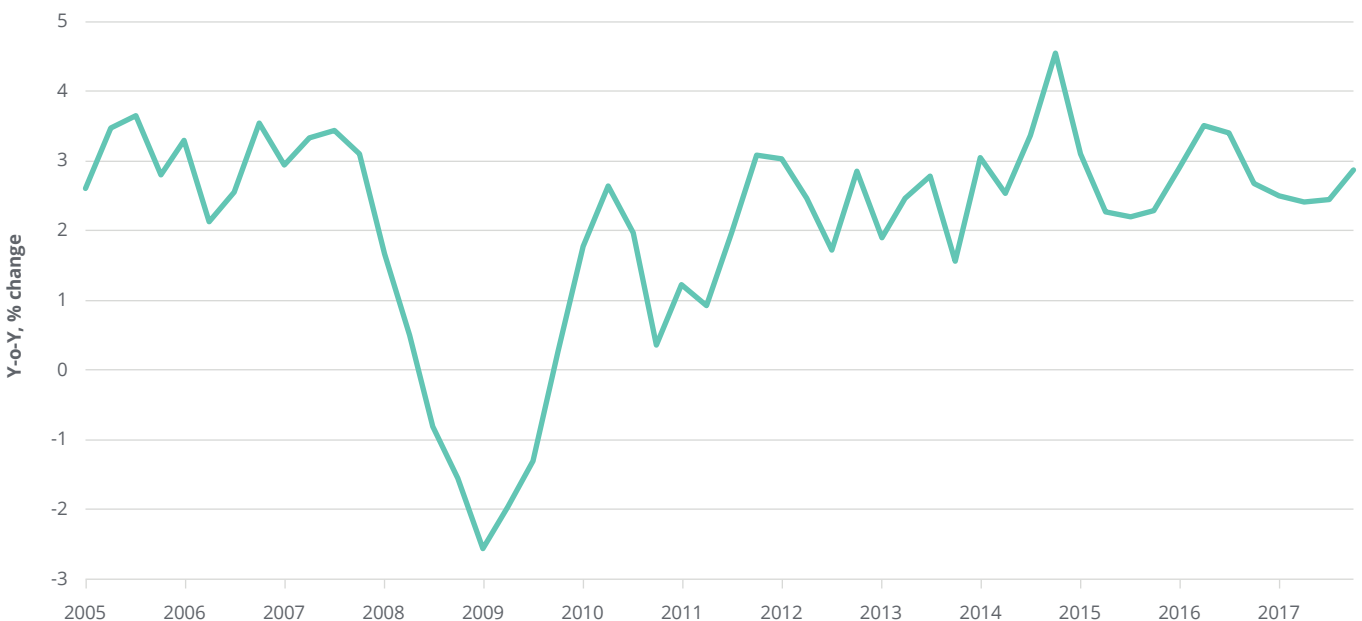
## Economic growth is solid

New Zealand currently ranks fourth on the Global Competitive Index within the Asia-Pacific region.<sup>2</sup> As shown in Figure 1 below, the economy has experienced solid growth and is now in its seventh consecutive year of expansion, driven by construction, tourism and population growth.

Yet low productivity and an ageing population with reduced retirement incomes have the potential to stall this progress. So where can New Zealand look to maximise future prosperity?

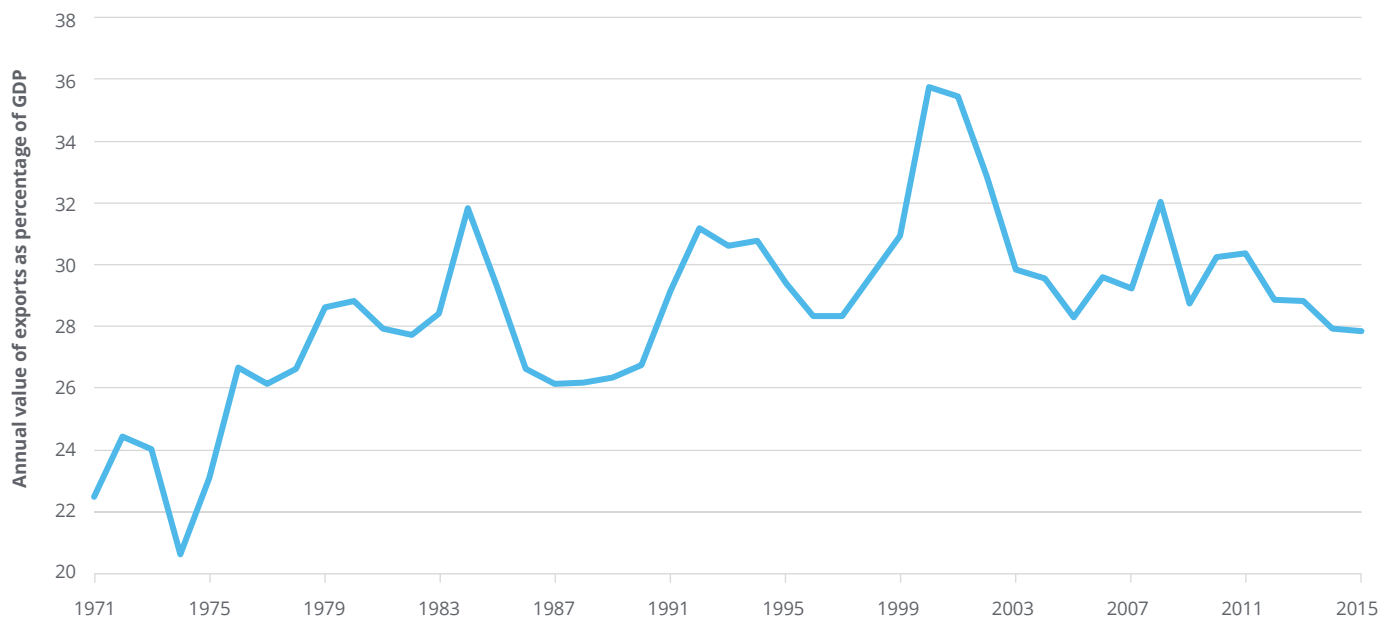
One answer is to increase exports. Over the last decade, New Zealand's export performance has been lacklustre.<sup>3</sup> Figure 2 shows that not only are exports less than 30% of GDP, which is well below the average for other developed countries, but they are trending downwards.<sup>4</sup>

Figure 1: **Real economic growth is solid**  
(Real Gross Domestic Product (GDP) growth, year-on-year change, 2005 to 2017)



Source: Deloitte Access Economics based on Reserve Bank data

Figure 2: **Ratio of the annual value of exports to GDP** (percent, 1971 to 2017)



Source: Deloitte Access Economics based on World Bank data

**Prospects for export growth**

In light of this trend, any efforts to increase exports may seem ambitious. However, global factors may make it achievable, including:

- Global GDP growth is picking up, almost a decade on from the 2008 financial crisis
- The world’s economic centre of gravity is shifting towards Asia
- Asian economies are themselves shifting away from infrastructure-driven growth towards consumer-driven growth
- Globally, trade is increasingly weighted towards services rather than goods

**Global GDP is picking up**

The 2008 financial crisis has had a long-lasting negative impact on global trade. The good news is that the global economy is normalising. The United States economy has continued to recover and is growing strongly, the Eurozone economy has improved, and big emerging markets, such as Russia and Brazil, are showing increasing signs of economic growth. In Asia, China’s economy continues to grow, while slowly shifting to focus more on consumption and less on investment. Meanwhile, Japan’s economic growth rate may be picking up, despite a shrinking population.

**The world’s economic centre of gravity is shifting towards Asia**

With three of the world’s five largest economies located in the Asia-Pacific region, New Zealand will benefit from being closer to an increasingly larger share of global demand for goods and services.

Moreover, not only is Asian demand rising, but it is also increasingly being driven by consumption rather than infrastructure.

While infrastructure demands spending on commodities like iron and coal, the shift to consumption will see New Zealand benefit through increased Asian spending on goods and services such as tourism, education and higher quality food.

**Global shift towards services exports**

In international trade, services exports are the fastest growing component of exports. Within Asia, India has started to focus on service-based exports and China has taken steps to increase services and service-based exports in an effort to drive prosperity.<sup>5</sup> Export services include trading cross-border over the internet and sending people to provide services in overseas markets.

### Risks of downward economic pressures remain

Globally, uncertainty remains high and many countries are still working through post-financial crisis challenges including high debt levels, weaker income growth and wealth inequality. There are also associated political pressures including a rise in protectionism.

Therefore, New Zealand must remain pro-active in addressing hurdles like low productivity growth at home, and trade and investment barriers abroad, to increase exporters' ability to compete on the world stage and take advantage of emerging opportunities.

Below we provide some examples of how New Zealand could focus its efforts in order to overcome these challenges.

#### Reduce trade barriers

New Zealand has consistently resisted protectionism at home and abroad. Within this climate of global downward pressure on international trade, the previous government earlier this year launched a refreshed trade policy strategy with a target of having 90% of New Zealand's goods exports covered by free trade agreements (FTAs) by 2030, up from 53% today.<sup>6</sup>

#### Increase investment in infrastructure

Strategies to maintain sustainable growth and expansion in services exports requires associated infrastructure investment. In the case of tourism, for example, this might include investments in short stay accommodation, attractions, transport and civil infrastructure. However, increased infrastructure comes at a cost and the benefits can be hard to quantify.

#### Attract more FDI

FDI plays a critical role in the growth of exports, providing New Zealand companies with access to parent company knowledge and resources, new technology and international networks. New Zealand is in an excellent position to attract more inward FDI. It is the top country in the world for ease of doing business and has strong political and economic stability.<sup>7</sup> FDI may also help to improve New Zealand's productivity by deepening the availability of capital.

#### Incentivise innovation

New Zealand must strengthen strategies to incentivise innovation. Increasing spend on business research and development (R&D), which is currently sitting at less than 1.5% of GDP, would spur innovation. The previous government's strategy aimed to help in this regard through rules around a tax credits for R&D tax losses, among other initiatives.<sup>8</sup> And the incoming Labour-led government has committed to increase spending on R&D to 2% of GDP over ten years, while re-introducing tax credits for R&D spending.<sup>9</sup>

#### Address low productivity growth

Since the 2008 financial crisis, New Zealand's productivity growth has been subdued. Key strategies to improve productivity can include improving business investment, generating more competition and connecting with the rest of the world. For example, reducing the corporate tax rate (improving returns to investment) could attract more business investment. The link between better connection with the rest of the world and productivity is also particularly interesting.

New Zealand's trade-exposed businesses – both those who export and those who compete against importers – are typically found to be more productive than businesses that only supply the domestic market without facing any international competition.

In particular, the Ministry of Business, Innovation and Employment (MBIE) reports that the productivity of New Zealand firms that export is more than 50% higher than those that do not.<sup>10</sup> Therefore, one way to increase productivity may lie in reversing the recent trend of New Zealand's reducing levels of exports.

#### Encourage digital-savvy exporters

Digitalisation and access to online platforms will continue to make it easier for New Zealand to interact with the global economy. Online platforms for trade can even the playing field for New Zealand businesses. Firms that understand how to use data efficiently and effectively will have a competitive advantage in performance and innovation, offering products that meet consumer preferences and outsmarting traditional competitors.

#### Regional development

It is important to consider how the government and businesses might take full advantage of the opportunities identified in this report within New Zealand. We believe that it is just as important to articulate a "within New Zealand story" as it is to have an outward focussed "New Zealand story". Government and businesses need to actively develop strategies to consider how New Zealand's regions can work both separately and together, to be more productive and collectively more competitive. It is not enough to develop regional economic development plans in silos; rather they need to exist within an overarching framework.

In the next section, we identify what future industries of opportunity might look like based on global trends and New Zealand's comparative advantages.

Figure 3

# New Zealand's prosperity map

The biggest opportunities sit at the intersection of global opportunity and national economic advantage. The results in the upper right section below represent New Zealand's industries of opportunity for future prosperity.



# Industries of opportunity for future prosperity

In what industries should New Zealand focus its resources to best navigate global opportunities and local advantages to contribute to future prosperity?

To address this question, our analysis focusses on:

- Projections of global growth by industry
- An assessment of New Zealand's comparative advantage


Figure 3 shows our resulting prosperity map for New Zealand. It identifies the industries with the most opportunity to contribute to future prosperity. These sit at the intersection of global opportunity and national economic advantage and appear in the upper right section of Figure 3.

The vertical axis reflects expected global economic growth from 2017 to 2037. There are two lines positioned at 10% above and below the expected global gross domestic product (GGDP) growth over that period, which is 3.4 percent.

The horizontal axis reflects New Zealand's comparative advantage and the size of each circle indicates the relative size of the industry within the New Zealand economy.

Industries that appear higher on the map are expected to experience faster global growth. The further to the right, the stronger New Zealand's estimated comparative advantage in that industry.

The industries appearing in the top right section of Figure 3 are the ones we have identified as having the greatest potential for New Zealand. The industries of opportunity are:

-  Tourism
-  Agribusiness
-  Food processing
-  International education
-  Advanced manufacturing

## Projected global growth by industry

Global opportunity considers the projected global economic growth across the industries over the period 2017 to 2037. Deloitte Access Economics' industry forecasts draw on inputs from key drivers relating to:

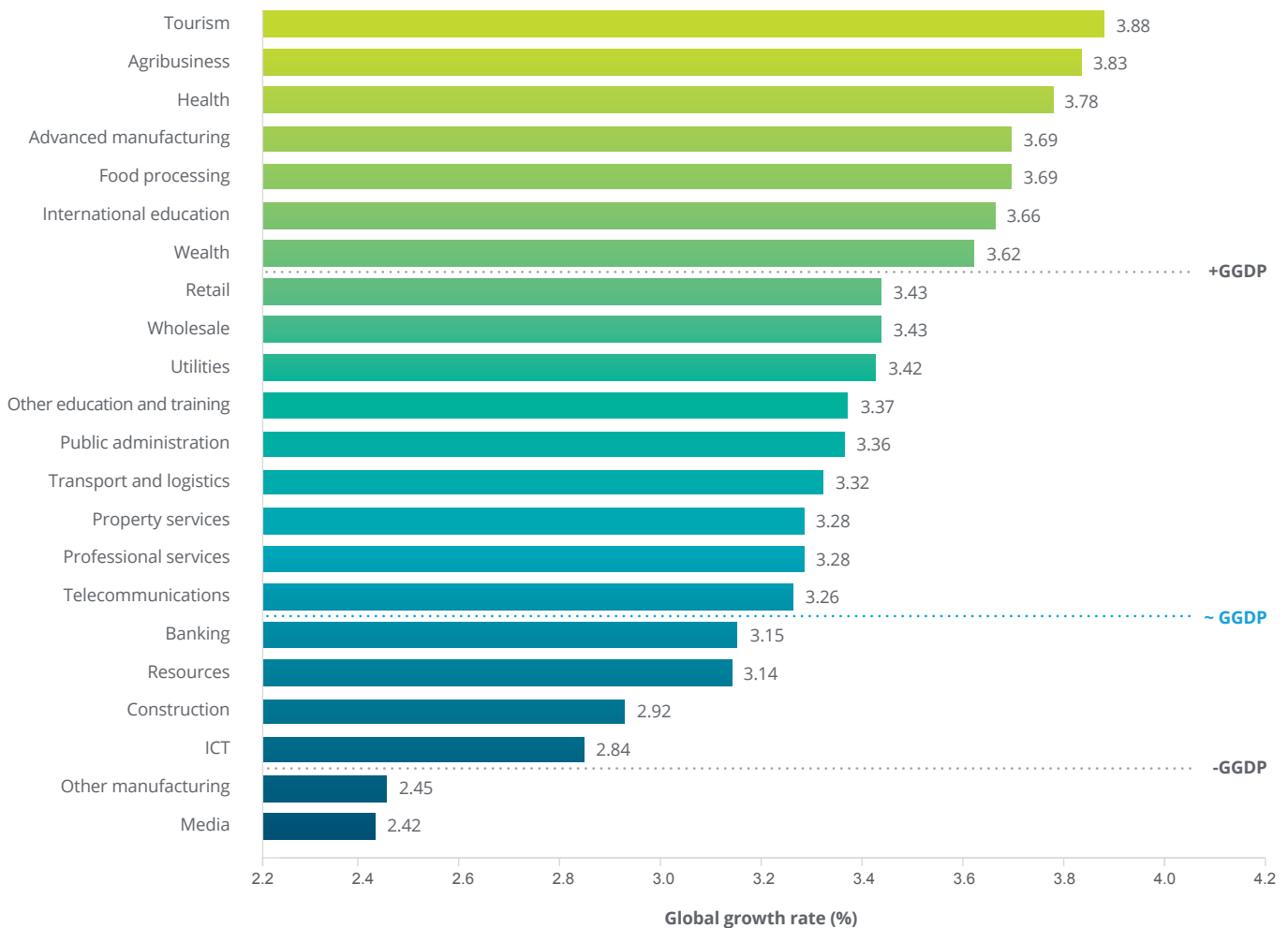
- Urbanisation rates
- The rise of the middle class in emerging economies
- The impact of environmental concerns
- An ageing population
- The forecast pace of global growth

Figure 4 shows the expected global growth of a range of industries from 2017 to 2037, split into three categories. The first category includes industries with high global opportunity. These are likely to grow significantly faster than GGDP (+ GGDP) over the next 20 years. The second category includes industries forecast to grow in line with global growth (~ GGDP) and the third includes industries with low global opportunity, which are likely to grow more slowly than GGDP (- GGDP).

Among the fastest growth sectors are tourism, agribusiness, health and wealth management - each of which is expected to grow by more than 10% faster than GGDP. These industries can be expected to power ahead.

Industries such as banking, resources, property services, transport and logistic services are included in the category expected to grow at close to the same pace as GGDP.<sup>11</sup>

Figure 4: **Projected annual industry global output growth** (percent, 2017 to 2037)



Source: Deloitte Access Economics

Note: Resources refer to mining and oil industries, wealth to wealth management and ICT refers to services such as data processing services and software publishing

And finally, the industries that will grow slower than GGDP, including media and other manufacturing (this is the remainder of the manufacturing industry after food processing and advanced manufacturing are removed), are expected to grow at less than 10% slower than GGDP over the next two decades.

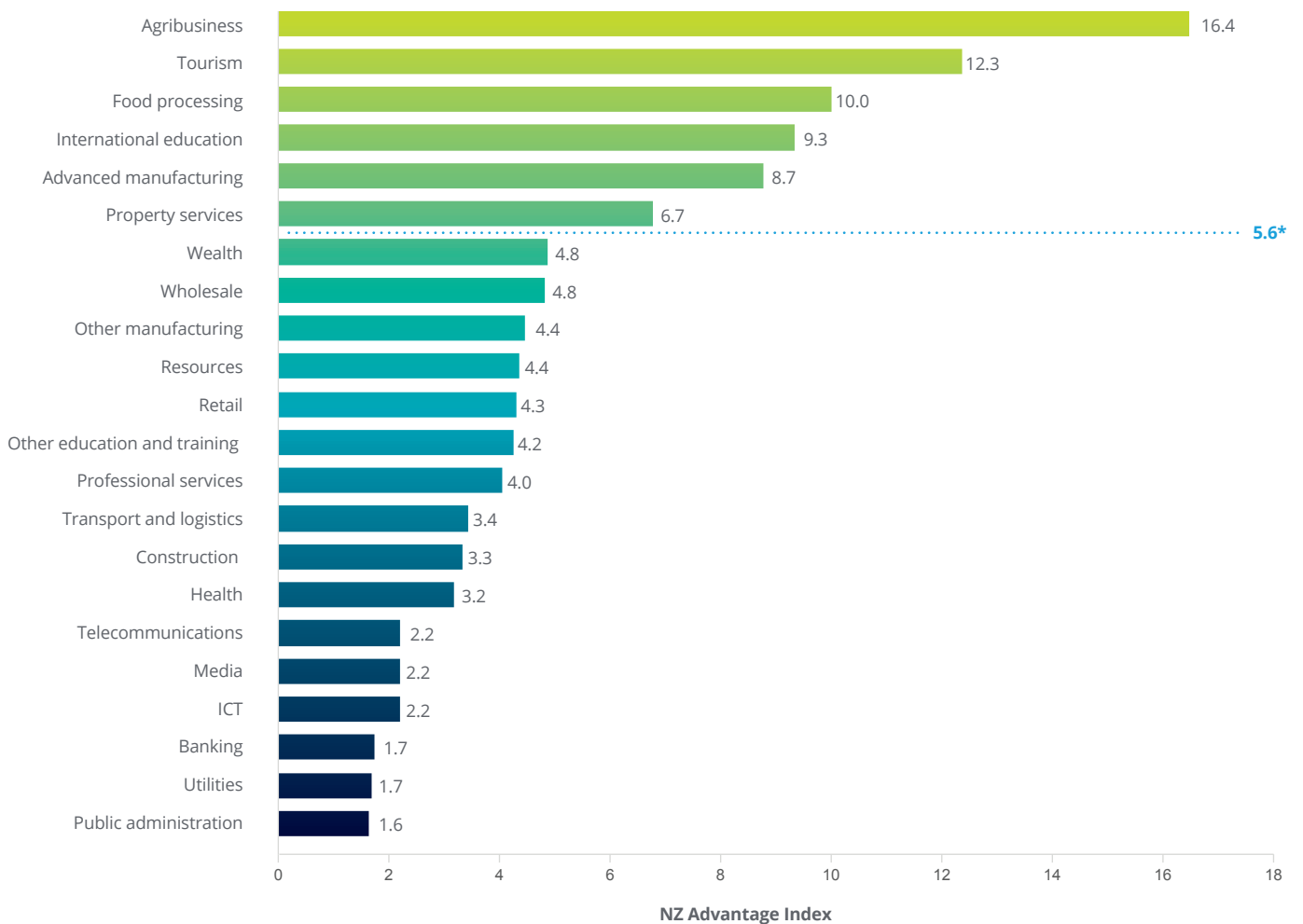
**Assessment of New Zealand’s comparative advantage**

As shown by winning the America’s Cup, which is as much a technology race as a sports event, it is beneficial for New Zealand to have an edge – a source of comparative advantage that is hard for other countries to match.<sup>12</sup>

Understanding the comparative advantages a country holds is crucial to identifying its growth opportunities. This report provides an “advantage score” for each industry based on data that evaluates New Zealand’s performance in key areas relative to competitors.

Figure 5 shows the resulting relative advantage scores for New Zealand, where a higher score indicates a higher level of advantage.

Figure 5: **Areas of comparative advantage for New Zealand** (relative advantage score)



Source: Deloitte Access Economics

Note: The horizontal line, 5.6, refers to the calculated advantage of the New Zealand economy as a whole

We outline our methodology used to estimate comparative advantage in the appendix, which details how the advantage scores are calculated for each industry and the factors used to estimate them. In short, each industry has different weights ascribed to different factors, reflecting that the success factors driving industry performance differ across industries.

The core message of this report is that while global or domestic opportunity and structural advantages are necessary, they are not sufficient. To ensure success, we need to build on New Zealand’s areas of advantage to maintain and improve performance relative to global competitors.

The next sections of the report consider the following for each industry of opportunity identified on the prosperity map:

- An overview of the industry in New Zealand and its expected growth and global megatrends
- The key opportunities and challenges the industry may face in taking full advantage of predicted growth
- Questions for how government, businesses and industry associations collectively must play their part to ensure New Zealand achieves greater prosperity





# Tourism: 100% Pure New Zealand

**Global growth rate**  
**3.88%**



**NZ advantage score**  
**12.3**



**The future of New Zealand’s tourism industry looks bright**

Brand New Zealand plays off its stunning alpine scenery, sheer physical beauty, vibrant Polynesian culture, extreme sport, quality and freshness of cuisine, and its personable and relaxed residents to attract visitors from all over the world.<sup>13</sup>

Tourism is a major contributor to New Zealand’s economic prosperity. It is the nation’s largest export industry and has been responsible for one fifth of growth in New Zealand’s GDP since 2011.<sup>14</sup>

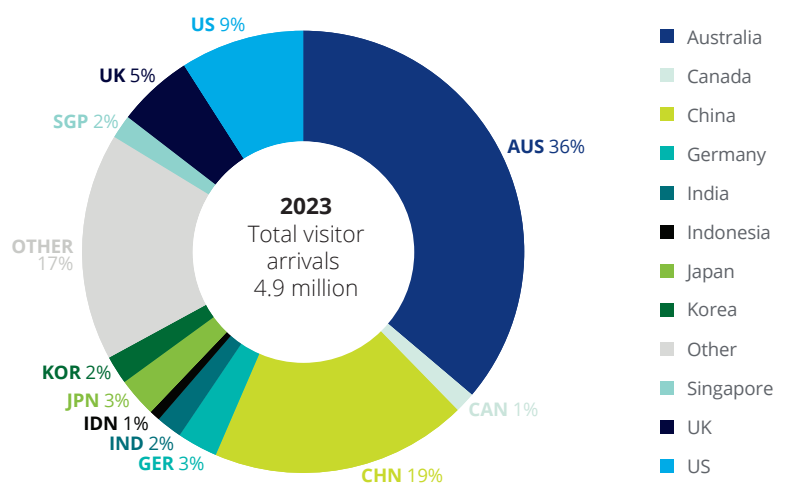
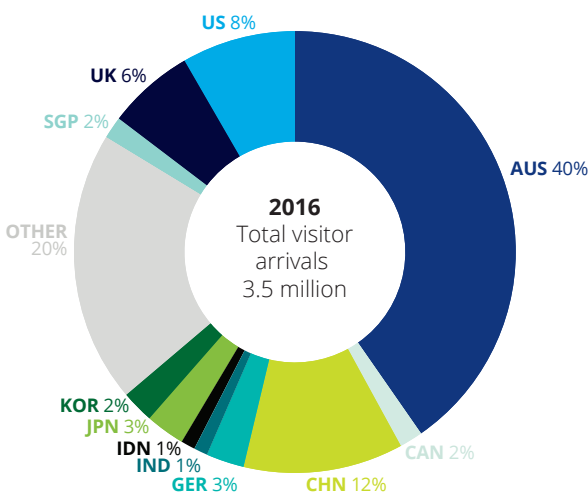
Over the last two years alone, the size of the sector has grown 24 percent.<sup>15</sup> Growth of this magnitude brings with it substantial economic opportunity.

Tourism is projected to be among the world’s fastest growing industries, meaning there is more potential growth in the pipeline for New Zealand. As illustrated in Figure 6 and Figure 7, according to MBIE, tourist numbers in New Zealand are forecast to reach 4.9 million in 2023, up 39% from 2016 – a growth rate of 4.8% per year. This would inject \$15.3 billion into the economy in 2023, up 52% from 2016.

China is expected to overtake Australia as our largest market by spend, however Australia should remain the largest source of visitor arrival numbers.<sup>16</sup> The percentage of total visitor arrivals in New Zealand coming from Australia is forecast to decrease from 41% in 2016 to 36% by 2023, while visitors coming from China are forecast to increase from 12% in 2016 to 19% by 2023.

Figure 6: **Share of visitor arrivals by international source market (2016)**

Figure 7: **Projected share of visitor arrivals by international source market (2023)**



Source: MBIE International tourism forecasts 2017 to 2023

New Zealand needs to continue to adapt and embrace the changes resulting from the sharing economy to effectively influence the choices available to tourists



This growth can also present challenges. It can stretch capacity and the ability to consistently offer a high quality tourism experience that delivers on New Zealand's brand promise. These pressures can be particularly acute when it comes to tourism infrastructure, so the adequacy and appropriateness of investment is critical to the industry's continued growth.

#### **Opportunities to take full advantage of future growth in tourism**

Opportunities to take full advantage of future growth in tourism include the sharing economy, increasing demand for tourism out of Asia, unique visitor experiences and more affordable, direct flights to and from New Zealand.

#### **Understand how the sharing economy is likely to change tourism**

Technologies and business models referred to collectively as the sharing economy are changing the tourism landscape by giving people new options for where to stay, what to do and how to get around. Leading examples include Uber and Airbnb. New Zealand needs to continue to adapt and embrace the changes resulting from the sharing economy to effectively influence the choices available to tourists.

#### **Increasing tourism from Asia**

New Zealand is well positioned to capitalise on the burgeoning Asian middle class and its growing demand for international travel. With Chinese tourists forecast to overtake Australians in terms of tourist spend, our strengthening relationship with Asia will be at the forefront of tourism growth in New Zealand. While only 4% of China's population held passports in 2015, this percentage will reach 12% by 2025, increasing opportunities for New Zealand to attract Chinese tourists.<sup>17</sup>

#### **New Zealand offers a unique visitor experience**

New Zealand has a varied natural environment, including mountains, lakes, beaches, forests and farmlands. Whether it is visiting Milford Sound, the Tongariro Alpine Crossing, Waitomo Caves, Fox Glacier or many other Kiwi tourist attractions, New Zealand continues to attract visitors from all over the world. In addition, New Zealand has a reputation as a safe destination, largely free of any strife that marks many other tourist destinations around the world.

#### **Cheaper and more direct flights to New Zealand**

Increased air access, greater levels of competition and low-cost carriers offering more flights into New Zealand have created many more affordable options for tourists and business travellers. The overall direct flight capacity to New Zealand increased by 15% in 2015, and a further 8% in 2016.<sup>18</sup> More direct and affordable flights improve tourist access to New Zealand, which will contribute to New Zealand's growing industry.

## The challenges for the tourism industry

### Renew infrastructure

To capture the maximum benefit from sustainable tourism growth, while maintaining community support, all aspects of the industry and the infrastructure that supports it need to scale up accordingly. Businesses need to invest in new capacity, products and services, just as the providers of infrastructure need to increase the capacity and quality of their offerings.<sup>19</sup>

Visitor accommodation is the most needed type of tourism infrastructure in New Zealand with the highest potential impact for the sector. Additional supply of visitor accommodation can relieve constraints and facilitate additional visitation. While developers are likely to increase accommodation supply in metropolitan areas to capture the surplus demand without government intervention, more coordination is required for regional areas. The most acute gaps are in Auckland, Queenstown-Wanaka, Wellington, Canterbury and Dunedin.<sup>20</sup>

Airports and related facilities are required for a successful tourism industry. The regions where infrastructure gaps are most acute are Gisborne, Wellington, West Coast and Northland. Auckland is the entry point for the vast majority of visitors, and this may create a bottleneck.

### More international visibility

To ensure differentiation from other tourism destinations, New Zealand must increase its visibility beyond the traditional clean green image. New Zealand can increase global awareness to include its culture, adventure tourism offerings, cuisine, political stability and safety.

### Positioning for prosperity

To make the most of this current and potential opportunity, New Zealand needs to maintain the attractiveness of its unique tourism offerings and understand the impact of the sharing economy.

In light of the likely challenges to renewing the infrastructure that supports tourism, there are important questions to address.

1. How can we ensure investment is aligned with what tourists want – especially those from Asia's growing middle class?
2. How can we ensure we invest in infrastructure that supports tourism in the most effective and efficient way?
3. How can we increase visibility of New Zealand's attractive tourist brand worldwide?





# Agribusiness: Maximising value

Global growth rate  
**3.83%**



NZ advantage score  
**16.4**



## Shift from volume to value

Ensuring on-farm productivity gains has been the recent focus of the agribusiness industry, resulting in increased export volumes and “doing more with less”.

As it stands, New Zealand is the world's 12<sup>th</sup> largest agricultural exporter, the top dairy product exporter, the top sheep meat exporter, and second top wool exporter and softwood log exporter. The agribusiness industry is producing 70% of New Zealand's total goods exports.<sup>21</sup> Yet, agribusiness in New Zealand captures less than 15% of the potential value of export earnings.<sup>22</sup>

In response, the industry recognises the need to shift from a volume-driven to value-driven strategy by achieving a better balance between greater value and increased volume. However, a number of potential disruptors may transform the industry and affect any value-driven strategy.

## Disruption drivers in agribusiness

We have identified two key disruption drivers in the agribusiness industry:<sup>23</sup>

- Global megatrends that intensify the transformation within agribusiness
- Accelerators that will amplify the speed of disruption in agribusiness

### Disruption driver 1: Global megatrends

The global megatrends that may intensify the disruption of agribusiness, which are also relevant to New Zealand are:

#### Demographic shifts

The world population will likely reach about 9 billion, with the urban middle class increasing to 4.9 billion, by 2030.<sup>24</sup> To support the resulting increase in food demand, the Food and Agricultural Organisation (FAO) predicts that food production requirements will need to increase almost 50% by 2050, from 2012 production levels.<sup>25</sup> Therefore, the FAO has emphasised the need to consider international trade, natural resources and access to food.<sup>26</sup>

#### Climate change

Changing weather conditions will impact the future of agribusiness, with its likely effect on soil quality and the quality of produce. According to the Organisation for Economic Co-operation and Development (OECD), considerable efforts have been devoted to developing technologies and practices that can help the agricultural sector to reduce its greenhouse gas emissions and adapt to the impacts of climate change. The uptake of these climate-friendly technologies and practices, however, remains low.<sup>27</sup>

## Agricultural technologies (agritech)

Technology such as drones, robots and sharing platforms are already available today. New agricultural technologies are likely to trigger further cost reductions. For example, developments in agritech have improved the availability of information to make better decisions to help farmers improve productivity gains, develop more sustainable farming practices and better understand value chains.

## Increasing value chain integration

Agribusiness firms have started to integrate vertically to optimise their value within the value chain.<sup>28</sup> Looking ahead, there is also a need to decrease the complexity of agribusiness value chains.<sup>29</sup> A Deloitte study into the agribusiness industry found farmers already face high complexity and that tomorrow's farmers will deal with even more competition and technologies after the disruption. Farmers, therefore, are willing to pay for integrated solutions.<sup>30</sup>

## Disruption driver 2: Accelerators

The trends that are accelerating the speed of disruption in the agriculture industry are:<sup>31</sup>

### New customer preferences

Consumers are increasingly aware of health concerns and supply traceability, and are looking for more personalised products and solutions on demand. In addition, consumers are concerned with reducing ecological footprints and improving or ensuring sustainability.

**Emerging technologies**

Emerging technologies include the development of biotechnological tissues, advanced manufacturing technologies such as 3D printing and robotics, and connected devices and sensors that transmit data via mobile and smart connectivity. Another example is autonomous vehicles that perform tasks like phenotyping and fumigating plants. Driverless vehicles could decrease transport costs by up to 40%, as well as transport time. This could benefit agribusiness exporters, allowing them to transport goods to a port or airport (and to a final customer) at lower cost.<sup>32</sup>

**Untapped opportunities for New Zealand agribusiness**

Although the industry recognises the need to shift towards a value-driven strategy, there is a lack of information and debate on practical solutions to achieve this goal.

In Figure 8, we identify some practical solutions to contribute to the shift within the agribusiness industry from a volume-driven to a value-driven strategy.

**Increase efficiency along the supply value chain**

The average loss of 33% from initial production to final product means that a large amount of value is lost along the value chain.<sup>33</sup> According to our research, up to 22% of these losses could be saved with more efficient supply chains.<sup>34</sup> There is also an opportunity to optimise the transport and movement of livestock and produce within New Zealand to limit inefficiencies along the value chain.

**Intermediate shifts and integrated solutions across the value chain**

There is an increasing trend of firms trying to bridge or skip value chain steps and reduce supply chain inefficiency through direct-to-consumer delivery and food e-commerce.<sup>35</sup>

Traditionally, international trade requires the involvement of a specific type of intermediary – a “pure trader”. These companies are not transporters or producers of goods – their sole business activity is buying from and/or selling to overseas actors in the value chain who are often not the final consumer.

The dominance of these traditional intermediaries is being eroded. Online marketplaces for goods and services have become a feature of international trade. For example, dairy products from New Zealand’s Fonterra use e-commerce platforms to connect directly with customers in Asia.

**Collaboration in global value chains**

The benefits of better and smarter collaboration in global value chains are vast and include:<sup>36</sup>

- Better global connections and productivity by facilitating innovation
- Sophistication and diversification of exports
- Enhanced visibility across value chains

Yet, New Zealand has significantly lower engagement in global value chains relative to other OECD countries.<sup>37</sup> New Zealand’s low engagement in global value chains calls for action to remove policy barriers that may inhibit participation in them.<sup>38</sup>

**Pursue new and niche products**

In identifying new products, exporters must look at New Zealand’s comparative advantage in production, its position in the market, and the information available on what consumers want. Expanding into new markets would complement a value-focussed strategy. Examples of new product opportunities are:

- Adding value to raw material ingredients, which at present are exported as unprocessed commodities
- Synthetic meats, which are seen as an environmentally friendly protein substitute

Figure 8: Strategies to maximise value in agribusiness



Source: Deloitte Access Economics

- Targeting the rising middle class. The rapid increase in incomes in Asia, especially from China, has led to increased demand for high quality agribusiness products
- Taking full advantage of the information available on what consumers want. MBIE recently identified a range of emerging opportunities for Asian consumers from salmon and almonds, to cherries and kiwifruit<sup>39</sup>

### Maintain quality of products

New Zealand's agribusiness industry needs to continue to differentiate itself from its global competitors by enhancing its established reputation for "clean and green" high quality produce. Changing consumer preferences also emphasises that competing on price alone may not be the most effective strategy in the future. New Zealand should be able to increase the value of exports given consumers are willing to pay a premium for quality sustainable products.

### Adopt agritech

Agri-tech will enable new business models, reduce transaction costs and open up access to new global markets. Massey University recently found that agritech in New Zealand is currently seen as just another tool to provide continuous improvements and incremental gains.<sup>40</sup> If New Zealand wishes to remain internationally competitive, the agribusiness industry must look to explore and accelerate the adoption of agritech to grow the value of exports. Adopting agritech will increase the value of exports by:

- Helping New Zealand agribusiness to be more efficient in coping with increasing environmental constraints
- Triggering cost reductions
- Expanding market opportunities

## Challenges for New Zealand's agribusiness industry

### The need for investment in sustainable farming practice

Increased competition for limited resources means New Zealand agribusinesses must look at developing sustainable farming practices.<sup>41</sup> This can both reduce input costs and develop a positive reputation among consumers.<sup>42</sup> According to a Deloitte study into the agribusiness industry, contained and vertical farming are the most recent innovations that are about to take-off.<sup>43</sup> There is, however, a concern that the current level of investment in sustainable farming practices may not be enough.

### Age of farmers

The average age of farmers is rising and currently sits at 48, with over 15% of farmers over the age of 65.<sup>44</sup> The challenge is attracting young people to the agribusiness industry. Many farming businesses will also change hands in the coming years because of their current owners' age. This may result in a push towards consolidation, which could help New Zealand agribusinesses stay competitive against large, global corporates that can produce more efficiently at lower costs.

### Rethinking sales channels into China

New Zealand experience in China has shown the importance of unofficial daigou channels, in which products are bought offshore on behalf of customers within China. This is enabled by the spread of mobile phones and online e-commerce platforms like WeChat and Alibaba. New Zealand companies have leveraged these channels to gain greater access into the Chinese market. But the introduction of a 11.9% tax on daigou products will put a damper on further growth, forcing New Zealand businesses to rethink their sales channels into the Chinese market.

## Alternative protein sources

There is growing worldwide capability to produce protein through alternative processes that could compete against the traditional way New Zealand has produced protein. For example, firms are developing plant-based meat and eggs to harness "sustainable protein".<sup>45</sup> How New Zealand responds to this market shift will determine how we grow our comparative advantage as a producer of food using more innovative means.

### Positioning for prosperity

New Zealand can be a long-term winner in agribusiness by focussing its strategy more on growing value rather than volume. Yet, there are big challenges ahead.

Businesses and government will need to take bold steps to take advantage of the opportunities – especially in the next ten years as many of the biggest challenges hit home. Important questions need to be addressed if agribusiness is to remain a key driver for prosperity in New Zealand.

1. How do we attract investment to develop sustainable farming practices?
2. How do we make agribusiness attractive to the younger workforce?
3. How do we find new ways to effectively target the right consumers to maximise value?
4. How do we respond to the sustainable protein market shift?
5. How do we ensure regional co-ordination within New Zealand is optimised to maximise value?

Overall, structural change is necessary to collectively incentivise and drive change to maximize value within agribusiness.





# Food processing: A growing global appetite

**Global growth rate**  
**3.69%**

**NZ advantage score**  
**10.0**

### Changing consumer food purchasing decisions

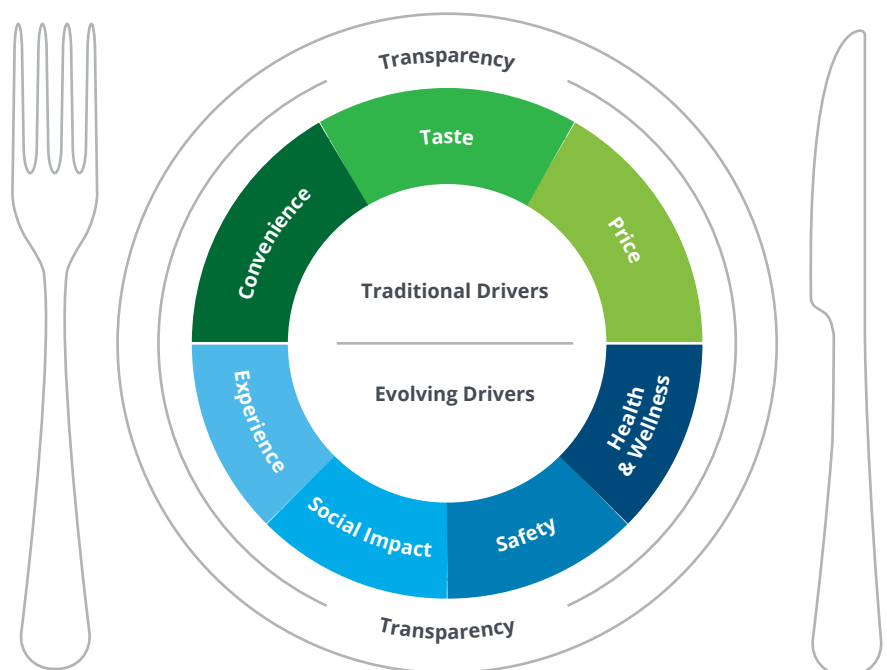
To take full advantage of opportunities in this industry, New Zealand needs to be cognisant of changing consumer value drivers. Today's consumers are actively shaping and expanding the number of drivers they consider when making food purchasing decisions.

Figure 9 shows the Consumer Value Driver Plate. It illustrates the key drivers within the consumer food value equation, and serves as a framework to evaluate where and how consumers make trade-offs across competing factors when making purchase decisions.

Developed by Deloitte, the Consumer Value Driver Plate is based on a survey of over 5,000 consumers in the United States.<sup>46</sup> The study found that increasing numbers of consumers are making purchase decisions based on the full plate (i.e. both traditional and evolving drivers). This shift is fundamentally disrupting the value equation for food processors and retailers.

The study found that more than half of consumers surveyed make their food purchasing decisions on "product plus" factors or evolving drivers, such as specific ingredients, and how and where the product was made.

Figure 9: **Consumer preferences - traditional drivers and evolving drivers**



Source: Deloitte Food Value Equation Survey 2015, Deloitte Analysis

# Health and wellness, safety, social impact and experience are supplementing the traditional drivers of price, taste and convenience

These drivers have always been present, but have historically been confined to speciality niche products and retail channels, with limited impact on the purchase behaviour of the majority consumers.

Today, however, these factors are evolving and becoming increasingly important drivers of behaviour for a large group of consumers. Health and wellness, safety, social impact and experience are supplementing the traditional drivers of price, taste and convenience.

This shift in what lies behind food purchasing decisions presents a meaningful and scalable opportunity for the food processing industry.

## Opportunities in food processing

New Zealand is well positioned to capitalise on changing consumer value drivers in their food purchasing decisions.

### Focus on products with evolving drivers

New Zealand offers a diverse range of products that address the evolving drivers of health and wellness, safety, social impact and experience. Current and emerging examples include:<sup>47</sup>

- Innovative dairy products from probiotic yoghurts and cholesterol-lowering butters, through to milk powder used in asthma inhalers worldwide
- Blueberries and their antioxidants
- Manuka honey's health benefits
- Whey and casein, which are used in medicines and many sports nutrition products

### Focus on healthy products

Worldwide, over 2 billion adults are overweight or obese. The increased awareness of obesity has led to greater demand for healthy, clean products.<sup>48</sup>

New Zealand has an established reputation for high quality produce. To ensure this advantage continues, the industry must maintain trust while developing new products to meet changing consumer preferences.

## Capture the value of healthy products

New Zealand businesses can also capture the value of healthy products since consumers are prepared to pay a premium for them. A 2015 Deloitte study found that 74% of consumers pay close attention to nutritional content, 55% are willing to pay up to 10% more for a healthy version of a product and 26% are willing to pay 10% more.<sup>49</sup>

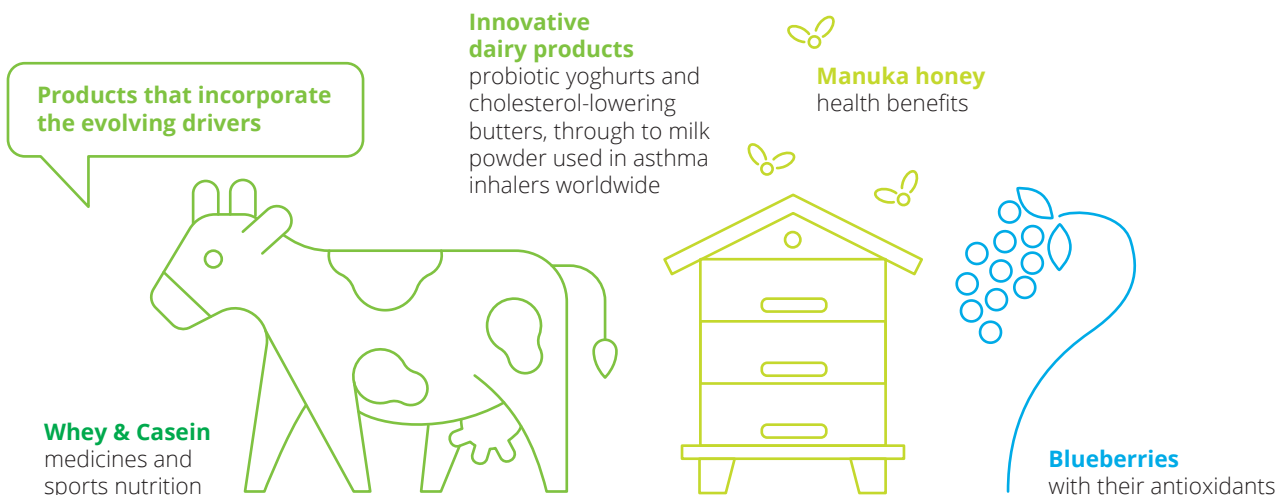
### Expand New Zealand's wine offerings

New Zealand has a strong and vibrant wine industry, which mostly competes in the global still white wine market; more specifically, Sauvignon Blanc. But New Zealand could expand this beverage platform to include red wine, sparkling wine, brandy, vermouth, and white wine exports other than Sauvignon Blanc.

New Zealand has the capability to export these alternatives in addition to the volume of Sauvignon Blanc we export. Moving into other types of wine exports would expand participation in the market, target what consumers want and increase New Zealand's export earnings in this industry.

### Big challenges to address

New Zealand faces some obstacles to take full advantage of the opportunities in this environment characterised by evolving consumer value drivers.





### **Innovation to support growth**

As the global population continues to grow, food processors will be challenged to continue to improve productivity. To date, the food supply chain has shown itself to be adaptive to evolving consumer demands. However, future success will require both adapting to changing demographics and consumer preferences, as well as managing in an increasingly global and complex business environment. This highlights the need for food processors to effectively collaborate across the value chain in an innovative manner.

### **Adopt products to specific customer requirements**

It is important to modify solutions to fit consumer preferences and tastes, as these can vary from country to country. New Zealand businesses must think about the individual product's attributes and provide information to consumers that is open and transparent. This calls for action to develop approaches to minimise the cost implications of adapting products to customer specific requirements.

### **Consumers are in the driver's seat**

Using the influence and reach of new media, many consumers are taking control of the conversation about food. This is a departure from when the food processor could significantly influence consumer preferences through mass marketing.

Instead, consumers are increasingly relying on social networks, self-proclaimed experts and web-based media as their sources of information.<sup>50</sup> This means that New Zealand food processors must take full advantage of these information sources, and also recognise that reputation is hard won but easily lost.

New Zealand food processors must therefore take measures to ensure that their supply chains are as secure as possible in order to maintain their customers' trust. New technology like blockchain, a distributed and publically accessible ledger that records transactions in a tamper and revision-proof way, is just one example that could potentially be used to track what goes into a product and who handles it along the way.

### **Positioning for prosperity**

New Zealand is in a good position to take full advantage of opportunities in the food processing industry within an environment influenced by evolving consumer value drivers. But there are barriers to overcome to realise the opportunities that exist within this industry.

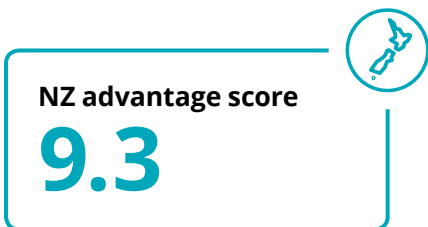
1. How should New Zealand adapt products and services to address evolving consumer value drivers?
2. Are we targeting the right investment to support innovation to address new consumer preferences and maintain trust in our products?
3. How can the industry find better ways to collaborate in global value chains?



# International education: An evolving opportunity



Students are more mobile and flexible about the location and timing of their study than ever before



## A changing landscape for international education

The changing nature of the international education landscape means New Zealand's opportunity is evolving.

In terms of demand, students are more mobile and flexible about the location and timing of their study than ever before. In a globalised world, the higher education market is becoming increasingly internationalised. Some five million tertiary students currently study abroad. By 2025, this figure is expected to reach eight million.<sup>51</sup>

There are also shifts in international education from the supply side. Technological changes will drive new and innovative educational services, expanding and evolving delivery. Technology is changing the way education is purchased, experienced and consumed; and it is extending international education markets beyond their established geographic and service boundaries.

New Zealand has been able to successfully position itself in this industry. International education is New Zealand's fourth largest export earner, currently generating \$4.5 billion<sup>52</sup> annually. Exports in education increased by 54% between 2013 and 2016.

The current 131,609 international students in New Zealand participate at every level of education, from primary through to post-graduate studies.<sup>53,54,55</sup>

Looking ahead, international education will continue to contribute to a vibrant and prosperous New Zealand. To realise the opportunities that exist in the industry, New Zealand's comparative advantage in international education needs to be maintained and strengthened.

## New Zealand's advantage in international education

### A positive and authentic education experience for learners

New Zealand is seen as a welcoming country with strong human rights, and one of the safest countries in the world. To support a positive and safe experience here, the industry established the Code of Conduct for the Pastoral Care of International Students;<sup>56</sup> a framework for education providers.

### Proximity to Asia

Students from Asia represent more than half of all international students enrolled in OECD countries. China has the most citizens enrolled abroad, followed by India. This has flow-on benefits for New Zealand, given New Zealand's proximity to Asia.<sup>57</sup>

### International collaboration

International collaboration initiatives can take a variety of forms, and include research collaboration (joint research projects), academic mobility, agreements enhancing short or long-term student flows and work placement programmes. In terms of research collaboration, studies have shown that investment in research contributes to the long-term economic growth of a country. For example:<sup>58</sup>

- Research outputs can lead to better systems, materials and products, and overall productivity improvements in the economy if the research influences the practices of industry, government and broader society
- International research collaboration produces higher quality research due to access to knowledge, skills, techniques, facilities and broader networks
- Access to world-leading research that leads to innovation provides a competitive advantage for New Zealand and through intellectual property that can be commercialised

## Technological changes will drive new and innovative educational services, expanding and evolving delivery

### English is spoken inside and outside the classroom

A New Zealand education offers full immersion in the English language – the world’s business language. This puts New Zealand education providers on more of an equal footing with the other leading education providers such as the United States, the United Kingdom, Australia and Canada.

### Challenges for New Zealand

#### International education is becoming increasingly borderless

This is both a challenge and an opportunity for New Zealand’s international education industry. New technologies enable international education to be just a click away for students. For example, there now exist massive open online courses (MOOCs), distance education, international education-related internships and training experiences, cross-border delivery of academic programmes and offshore satellite campuses. This is a growing concern for New Zealand’s education institutions competing against global brands.

However, this also provides an opportunity for New Zealand to overcome geographical barriers. New Zealand is already taking advantage of this opportunity:

- The University of Auckland’s MOOCs allow anyone in the world to study at the university by distance
- The University of Otago is a world leader in offering online professional development for the aviation and occupational medicine industry and has 100+ students studying in the Middle East, North America, Europe, Asia and Australia<sup>59</sup>

### Increase the value of international education

Given the trend that international education is becoming increasingly borderless, another challenge will be how to increase the value of international education in New Zealand, not only the volume. The per-student spend with borderless international education will be much less than the per-student spend for education within New Zealand. Action is required to ensure New Zealand is retaining the value of the industry while remaining competitive in a global market.

*International education is New Zealand’s fourth largest export earner, currently generating an annual*

**\$4.5 billion**

**63%** *of total international enrolments are in*  
**Auckland**

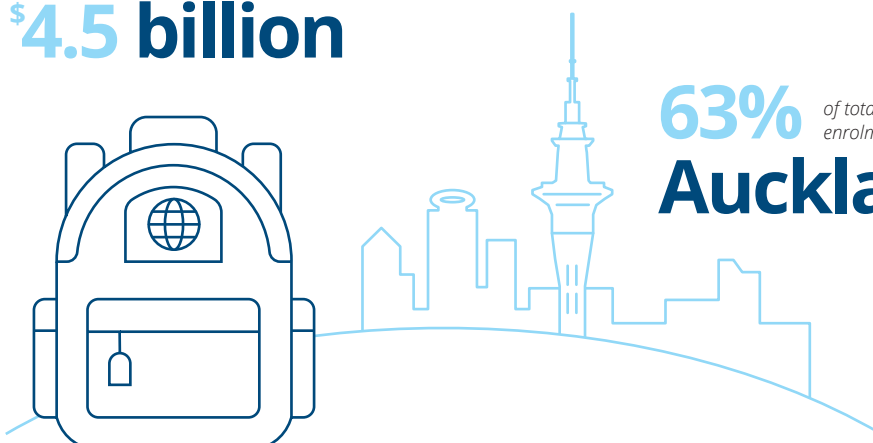
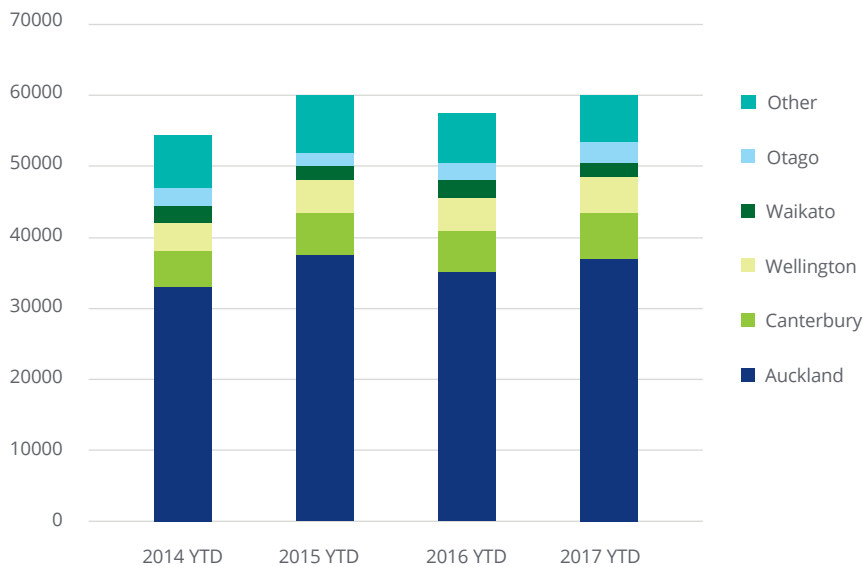


Figure 10: **Total student visas provided by region** (2014 to 2017)



Source: New Zealand Education

### Student attraction and rising student expectations

To remain competitive, New Zealand needs to increase the visibility and international recognition of its qualifications overseas. This includes promoting the country and its international education system on social media and platforms such as Weibo and WeChat, and making more use of the *Study in New Zealand* website.

In addition, given the rise of Asian universities, New Zealand needs to offer a differentiated student experience that provides social connections beyond the classroom. Any bad publicity, or changes in immigration settings, could increase the risk of international students opting for local alternatives.

### Attract international students beyond Auckland

Currently, Auckland is the main destination for international students, with 63% of total international enrolments.<sup>60</sup> This concentration may contribute to infrastructure and housing pressures in Auckland. Other regions in New Zealand have capacity to grow and to provide a positive experience for international students. A more strategic regional development approach for international education is required to realise these opportunities, including consideration of how direct flights to Asia are a key consideration for families. Figure 10 illustrates the total student visas provided by region, 2014 to 2017.<sup>61</sup>

### Positioning for prosperity

Effective and targeted strategies for international collaboration, and being in front of the innovation curve for online studies, could deliver significant benefits for New Zealand's international education industry. But the industry faces key challenges that need to be addressed to reap these benefits in the future.

The following questions should be considered to take full advantage of opportunities in the international education sector.

1. How can we encourage further international research collaboration and support bilateral student flows?
2. How can we improve visibility and accessibility for international education in New Zealand?
3. How can we incentivise the delivery of new and innovative education and training services in New Zealand?
4. How can we increase both the value and the volume of international education in light of future trends and manage risks at the same time?
5. How can we distribute demand for international education outside Auckland?





# Advanced manufacturing: Diversifying New Zealand's exports

Global growth rate

**3.69%**



NZ advantage score

**8.7**



## Advanced manufacturing in New Zealand

This industry is a revelation in New Zealand. It has experienced significant growth in export earnings, rising from a total value of \$1.4 billion in 2012 to over \$6.9 billion today.<sup>62</sup>

In particular, \$4.4 billion is from high-tech manufacturing and \$1.9 billion is from ICT.<sup>63,64</sup> Advanced manufacturing is New Zealand's third biggest export revenue earner - currently 9.8% of total exports.<sup>65,66</sup>

The industry showed a 239% increase in FDI in early stage technology companies in the past year.<sup>67</sup>

Within New Zealand, MBIE includes both ICT and high-tech manufacturing within this industry.<sup>68</sup> MBIE defines advanced manufacturing as those industries where R&D across developed nations averages 8% or more of revenues.<sup>69</sup>

Health technology is this industry's largest export sector, followed by generic pharmaceuticals and scientific technology.<sup>70</sup> The opportunities on our doorstep are limitless. Advanced manufacturing is a key contributor to the diversification of exports. In this industry, New Zealand's level of innovation, quality of products and services, and ease of doing business, outweigh the geographical disadvantage that it might otherwise face.

## Opportunities

Figure 11 shows that New Zealand is in a good position to take full advantage of the opportunities within this industry given it is ranked 3<sup>rd</sup> in global creativity, 5<sup>th</sup> in Asia and Oceania for innovation and 6<sup>th</sup> in the world for contribution to science and technology.

## Advanced manufacturing is critical for diversifying exports

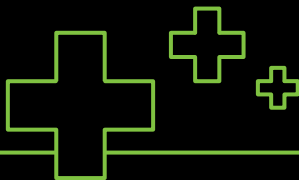
Advanced manufacturing is export intensive, with firms deriving most of their sales from exports. Advanced manufacturing is not only diversified in terms of products and services, but also in terms of geographical markets. For example:<sup>71</sup>

- Orion Health manages electronic patient information for over 25% of the United Kingdom's population, with a growing market presence in Spain and France
- Fisher & Paykel Healthcare generated significant revenue in Asia from sales of its medical devices
- Magic Memories is now the largest provider of innovative photography experiences, with 185 sites worldwide

# New Zealand as a global leader within the advanced manufacturing industry

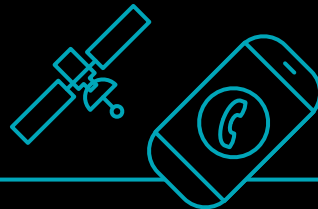
## Health technology

- Designs and manufactures products and systems used in respiratory care, acute care and treatment of obstructive sleep apnea
- Develops and manufactures generic pharmaceuticals
- World leader in healthcare integration and precision medicine
- Developers of regenerative tissue substitute technology
- Develops bladder cancer detection technology
- Advanced image-processing techniques to detect breast cancer in women
- Medical devices specialising in wound care



## Communications

- Delivers and manages communication solutions that support operation of utilities and public safety operations
- Develops and manufactures high performance quartz crystals components used for timing reference and frequency control in demanding applications, such as global positioning systems and wireless communications
- New Zealand makes the crystal oscillators inside smartphones
- Datacom: New Zealand's first IT company to reach \$1 billion in revenue in 2016 and now operates in 29 locations across the globe



## Science and other



- Nuclear magnetic resonance technology
- Xero: one of the biggest small business ecosystems in the world, with more than 1 million subscribers
- World leader in airport baggage handling systems
- Technology solutions in the film industry
- New Zealand has 568 full time professional video game developers - more per capita than any country in the world<sup>72</sup>
- Freeze-dried and ready-to-use liquid hemoglobin control products
- Building and operating of wirelessly controlled wall-climbing robots that perform high-precision tasks in high-risk environments
- Vista Group: a cluster of businesses providing technology solutions to the film industry; their flagship company Vista Cinema has software installed in over 80 countries and holds 38% global share of the Large Circuit Market (cinemas with 20+ screens)
- Buckley Systems: builds components for the machinery that produces 90% of the world's silicon chips
- Rocket Lab: develops lightweight, cost-effective commercial rocket launch services for small payloads such as CubeSats that require dedicated small launch vehicles and flexibility not currently offered by traditional rocket systems

## Tech for agribusiness

- Designs and manufactures products and services for perimeter security, the weighing and electronic identification of farm animals, and electric fences on farms
- Gallagher Group: disruptive solutions for animal control, security and fuel systems
- Simcro: animal health pharmaceutical delivery systems
- NDA Group: high-tech engineering, manufacturing and servicing of industrial storage and process vessels for the dairy, food processing, chemical, gas and wine industries
- Haden and Custance: automated handling systems to handle and prepare bulk cheese and butter
- BioLumic: ultra violet (UV) light technology to improve crop yields for large crop and horticultural growers



Figure 11: **New Zealand's strengths**



**New Zealand excels in health technology**

The design and manufacture of health technology is a great opportunity for New Zealand. We already have an international reputation for excellence in digital health and health technologies, and the need for health technologies to deliver improved outcomes is now greater than ever.

This is a direct consequence of ageing populations, the rise of chronic diseases and the expectation that the prevalence of dementia will double every twenty years. New Zealand has the opportunity to deliver the innovation needed to address these needs.

**A shift towards services**

Manufacturers are developing business models that integrate service offerings with products to create a competitive advantage. This is in line with the global shift towards service exports. Examples of such services are training, design, customisation, maintenance and software. This provides opportunities for New Zealand manufacturers to extend operations into the services market and increase their revenue base.

**Big challenges to address**

To take full advantage of the global opportunities in advanced manufacturing, New Zealand needs to be internationally connected through trade and investment, and the flow of people and ideas.

**Maintain global connections**

New Zealand currently has strong connections with the United States and Asian markets. But New Zealand must maintain and improve its strong connections to the world.

For example, New Zealand is participating in the Square Kilometre Array – a twelve-nation project to construct the world's largest radio telescope. New Zealand's contribution is to both the hardware (signals processing technology) and the software (designing algorithms needed to process more data than the whole internet carried in 2013) of this project.

**Strive for foreign direct investment**

In the past five years, a growing number of high profile and respected international investors have invested in New Zealand companies. As indicated previously, in the past year FDI increased by 239%. A future challenge is going to be maintaining this level of FDI.

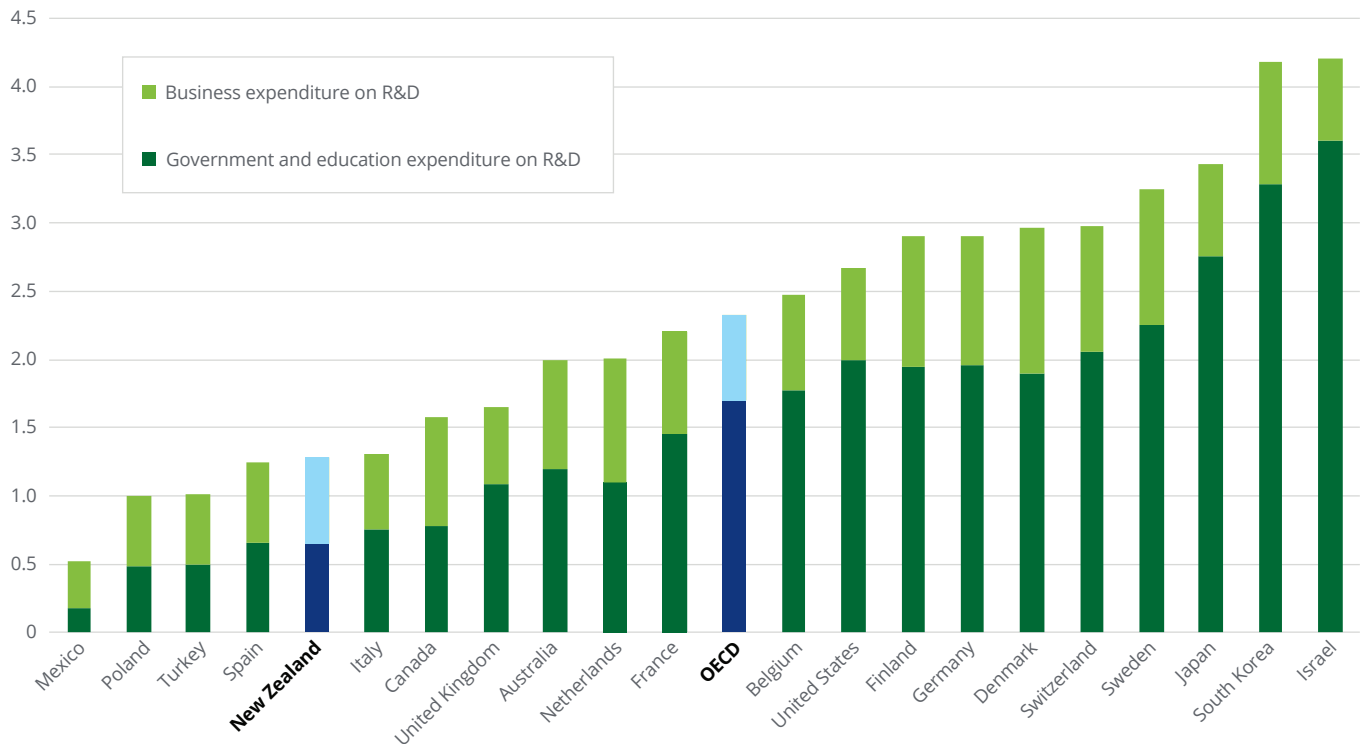
**Address low investment in R&D**

Expenditure on R&D is high in the advanced manufacturing industry. Yet currently, overall business expenditure on R&D in New Zealand is only 0.65% of GDP. The previous government set a target to increase this ratio to 1% of GDP by 2018, but it appears this will not be reached.<sup>73</sup> Private sector funding of R&D in New Zealand is one of the lowest in the OECD as shown in Figure 12. Being small is not an excuse. Other small advanced economies like Israel, Finland, Denmark and Sweden all spend between 2.0% to 3.5% of their GDP on R&D in terms of business expenditure, and these countries all have higher productivity than New Zealand.<sup>74</sup>

**A globally focussed industry**

New Zealand firms in the advanced manufacturing industry need to be innovative and create international appeal from the start to get a first mover advantage on a global basis. Therefore, it is important to find ways to identify and pursue new markets in a timely manner and to attract talent to New Zealand.

Figure 12: **Expenditure on research and development** (percent of GDP 2017)



Source: OECD New Zealand economic survey, June 2017

### Positioning for prosperity

Advanced manufacturing presents New Zealand with a crucial opportunity to diversify exports. The design and manufacture of health technologies is a key comparative advantage for New Zealand in this area.

The need for health technologies to deliver improved outcomes is now greater than ever, but there are barriers to overcome. In particular, the challenges include increasing expenditure on R&D and gaining first mover advantage on a global scale.

Businesses and government will need to take bold steps to realise the full opportunity that exists in this industry. If we do, advanced manufacturing will support greater diversification of exports and become one of the biggest drivers of prosperity in New Zealand.

1. How can we find ways to ensure we identify and pursue new markets in a timely way?
2. How can we increase expenditure on R&D in New Zealand, particularly private sector expenditure?
3. How can we increase government funding on health research?
4. How can we create pockets of excellence across New Zealand, particularly in research?

# Preparing for action

This first edition of our *Shaping our slice of heaven* series analyses where global opportunities and New Zealand's advantages will coincide to create growth opportunities for the economy. Recognising that New Zealand's prospects are as bright as they were a decade ago is not in itself enough. How can New Zealand business and government apply these insights to their specific situations? How can New Zealand take a longer-term view and what does that mean in practice?

The answers lie in understanding where companies are positioned today, and identifying the best ways to move towards areas of higher growth and greater advantage. Government can play a role here, but it is worth underscoring that although government policies can help, success or failure lies more in the actions of the business community.

## Understanding where New Zealand's businesses are positioned today

In the same way that we have considered how a range of New Zealand industry sectors are positioned to grow over the next two decades, individual companies can review how they are positioned to succeed in the future. This means asking, "What is our proximity to prosperity today?" and, "Are we on track to move closer to prosperity?"

Sectors with an outstanding potential growth story, such as tourism and agribusiness, enjoy a very high proximity to prosperity. This comes from being positioned in markets that are expected to show strong global growth over the next twenty years, and from doing business in areas where New Zealand enjoys a disproportionate advantage over global competitors.

At the other end of the scale, sectors like traditional media will need to make their way unassisted by exceptional global growth or inherent New Zealand advantages.

Yet these are generalisations. Each business will occupy different niches, and will sometimes operate across more than one sector. The challenge for leaders is to determine where their company sits on the prosperity map and – most importantly – how to move closer to prosperity as New Zealand's sector growth drivers change gear.

## Prosperity levers for government

When it comes to increasing proximity to growth opportunities and strengthening competitive advantage, government has access to levers comparable to those available to business. However, the courses of action open to government leaders will be different. In broad terms, businesses should focus on doing, while governments should focus on enabling.

Even then, government must be careful. Given the difficulty of picking winners – especially by governments – the need to safeguard taxpayers' money counsels caution. That is all the more true given the granularity of growth: the potential for success lies more at the level of individual businesses than it does for sectors as a whole, meaning that specifically directed government help can often miss its mark.

Ultimately, what most businesses – and the community at large – would like from government is policy coherence. They want to see different parts of government operating in a coordinated way and a workable level of agreement between political parties about the core elements of New Zealand's growth strategy.

## Let's start the conversation

There are plenty of actions leaders can take to help move organisations "up and to the right" in the Deloitte Access Economics prosperity map – either closer to global growth opportunities, or better equipped to capitalise on them. Ideally, they can achieve both moves to generate exceptional and lasting sources of future wealth for New Zealanders. The potential pay-off is huge.

But perhaps the most important step is simply to start the right conversations. This involves asking questions within companies and between businesses, industry associations and governments.

- How can we move our organisations into the best positions to capitalise on future growth opportunities?
- How can government enable growth and maintain resilience in the face of uncertainty?
- How can government and businesses actively develop strategies that consider how New Zealand's regions can work both separately and together to be more productive, and collectively, more competitive?

The core message of this report is that while global or domestic opportunity and structural advantages are necessary, they are not sufficient. To ensure success, we need to build on New Zealand's areas of advantage to maintain and improve performance relative to global competitors. It is also not enough to develop regional economic development plans in silos; rather they need to exist within an overarching framework.

Seize the day – the time for action is now. There are plenty of competitors waiting in the wings if we are complacent.

# Appendix:

## Methodology used to estimate New Zealand's advantage

### Broad methodology

Advantage scores are calculated for each industry as the sum of a vector of weights multiplied by a vector of scores (for each of the factors shown in the table below). Industries have different weights ascribed to different factors, reflecting that the success factors driving industry performance differ across industries of the economy.

As an example of how the weights vary across industries, agriculture has a much higher weight on “natural resources” than “construction” or “professional services” does; as the former’s output is heavily reliant on New Zealand’s endowment of quality agricultural land, while the latter two industries do not have a large direct dependence on natural resources. As a result, agriculture receives a larger score for “natural resources” (a sector New Zealand does very well on) which helps contribute to agriculture’s overall advantage score (the highest of all industries).

Deloitte Access Economics has modelled the New Zealand advantage for different sectors based on:

- Exchange rates
- Business regulation
- Productivity
- Export-intensity
- Sector-specific factors

The indicators used (and relevant sources) are listed below. In looking at these factors, several are likely to be correlated:

- Natural resources, proximity to Asia and revealed comparative advantage are all related
- Similarly, the part of the score linked to cost-related factors, including cost competitiveness, regulatory competitiveness and exchange rate are related

- Of the remaining components, relative productivity is, in turn, affected by many of the other drivers in this analysis

Although there are some disadvantages in having a number of related explanatory factors in our analysis, the available datasets to help assess New Zealand’s advantage, have their own relative strengths and weaknesses. This means that a broader selection of explanatory factors will tend to help pick up a more accurate final figure than if we had narrowed the selection.

Indicator	Source
Exchange rate	<i>Deloitte Access Economics' forecast</i>
Proximity to Asia	<i>Mapping tools</i>
Natural resources	<i>CIA World Factbook, trade statistics</i>
Educational attainment	<i>Barro R &amp; J W Lee (2016)</i>
Cost competitiveness	<i>World Economic Forum, 'Global Competitiveness Index'</i>
Regulatory competitiveness	<i>World Bank, 'Ease of Doing Business Index'</i>
Relative productivity	<i>OECD, 'Level of GDP per capita and productivity'</i>
Revealed comparative advantage	<i>Trade statistics, Deloitte Access Economics</i>
Sector specific factors	<i>Deloitte Access Economics' assessment</i>

### The New Zealand economy and the different factors

First, because New Zealand's exchange rate is projected to modestly decline on a trade-weighted basis in coming years, that naturally has an impact on sectors where we export most of our product (such as agriculture) or import much of our demand (such as manufacturing).

New Zealand's proximity to Asia, combined with its natural resources (as manifested in strong agriculture exports) represents an important source of advantage.

New Zealand also ranks first in the World Bank's *Ease of Doing Business Index*, which is a source of advantage for the economy (regulatory competitiveness), particularly those sectors that have a greater weighting for this component. On the other hand, New Zealand performs less favourably on cost competitiveness and relative productivity.<sup>75</sup>

In terms of cost competitiveness, the World Economic Forum's *Global Competitiveness Index* was used and New Zealand was compared to relevant competitor nations for different industries. New Zealand ranks 13th on this index globally, and 4<sup>th</sup> within the Asian region.<sup>76</sup>

New Zealand's productivity is on the weak side for an advanced economy. According to 2015 productivity data from the OECD for example, New Zealand's GDP per hour worked (USD constant prices in 2015) was \$37.50, compared to \$51.90 in Australia, \$62.90 in the United States and \$55.10 in OECD countries more broadly. This weaker performance in terms of average labour productivity may be influenced by the size of New Zealand's capital stock (a complement to labour) against larger developed countries. Again, in the calculations, New Zealand's productivity was compared to competitor nations for each industry, with competitor nations varying across the different industries.

Trade statistics and industry composition (sourced from Statistics New Zealand) are used as another input to determining New Zealand's comparative advantage. In an open economy, exports provide a useful guide to a country's revealed comparative advantage. The inclusion of other factors in this analysis ensures that it captures underlying areas of advantage for New Zealand that could be realised through appropriate action or policy decisions.

Finally, Deloitte Access Economics has made some adjustment in relation to "sector specific factors" given that in a forward-looking exercise, not all relevant factors for future performance will be fully reflected in current or historical data. For instance, resources was marked down as the cost, productivity and regulatory factors were favorable due to competitor nations (such as Brazil or African nations) having a lower socioeconomic statuses and general position in the aforementioned indices. New Zealand's mining sector is also relatively small, indicative of a lack of comparative advantage in this industry. Other industries, such as international education were marked higher due to hard to capture factors, like the value of universities being English speaking and the attractiveness of New Zealand as a country to study in, and for families to visit.

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