
# CANNING VALE FOOD VALUE ADD PRECINCT

An assessment of Canning Vale advantages and needs to develop a vibrant food value add precinct

CITY OF CANNING

bankwest

Curtin University

# CONTENTS

# LIST OF FIGURES

# LIST OF TABLES

# ABOUT THE CITY OF CANNING

## The City of Canning is one of the most important economic hubs in Western Australia with a gross regional product of $11.2 billion, almost 4 per cent of the State's GSP.

The City of Canning is also a net employer of the Perth metro area, with more than 45,000 people in the labour force but with a potential offer of employment of 77,000, the City is positioned as one of main employment areas in WA. More than half of Canning residents were born overseas which positions it as one of the most diverse areas of the state.

The City of Canning comprises the industrial zone of Welshpool, with a vibrant manufacturing sector and the Canning Vale industrial precinct which includes one of the largest fruit and vegetable distribution hubs in WA. Overall the City holds almost 10,000 businesses within its area increasing by more than 15 per cent in the past 5 years, evidence of the increasing industrial development in the area.

The City of Canning's bold agenda is to develop as one of the strongest economic hubs in the region by scaling-up fast growing industries, further developing manufacturing capabilities and diversifying the industrial park to include other related sectors.

The commitment from the City of Canning to diversification and, in particular, the development of the food value add industry has the potential to attract businesses, start-ups and innovation as well as to increase the network of food related business in the zone.

# ABOUT THE CENTRE

## The Bankwest Curtin Economics Centre is an independent economic and social research organisation located within the Curtin Business School at Curtin University.

The Centre was established in 2012 through the generous support of Bankwest, a division of the Commonwealth Bank of Australia. The Centre's core mission to deliver high quality, accessible research that enhances our understanding of key economic and social issues that contribute to the wellbeing of West Australian families, businesses and communities.

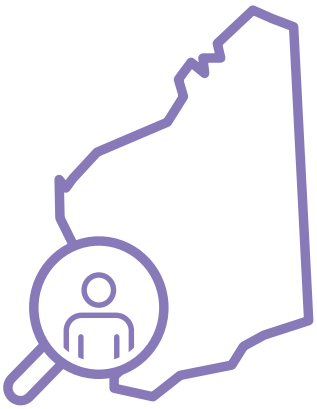
The Bankwest Curtin Economics Centre is the first research organisation of its kind in WA, and draws great strength and credibility from its partnership with Bankwest, Curtin University and the Western Australian government. The Centre brings a unique philosophy to research on the major economic issues facing the State.

By bringing together experts from the research, policy and business communities at all stages of the process – from framing and conceptualising research questions, through the conduct of research, to the communication and implementation of research findings – we ensure that our research is relevant, fit for purpose, and makes a genuine difference to the lives of Australians, both in WA and nationally.

The Centre is able to capitalise on Curtin University's reputation for excellence in economic modelling, forecasting, public policy research, trade and industrial economics and spatial sciences. Centre researchers have specific expertise in economic forecasting, quantitative modelling, micro-data analysis and economic and social policy evaluation. The Centre also derives great value from its close association with experts from the corporate, business, public and not-for-profit sectors.

# AT A GLANCE

# AT A GLANCE

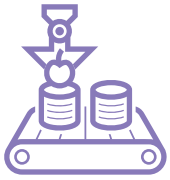


## AT A GLANCE

- **21,000 JOBS** in food value add in the City of Canning
- **2,900 JOBS** in food value add in the Canning Vale precinct
- Canning Vale has **47 TIMES** more employment in produce warehousing than the average Australian region
- Most diverse region in WA and **9TH NATIONALLY**
- **45%** of the capabilities to create new food related products are already in the area.

## JOBS

- **68** additional jobs in 2024
- **375-680** additional jobs by 2033 for a mid-level scenario.



## POTENTIAL DIVERSIFICATION OPPORTUNITIES

- **FOOD VALUE ADD MANUFACTURING:** beverages manufacturing, meat processing, confectionary manufacturing
- **EXTENDED WAREHOUSING ACTIVITIES:** cereal grain wholesaling, milk and cream processing, dairy wholesaling
- **OTHER MANUFACTURING OPPORTUNITIES:** prefabricated wooden building manufacturing, basic chemical manufacturing, and fertiliser and pesticide manufacturing.

## GROSS VALUE ADDED

- Direct GVA increases range between **$3.1M-$13.6M** in 2024 increasing to **$31.0M-$135.7M** in 2033
- Indirect GVA growth ranges between **$1.4M-$6.2M** in 2024 increasing to **$13.5M-$62.2M** in 2033 with continued growth
- Induced GVA growth ranges between **$0.8M-$2.2M** in 2024 increasing to **$7.7M-$21.8M** in 2033.

# EXECUTIVE SUMMARY

# EXECUTIVE SUMMARY

## The City of Canning has engaged the Bankwest Curtin Economics Centre (BCEC) to assess the economic case and potential opportunities of a food value add precinct in the Canning Vale industrial area.

This report assesses the economic feasibility of the precinct and recommends viable steps for its implementation, using a Smart Specialisation approach. Contrary to the often myopic local industry policy "build it and they will come", the Smart Specialisation approach builds on the advantages and capabilities of a region by promoting industries with high strategic gains for the economy.

Regional and local economies grow by diversifying into industries related to their existing activities. This is thought to improve the success of these initiatives by moving beyond a back-and-forth political debate to projects that are more resilient and can be supported by governments from opposite sides of the political aisle.

### The need for a food value add precinct in Western Australia

The Western Australian economy is far from being diversified. Half of the WA gross state product comes from mining products alone. After mining, agriculture is the second largest industry in WA valued at more than $10 billion.

Agricultural products are rarely transformed and are mostly exported as raw products. However, the price of these commodities is often low and fluctuate significantly according to international supply.

WA should find opportunities to increase the value of products by transforming them beyond the raw commodity. This upward differentiation will add value to the food items increasing their prices, and ultimately sheltering producers from market fluctuations and competition.

These objectives can be achieved through the creation of a food value add precinct. Indeed, the goal of a food value add precinct is to concentrate a significant number of businesses that transform raw primary products in order to increase their value. Value adding can constitute a myriad of opportunities including: transforming raw products into highly processed or manufactured products, increasing the utilisation of by-products and managing the use of natural resources more efficiently to attract price premiums.

The main advantage of a food value add precinct is to have a one-stop-shop for all the required inputs and processes. The close proximity of companies providing these creates significant gains in productivity and a decline in production costs therefore increasing firms' profitability.

By agglomerating in a central location, companies can create a critical mass and generate a network of businesses which will in turn increase manufacture viability, improve economies of scale and create new ventures and partnerships for companies.

### Canning Vale is strategically positioned to develop a food value add precinct

#### Access to key infrastructure

The Canning Vale precinct has excellent proximity to the main infrastructure, including Jandakot airport that almost borders the Canning Vale industrial district and the Perth domestic and international airport that is only 15 minutes away.

Main roads such as Roe Highway, South Street and the Kwinana Freeway close to the Canning Vale industrial area give direct access to the Fremantle port as well as to the Kwinana outer harbour, the future site of Perth's port.

Furthermore, the future prospect to create an intermodal terminal for logistics which would include a stop on the rail line currently at the south of the precinct, would provide a significant boost in infrastructure increasing the attractiveness of a food value add precinct in the Canning Vale industrial area.

#### A solid industrial base in food related products

In order to ensure the success of the project, Canning Vale needs to already have a strong industrial base in food related industries. Otherwise companies might not be naturally attracted to the region and the project would likely fail.

The results of the Smart Specialisation analysis speak eloquently of the significant advantage of Canning Vale in this sector. The Canning Vale industrial precinct has 2,900 employees in food value add related industries, more than any other SA2 in WA.

More specifically, the Canning Vale industrial area has comparative advantages in industries such as wholesaling that centralise large quantities of goods. Indeed, there are 47 times more employees in general line grocery wholesaling and food and vegetables wholesaling than the average Australian SA2. Subsequently, Canning Vale has the highest number of businesses in the wholesale trade industry, leading all other WA regions.


Nationally, some food manufacturing products in Canning Vale also have a comparative advantage. Bread manufacturing, seafood processing and meat product manufacturing have at least four times more employees than in the average Australian region.

Moreover, Canning Vale not only has an advantage in food related industries, but also the capabilities to foster new ventures. In fact, of all the industries necessary for the development of food value add products, the Canning Vale industrial precinct already has on average more than 45 per cent of them, particularly in the wholesaling and manufacturing sector - an impressive number. This reflects on the feasibility of the precinct to become an incubator for new companies, especially in the food sector.

The Canning region has also the highest industry diversity in WA and the fourth most diverse number of industries in Australia. This is crucial to enable the development of niche and complex sectors with significant economic strategic gains, making Canning Vale an excellent candidate to develop additional value added products.

## Economic impacts of a food value add precinct in the Canning Vale commercial precinct and possible opportunities

Looking at the potential opportunities for new industries, specialisation in food value add manufacturing appears to be a strong diversification opportunity for Canning Vale. Some of the industries of this sector are not yet mature but the capabilities needed to develop it are already present in the precinct.

The analysis identifies key industries for diversification in food manufacturing including meat processing, confectionery manufacturing, beverage and tobacco product manufacturing and prepared animal feed manufacturing among many others.

Additionally, extending wholesaling opportunities to other products such as cereal grain wholesaling, milk and cream processing, and dairy produce wholesaling appear as potential prospects for Canning Vale.

However, it is not only necessary to be able to produce goods but they must be goods that consumers are willing to buy. Consumers are now looking beyond price, convenience and taste when making decisions about goods purchases.

This report has identified a growing demand for different value drivers in the purchase of products including health and wellness, safety, social impact, experience, and transparency. Companies within the future Canning Vale food value add precinct should take into account these drivers when developing new products and updating existing goods.

Finally, there are substantial opportunities related to the sustainability of the food value add precinct.

Canning Vale postal area produces roughly 3 per cent of the state's total solar power supply making it the fourth largest postal area in terms of small generation unit output in WA. Given the number of warehouses in the Canning Vale area, there is a significant opportunity to expand solar energy by utilising rooftops to install PV systems.

Additionally, organic and general waste should be a future concern for the Canning Vale industrial precinct. Despite one of the lowest amounts of per capita waste (0.88 tonnes), Canning Vale is one of the poorest performers in the treatment of waste. Indeed, over 66 per cent of the total waste goes into landfill and only 8 per cent of organic waste is composted. This is a missed opportunity especially if the precinct would like to specialise in food related industries where organic waste is significant.

## Recommendations and project implementation

In interviews with different stakeholders, this report has identified seven obstacles limiting businesses' development in food value add industries: insufficient scale and centralisation, limited access to information, lack of networks and cooperation, inexistent coordination between companies, difficult access to labour, absence of scalable and sustainable infrastructure, inability to reach markets and consumers.

Taking these considerations into account as well as the results of the Smart Specialisation approach, this report main recommendations are:

### In the short term:

- **The creation of a logistics hub** that would coordinate partnerships between companies to manage exports and product development, organise transportation operations and guide start-up businesses in different administrative procedures.
- The logistics hub would also create a directory of companies in the area and organise meet-ups between company owners to boost cooperation and networks.
- The logistics hub should also organise job fairs and create an apprenticeship network to attract workers to the precinct.
- **The creation of a Canning Vale brand** that signals the strengths of the precinct and puts forward the food value add industries.

### In the medium term:

- **The creation of an export hub** to help companies connect with each other to coordinate exports, provide contacts to overseas companies and look for foreign direct investment opportunities.
- The development of the intermodal transportation hub to meet the infrastructure needs of the future.
- To improve the sustainability of the precinct, both the creation of a micro-grid based on roof solar panels and the implementation of an organic waste collection can underpin environmentally friendly products.

### In the long term:

- The construction of storage and freezing facilities to centralise products for export.
- The creation of a TAFE training centre to attract skilled labour to the precinct.
- Building short term accommodation to host overseas and domestic investors visiting the Canning Vale area.

## Key Findings

### Framing the project

- The strength and intensity of networks and connections with stakeholders, businesses and governments, as well as business' customers and suppliers is crucial to the precinct's success.
- Initiatives should support the capabilities and networks of leaders in the food value add precinct.
- Initiatives should support domains of opportunity, rather than individual ventures. Successful ventures are ultimately determined by market forces, rather than cherry-picked favourites.
- Local industry policy must be more sophisticated than simply "build it and they will come." The key to the success of a food value add precinct is that opportunities that are supported are likely to be successful in the future.
- The food value add precinct will be supported by the Diversify WA economic development framework.

### What is a food value add precinct and what are the advantages?

- The goal of a food value add precinct is to concentrate a significant number of businesses that transform raw primary products in order increase their value. The transformation process "adds value" to the commodity that can therefore be sold at a higher price.
- Value adding can constitute a myriad of opportunities including: transforming raw products into highly processed or manufactured products, supplying new products or different varieties, increasing utilisation of by-products and managing the use of natural resources more efficiently and sustainably in order to attract price premiums.
- The main advantage of a food value add precinct is to have a one-stop-shop for all the required inputs and processes. The close proximity of the companies that provide these creates significant gains in productivity and a decline in production costs, therefore increasing firms' profitability.
- The main advantages of a food value add precinct are the economies of scale, the creation of a critical mass, the economies of agglomeration, externalities of inter-relatedness, higher productivity per worker and access to labour.
- By agglomerating in a central location, a firm has access to more goods and services which would allow it to increase production and improve the economies of scale.
- The creation of critical mass increases manufacture viability and creates new opportunities for industries.
- The economies of agglomeration occur when many related firms co-locate generating a network of businesses that increases productivity.

### The food value add and agriculture industry in figures

#### Agricultural production

- Agricultural production in WA is currently valued at $10,046m as of the 2020-21 year, with broadacre crops contributing 58 per cent of that value, followed by pastoral farming (29%) and horticulture (13%).
- The impact of horticulture is important to the WA economy, with a contribution of $1,267m to the state's GVA. In the Canning Vale precinct, horticulture is one of the main commodities traded due mainly to the Perth Market City distribution centre.
- Almost half of the GVA of the horticultural sector comes from vegetable retail, however the fruit sector has been catching up rapidly and represents a significant opportunity for growers in the state.
- Canning Vale currently has a strong focus on the processing and distribution of horticultural goods and fruits, however if this produce is only sold unprocessed there is a missed opportunity for the manufacturing sector. A food value add precinct could allow for WA's strong horticultural sector to develop further while increasing the value of products.
- One of the main characteristics of the horticultural sector is the low price of commodities. As primary inputs, these can be easily produced in other countries, particularly South East Asia, which brings intense competition in this sector.
- WA should find a way to increase the value of products by transforming them beyond the raw commodity. This upward differentiation will add value to the food items and allow them to increase prices, ultimately sheltering producers from market fluctuations and competition.

#### Exports

- The scope of China's influence took a large drop in the 2020-21 financial year, as nations such as Saudi Arabia, Indonesia, and Thailand made up a larger proportion of WA's total export value, indicating that WA's export destinations may be becoming more diversified.
- In terms of the makeup of WA's food value added exports, frozen non-bovine meat form the largest proportion of the state's value add exports over time. Future consumption of meat is also predicted to increase significantly, especially in China and Vietnam.

- In total, exports of horticultural goods from WA have seen strong growth recently, estimated at $240 million in 2019-20, with vegetable exports increasing by 76 per cent and fruit and nuts by 163 per cent in the past 10 years.
- China, Korea and Indonesia are projected to observe the highest increase in produce consumption and WA should focus on the export of fruits and vegetables to these countries.
- A food value add hub will serve an important role as a centre for the distribution of agricultural exports and imports.
- As is the case in Gelderland in the Netherlands or in the West Sydney airport precinct, Canning Vale could engage in a partnership with large brands who have an interest in expanding their value add operations from or into Australia; considering the advantage that WA has in terms of the proximity to the Asia-Pacific region and the Australian market.
- The Canning Vale industrial area is also in close proximity to Jandakot Airport and Perth airport, providing similar advantages to the Western Sydney airport precinct. This provides an advantage for the export of produce and food value added products to international markets.
- As in the case of the "Agro Food Park" in Denmark, Canning Vale could support exports thanks to an extensive transport infrastructure through rail, road, and air connections. This is especially true if an intermodal terminal is constructed in Canning Vale.

## Why Canning Vale?

### Access to infrastructure

- The Canning Vale precinct has excellent proximity to main infrastructure, including Jandakot airport that almost borders the Canning Vale industrial district and Perth airport that is only 15 minutes away.
- Internationally, a significant number of food value add precincts have developed close to airports, notably Manukau in New Zealand and the future development of the Western Sydney International Airport.
- The Canning Vale district has a direct connection to the Fremantle Port through South Street and Leach Highway. A significant number of imports and exports of produce go through the Canning Vale industrial centre.
- Once Fremantle Port has transitioned to the Kwinana Outer Harbour (Westport), Canning Vale will still be logistically appealing, due to existing road linkages and the potential for a new intermodal transport hub.

- Access to rail freight, which until now has been an untapped opportunity for the Canning Vale industrial precinct, could be provided by the construction of an intermodal terminal (IMT).
- An IMT close to the Canning Vale industrial precinct would generate greater efficiency and capacity for freight transportation through increased use of rail, resulting in larger freight loads being distributed in a faster time. The IMT would therefore serve as a centralised logistics hub.
- The flow-on effects of an IMT include reducing supply chain pressures, alleviating congestion on main roads in Canning Vale and reducing emissions, as rail freight produces 16 times less carbon pollution per tonne per kilometre.

## A strong foundation in food value add businesses and employment

- Canning Vale has three times the average rate of employment of a typical Australian region.
- The Canning Vale industrial precinct has 2,900 employees in food value add related industries, more than any other SA2 in WA.
- Canning Vale SA3 has the highest number of employees in the food value add industry in WA and it ranks 9th overall Australia wide.
- Canning Vale industrial area has 47 times more employment in general line grocery wholesaling and food and vegetables wholesaling than the average Australian SA2. Subsequently, Canning Vale has the highest number of businesses in the wholesale trade industry, leading all other WA regions.
- Other types of wholesaling such as grocery, liquor and tobacco products, fish and seafood, meat poultry have a substantial comparative advantage in the precinct.

- Food manufacturing in Canning Vale, including bread manufacturing, seafood processing, meat product manufacturing, potato, corn and other food production manufacturing have at least four times more employees than in the average Australian region.
- Canning Vale is strongly positioned to take advantage of its significant share of food products that transit through the industrial precinct and its role in centralising food commodities in WA.
- Of all the industries necessary for the development of the food value add products, the Canning Vale industrial precinct already has more than 45 per cent of them, particularly in the wholesaling and manufacturing sector.
- Canning SA3 has the highest industry diversity in WA and the fourth most diverse number of industries in Australia, only behind Kingston, Dandenong and Knox. This is crucial to enable the development of niche and complex sectors with significant economic strategic gains, as well as making Canning Vale an excellent candidate as a location to develop additional value added products.
- A healthy network of businesses will act as a catalyst for start-ups, will further increase the profitability of some firms and allow for gains in productivity and declining costs.

## Economic Impact Analysis

- The Smart Specialisation approach develops a diversification framework that builds on the advantages and capabilities of a region by promoting industries with high strategic gains for the economy. Academic research shows that regional and local economies grow by diversifying into industries related to their existing activities.
- Using the Smart Specialisation food value add (FVA) manufacturing appears to be a strong diversification opportunity as it is not yet mature in the Canning Vale industrial precinct but it can be easily developed.
- The precinct already has a strong network of companies related to food value add products, meaning new businesses in this sector would be supported by this network, making them much more likely to succeed.
- The expected gain from diversifying into food value add manufacturing products in Canning Vale is high. This implies high returns from the sale of these products, a smaller number of competitors in the industry and an important strategic move for the City of Canning.

### Expected gains

- According to primary estimation of our modelling, the direct GVA increases could be $3.1m-$13.6m in 2024 increasing to $31m-$135.7m in 2033 and continuing to promote additional growth in subsequent years.
- According to primary estimation of our modelling, the indirect GVA growth could be $1.4m-$6.2m in 2024 increasing to $13.5m-$62.2m in 2033 with continued growth.
- According to primary estimation of our modelling, induced GVA growth could be $0.8m-$2.2m in 2024 increasing to $7.7m-$21.8m in 2033. This implies an overall GVA increase of $5.2m-$22m in 2023 increasing to $52.2m-$219.7m in 2033.
- Our analysis estimates that in 2024, a low case scenario could create close to 40 new jobs compared to 130 in the high scenario. Ten years later, the new employment figures would oscillate around 375 to 1,280 for low to high scenario.
- Our model predicts that in 2024, on average 60 per cent of expected jobs comes the direct contribution, this proportion remains constant though the ten years of this study. The proportion of new employment coming from the indirect and induced contribution reach on average 30 per cent and 10 per cent respectively.

### Potential diversification paths

- The analysis identifies key industries for diversification in food manufacturing including prepared animal and bird feed manufacturing, meat processing, confectionery manufacturing and beverage and tobacco product manufacturing among many others.
- Additionally, extending wholesaling opportunities to other products such as cereal grain wholesaling, milk and cream processing, other agricultural product wholesaling and dairy produce wholesaling appear to be sources of opportunity for Canning Vale.
- Multiple non-food value add opportunities were also highlighted such as engineering design and engineering consulting services, prefabricated wooden building manufacturing, hardware and building supplies retailing and fertiliser and pesticide manufacturing.

## Future trends in food consumption

- There is a growing demand for different value drivers in the purchase of products including health and wellness, safety, social impact, experience, and transparency.
- The health and wellness trend is the largest economic opportunity for the value added food and beverage industry (functional/fortified foods, personalised nutrition, gluten free products, and plant-based diet).
- Consumers are willing to pay a premium for 'healthier' products, particularly young buyers, those with higher incomes and those with children.
- This means that consumers are more interested in companies that operate responsibly, including companies who have a commitment to food safety, local sourcing of products and environmental responsibility and sustainability.
- In terms of value adding foods and beverages, sustainability involves the adoption of plant-based and alternative proteins, environmentally friendly inputs such as bio-pesticides and organic fertilisers, and utilising environmentally sustainable farming practices.
- Additionally, consumers are demanding greater access to relevant information about the food they eat.
- Companies face significant challenges in meeting the consumers' needs for more detail about its products due to a limited ability to capture and verify data from stakeholders across the value chain and businesses' reluctance to share data with other companies.
- Data-driven solutions to transparency issues include using blockchains to allow consumers to track a product across the entire supply chain and the implementation of digital labelling solutions such as barcoding and image recognition technology.
- The upcycled food industry in WA is full of potential due to the abundance of food waste from producers, manufacturers, supermarkets, restaurants and cafes.
- A food trend becoming increasingly paramount are foods that help reduce waste. They can include repurposing or repackaging misshapen fruits and vegetables that would have otherwise gone into landfills or upcycling by-products or food wastes into other food products.
- Each year, Australia throws away around 7.6 million tonnes of food, 70 per cent of which is edible, and which is responsible for 3 per cent of Australia's greenhouse gas emissions each year.

## Stakeholder's identified needs

- Outside of infrastructure and logistics needs, many stakeholders have identified the need for market research and insights ability to better inform high value decisions.
- This includes the selection of brands and products for partnerships, the marketing communication of certain products and understanding consumer demand for certain product attributes.

- Many stakeholders have also identified that the new food and beverage precinct should provide and enhance the marketing capability of the industry.

### Need for scale and centralisation:

- A main stakeholder concern resides in the need for scale, especially for small businesses and public sector players.
- Exporting particular products are currently infeasible as there is insufficient produce from each individual business, meaning container costs are too high.
- The size of the business and the lack of centralisation of products prevent companies from exporting to other markets.

### Access to information:

- Small entrepreneurs are time poor and they cannot spend hours looking for information.
- The more accessible the information, the higher the efficiency and time gains. As with many things, it comes down to cost; efficiencies decrease costs associated with disinformation.

### Need to develop networks and cooperation:

- One prominent stakeholder's issue was the need to develop networks as the food industry is quite scattered.
- There are substantial losses in efficiency as companies miss out on opportunities and partnerships beneficial to their operation due to low cooperation and small networks.
- Having access to networks creates positive externalities in the industry but also in the economy as a whole; products become more complex and so does the economy.

### Need for coordination:

- The absence of coordination between companies brings frictions to the supply chain. As a result, costs increase, access to new markets is limited and the operational side of companies is constrained.

### Access to labour:

- Access to labour supply and skilled personnel is one of the main concern of a large number of companies. It explains why a number of companies decide to base their operation in cities like Perth rather than in regional areas where although the rental of facilities is cheaper labour is scarce.

### Need for better infrastructure:

- Multiple stakeholders indicated there is a need to improve transport infrastructure in the Canning Vale industrial precinct.
- The logistic aspect of the intermodal transportation terminal adds significant appeal to big companies that cannot afford to lose time in the freight transportation process.
- Building sustainable infrastructure such as microgrids would attract companies that are interested in environmental credentials for their products, which is a significant food value add opportunity for the Canning Vale industrial precinct.

### Find the market and consumer for products:

- Although access to consumers is important, stimulating demand for new products is key. This is true for international markets where Australian products are not well-known but also for new products not usually consumed by domestic households.

## Sustainable Food Value Add Precinct

### The food processing industry

- Food processing is amongst the most wasteful of all global manufacturing industries. This is particularly the case when it comes to plastic waste.
- Principles of a circular economy are widely recognised as a solution for ethical businesses in the food manufacturing industry and supply chains.
- There are two approaches to implementing a circular economy in food manufacturing: 1) minimising waste and 2) waste valorisation.
- Australians dispose around 1.9 million tonnes of food packaging every year and more than 80 per cent of food products are packaged in materials that are not recyclable.
- Barton Small Goods is an example of an innovative food business, value adding through transforming a low value cut of meat to a near luxury product. These cuts are ordinarily used for pet food or discarded due to their low value.
- Canning Vale could help create value by identifying low value food products and value adding in the precinct thanks to synergies with other companies.
- It would be possible to identify "investment ready" value added products from organic waste and develop a platform to fund further value added products. This would support the precinct by making use of food waste, creating employment and even minimising biosecurity burdens.
- Food manufacturing is not an isolated consideration in the development of the Canning Vale precinct, responsible packaging of food for preservation of product quality and safety whilst minimising contamination or adulteration is also essential.

## Canning Vale environmental footprint

- Canning Vale's waste output is the 11th highest out of WA's local council areas; at 37,414 tonnes of waste in the 2019/20 financial year.
- On a per capita basis, Canning produces 0.88 tonnes per capita; one of the lowest producers of waste ranked 88th among WA.
- Waste management through circular agricultural systems is an integral part of the Food Valley hub in the Netherlands; using the residuals from the production process to support other value add processes.
- Despite one of the lowest amount of per capita waste, Canning Vale is one of the poorest performers in the treatment of waste. Indeed, over 66 per cent of the total waste goes into landfill, 17 per cent is recycled and only 8 per cent of organic waste is composted.
- Canning Vale could develop a hybrid system where both household and industrial organic waste could be collected through FOGO for households and a similar system for businesses.
- Canning Vale postal area constitutes roughly 3 per cent of the state's total solar power supply; making it the 4th largest postal area in terms of small generation unit (SGU) output in WA.
- Given the number of warehouses in the Canning Vale area there is a significant opportunity to further develop solar energy.
- Creating a microgrid in Canning Vale would allow companies to access clean energy at lower costs than those from the Perth electricity network. Additionally, with increasing demand from consumers towards environmentally friendly products, a microgrid would provide an advantage to producers and allow them to capture a larger share of the market.

## Recommendations

**In the short term:**

- The creation of a logistics hub that would coordinate partnerships between companies to manage exports and product development, organise transportation operations and guide start-up businesses in different administrative procedures.
- The logistics hub would also create a directory of companies in the area and organise meet-ups between company owners to boost cooperation and networks.
- The logistics hub should also organise job fairs and create an apprenticeship network to attract workers to the precinct.
- The creation of a Canning Vale brand that signals the strengths of the precinct and puts forward the food value add industries.

**In the medium term:**

- The creation of an export hub to help companies connect with each other to coordinate exports, provide contacts to overseas companies and look for foreign direct investment opportunities.
- The development of the intermodal transportation hub to meet the infrastructure needs of the future.
- To improve the sustainability of the precinct, both the creation of a micro-grid based on roof solar panels and the implementation of an organic waste collection can underpin environmentally friendly products.

**In the long term:**

- The construction of storage and freezing facilities to centralise products for export.
- The creation of a TAFE training centre to attract skilled labour to the precinct.
- Building short term accommodation to host overseas and domestic investors visiting the Canning Vale area.

## Embedding the precinct in the WA diversification strategy

- The partnership and complementarity between the Peel food innovation precinct and a future food value add manufacturing precinct in Canning Vale is key for the development of the WA food sector as a whole.
- Canning Vale can coordinate initiatives and partner with the Peel Development Commission. This could be achieved by separating the innovation from the manufacturing side of food value add products. Canning Vale could provide the manufacturing facilities and the scale for products initially developed in the food innovation precinct and by Peel farmers.
- The City of Canning can help to facilitate the connections between the Peel companies and Canning Vale businesses to provide more scale, reduce costs and enter new markets.

# INTRODUCTION

# INTRODUCTION

## Overview and scope

The City of Canning has identified the Canning Vale Industrial Area as a potential growth precinct for agrifood businesses that would be attracted to locate near WA's only wholesale fresh fruit and vegetable complex, which alone transacts half of WA's fresh produce and a growing mix of food production, manufacturing, packaging and distribution businesses.

Combined with excellent road, rail and air transport links, capabilities in logistics and manufacturing, proximity to Perth and proximity to WA's agricultural regions, the City of Canning exhibits strong growth potential for expanding the food value add industry component of this cluster.

The *food value add industry* refers to businesses with innovative logistics and manufacturing processes to provide higher value products. These businesses trade locally, domestically and internationally, with both wholesale and direct customers.

This study is much broader than an evaluation of the potential precinct. In particular it includes evaluating the *potential* for a food value add industry in Canning Vale, advising on policy to support the precinct, exploring its environmental sustainability and highlighting its relation to policy goals of state and federal governments.

This report gives an up to date understanding of markets served by the agrifood sector in WA and analyses indicators of local capabilities for supporting a food value add precinct in Canning Vale. The analysis considers the potential opportunities for food value add specifically in the Canning Vale region by identifying existing strengths and related industries, and comparing these indicators with other relevant precincts. By setting targets for growth comparable to high performing regions in Australia, the analysis can evaluate the potential contribution to the state's economic output from developing this precinct in Canning Vale.

This report estimates the economic output of potential industry growth sectors in Canning Vale using an economic impact analysis (EIA) and the Smart Specialisation approach that captures the wider economic benefits of changes in economic activity in the Canning Vale Industrial Area. EIAs have been widely used for looking at the impact of tourism, museums, science centres and sporting events, amongst others. Delivering on the traditional direct, and secondary (indirect and induced) components of an EIA requires expertise in understanding the local region's economy.

## Background and context

The need for the WA economy to decrease its reliance on mining activities has led to the creation of a state development framework to diversify its economy. The blueprint has highlighted the need to focus on the development of primary industries, especially the agrifood market and the growth of value-added industries.

Alongside these calls for economic diversification and regional development, are discussions relating to the sustainability of industries and in particular the contribution of agribusinesses carbon neutrality (see for example the BCEC Green Shoots Report and the BCEC Agriculture in WA – Update Note). Furthermore, there is an ever-increasing emphasis being placed on the role and importance of food industry in fighting global waste and its contribution to the circular economy.

Local government's development initiatives are crucial to foster WA growth, and it is therefore important to have a thorough understanding of the contribution that the proposed precinct could make to the broader WA economy. The BCEC is aware of current policy initiatives in Australia and Western Australia and this report identifies potential policy initiatives that could support a food value add precinct in the City of Canning.

As the Western Australian Government looks towards recovering from the COVID-19 induced recession, diversifying the economy, and with changing labour market dynamics, there is an ever increasing emphasis on tailored policy. This project would demonstrate how different places could engage with state and national policy goals based on local industries and requirements.

## Limitations

Due to data limitation and the importance of the local economic context, there is 'no universally applicable factor for converting a direct impact figure' (Groves, 2005). This makes comparisons between studies difficult and could lead to inaccurate and incorrect interpretations. The BCEC understands the importance of delivering rigorous and accurate research grounded in scientific modelling. Some EIAs are criticised for over-estimating the impact of individual activities or organisations, with many consultants inflating the scale of multiplier effects without a strong basis in evidence. This leads to scepticism by government, treasury and private investors. As outlined by Crompton (2006), the legitimacy of economic impact studies is "predicated on the studies being undertaken with integrity".

Similarly, the broader economic outcomes projected in this report are not considered forecasts. These are possible scenarios of future employment growth, but are included in the economic impact analysis to capture the benefits of infrastructure that supports industrial development beyond the specific facility. These projections are based on benchmarks from elsewhere in Australia that could also be realised in Canning Vale with support from the food value add precinct.

A critical aspect of the BCEC's research is to ensure a rigorous and independent approach across all aspects of the research process, with research findings supported by strong evidence, transparency of approach and the best available methods.

The BCEC also understands the importance of this EIA for the proposed food value add precinct funding providers and it is therefore important to have a thorough understanding of the contribution the proposed investment would have to the broader WA economy.

The researchers are conscious that limitations exist in terms of the quality of the data available and significant uncertainty involved in the innovation, growth and diversification process. For instance, there is no way to forecast exactly which sectors will be successful and which will not. Therefore, any statements made need to be interpreted as a potential impact. The exact economic outcomes may vary substantially from the scenarios analysed in this report. Economic impact assessments also suffer from the constraints of counter-factual arguments, amongst others. Every attempt is made to ensure reasonable and realistic projections, and accurate reporting of our analysis.

## Organising framework

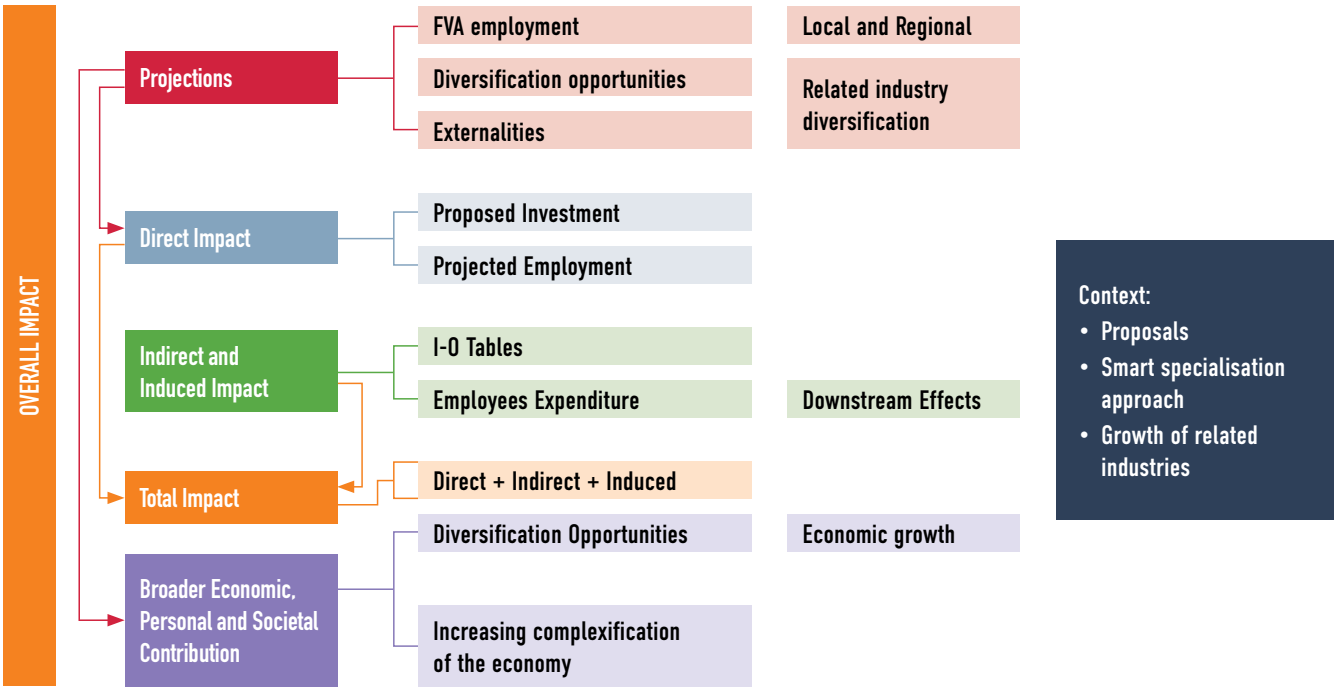
The organising framework employed by the BCEC in this analysis is outlined in Figure 1.

The 'Smart Specialisation' approach evaluates the economic contribution of the investment in the food value precinct itself, employment in the facility and projections of potential employment growth in related industries in the Canning Vale industrial area. Related industries are those that are commonly co-located across Australian regions. Canning Vale's related industries are those related to an existing strength in this area. Employment projections are achievable targets based on benchmarking employment across Australian regions that already have significant employment in the targeted related industries.

While this last component is broader than typical economic impact analyses, it estimates the benefits provided over time by a food value add precinct that stimulates local innovation, diversification and growth. The success of individual industries is likely to vary widely from the projected targets, both above and below, so projections should be interpreted similar to an "expected value" that is based on the likelihood of success in each industry. As this final component is uncertain, the economic impacts are provided as a range. Achieving these outcomes may also require broader support policies for Smart Specialisation in the City of Canning local government area.

Lastly the report discusses the broader impacts of the precinct. The facility enables the acquisition of workers with higher skills in the Canning Vale area with benefits for the community. Achieving the employment projections in related industries also enables further diversification opportunities in future.

FIGURE 1: Organising framework, measuring economic impact and diversification opportunities




Source: Bankwest Curtin Economics Centre | Author's Organising Framework.


# EVALUATING A FOOD VALUE ADD PRECINCT

# EVALUATING A FOOD VALUE ADD PRECINCT

Evaluating the benefits of a potential food value add precinct is limited by multiple factors related not only to the assumption of the model itself but also to external factors that could foster or hinder economic growth.

The impact analysis of the immediate benefits from hosting an event or investing in transport infrastructure are easier to assess as data and estimates are often available to local governments. Similarly, the economic impacts of established infrastructure can be measured and estimated from current activity. However, investments that support the new development of activities are harder to assess as benefits over time are more uncertain.

Often this uncertainty means that economists are reluctant to include these benefits in economic impact analyses leading to under-estimates of the realised economic value of these initiatives. To account for this uncertainty, but ensure that these benefits are still included, we estimate projections of these dynamic but yet uncertain benefits as a broad range.

Given the uncertainty of such benefits, a number of other frameworks and principles have also been developed to evaluate new industrial precincts. This allows policy makers to consider the broader context of economic benefits from a proposed local government initiative. This section briefly summarises a number of the principles used for designing and evaluating industrial precincts. The economic impacts estimated in this report should also be considered in the context of these wider principles. The first four principles discussed in this report are developed by the Australian Department of Industry, Innovation and Science,[1] but the discussion draws on broader international policy approaches. We include a few additional principles from this wider international experience.

The results of this report and the proposed initiative should also be evaluated alongside the following principles:

- Local leadership;
- Barriers and aligning policy;
- Building capability and connections;
- Skills development;
- Strategic vision;
- Real opportunities; and
- Monitoring and adaptation.

## Local leadership

Local development and implementation is frequently cited as a key to success for place based policies.[2] This is because local "buy-in", local knowledge, local ideas, and local partnerships are thought to reinforce each other in a circular process that is essential to success. The concept captures the idea that a locally designed initiative will be more suited to local conditions and will build a local momentum with stakeholders who have an interest in the initiative's success. This is probably especially true for more rural areas, regional cities, or isolated states such as Western Australia where capital cities are located far away from local initiatives.

The European Union's Smart Specialisation policy involves a bottom-up process for designing a vision for regional and local development that involves wide local stakeholder engagement (see *strategic vision*). This local engagement and partnership with businesses and governments is key to the success of Smart Specialisation strategies because they can be designed in ways that are most useful to local entrepreneurs and scientists.

The proposed food value add precinct in Canning Vale should be developed with local partners in mind. The design of the precinct can therefore be tailored to meet local requirements. For a project of this nature to succeed, a strong will from local government is needed. The holistic approach that the City of Canning has taken, looking not only at the food value add precinct but also to other initiatives such as the intermodal feasibility investigation and the freight plan scoping study shows the willingness of the city to go beyond the business as usual status. Furthermore, it shows a coherence in its planning as the projects feed on each other increasing the overall impact of each standalone project.

1 Australian Government (2018) *Statement of Principles for Australian Innovation Precincts: Place-Based Partnerships Building on Competitive Strengths*, Department of Industry, Innovation and Science, Canberra.

2 The Brookings Institution (2018) *Assessing your innovation precinct: A how-to guide*, The Anne T. and Robert M. Bass Initiative on Innovation and Placemaking; European Commission (2021) Smart Specialisation Platform, What is Smart Specialisation?, https://s3platform.jrc.ec.europa.eu/what-is-smart-specialisation-.

## Barriers and aligning policy

It is important that all levels of government and local stakeholders are working towards the same goals, since all have an interest in the success of local industrial zone opportunities. While local initiatives should focus on local goals, successful initiatives will also collaborate with governments to contribute to aspects of state and national priorities and strategies.

This principle goes in both directions. State and federal governments should also align state and national strategies with a wide range of local priorities in different places. Similarly, state and federal governments can coordinate initiatives in multiple areas (see *Building capability and connections* below), to avoid duplication and stimulate collaboration. As a result, this is an ongoing collaborative process between local stakeholders and all levels of government.

Governments can focus on removing regulatory barriers that might hinder the implementation of local development plans and the industrial zones. Governments can also pass required legislation or policy that supports implementation. Policies that align incentives for the strategic decisions and actions of stakeholders to achieving the intended goals of initiatives will also support their success.

## Building capability and connections

Initiatives should support the capabilities and networks of leaders in the food value add precinct. This allows the operation of the precinct to meet best practice approaches and further enhance the performance of the facility. Similarly, the capabilities of stakeholders in the precinct including universities and research organisations should be both supported and tailored to local needs.

The role of an individual industry commercial area is collaborative. The strength and intensity of networks and connections with stakeholders, businesses and governments, as well as business' customers and suppliers is therefore crucial to the precinct's success. Precincts can also coordinate with other research and development facilities, locally, across Australia and internationally, to share new knowledge and initiate new collaborations. Universities and research organisations can help to foster these connections, improve coordination and develop collaborations. Similarly, higher levels of government can coordinate initiatives across multiple regions and initiate connections.

## Strategic vision

Local industry policy involves a number of strategic dimensions that interact. Each initiative cannot be successful on its own. Strategies must be more sophisticated than simply "build it and they will come." The food value add precinct in Canning Vale built on WA's strategic vision for the future as well as on the federal priorities for the design of the precinct must work with and be supported by these wider systems.

The food value add precinct will be supported by the Diversify WA economic development framework.[3] Similarly, it can coordinate and complement other initiatives and objectives of the Peel Development Commission such as 'agriculture and food innovation' and 'thriving industries'. Indeed, it would be beneficial for the City of Canning to partner with the Peel Development Commission by providing the manufacturing facilities and scale for some of the products initially developed in the food innovation precinct and by Peel farmers. The City of Canning can help to create and coordinate the connections between the Peel companies and Canning Vale businesses to provide more scale, reduce costs and enter new markets. It can also help with the coordination of export logistics and domestic transport to other parts of WA and Australia. Finally, connecting the Peel businesses to warehousing facilities and distribution channels can also benefit both local governments.

The objectives and design of the precinct should also adapt as both state and local government policy frameworks and objectives are updated.

Economic shocks may alter both local and state priorities. Policies and initiatives will likely shift in response to COVID-19 to support sectors that have been hit hardest by the pandemic, and find opportunities that re-deploy existing capabilities to new industries. The proposed Canning Vale food value add precinct may also need to adapt to support these medium-term strategic recovery strategies.

3 WA Department of Premier and Cabinet (2019) Diversify WA Economic Development Framework, Government of Western Australia, https://www.wa.gov.au/organisation/department-of-the-premier-and-cabinet/diversify-wa-economic-development-framework

## Real opportunities

While "local" knowledge can be used to identify local strengths and weaknesses, industry policy can be susceptible to special interests. As a result, industry policies often fail because they tend to support poor investments or protect failing industries that have a lot to lose. The key to the success of a food value add precinct is that the opportunities supported are likely to be successful in future. Letting the market determine fruitful opportunities is therefore a critical component of successful industry policies.

Value added initiatives can use market indicators and analysis to look beyond the "loudest voices" while still drawing on local stakeholders. This allows local ideas that have a higher likelihood of success to be included in the design and implementation of a value added initiative and limits the impact of special interests. This is also thought to improve the success of these initiatives by moving beyond a back-and-forth political debate to projects that are more resilient and can be supported by multiple governments from opposite sides of the aisle.

In the BCEC's Future Proofing Report we used the concept of revealed comparative advantage and revealed relatedness to objectively analyse employment data in order to identify existing strengths and new opportunities.[4] The EU's Smart Specialisation policy requires an "entrepreneurial discovery process" that involves stakeholders and entrepreneurs looking beyond their own industries to consider future possibilities. Initiatives support domains of opportunity, rather than individual ventures. Successful ventures are ultimately determined by market forces, rather than cherry picked favourites. Such techniques (comparative advantage, relatedness; the entrepreneurial discovery process; support for domains) are critical to the success of value added initiatives by avoiding special interests.

In this report we use the same analytical techniques from our Future Proofing Report to identify existing strengths and related industries in the Canning Vale industrial zone. This approach is used to estimate a possible growth pathway, diversification opportunities and evaluate the wider economic benefits. Achieving success in these industries still requires a coordinated local process that makes use of such analysis and collaborative inputs, to design the strategic vision and priority areas for the Canning Vale region.

Notably, the food value add precinct concentrates on broader development opportunities for this industry, rather than specific infrastructure projects, which matches the strategic intent of the EU's Smart Specialisation strategies. It builds from the ground-up as opposed to artificially imposing a target unrelated to the local market strengths and opportunities.

4 Bond-Smith, S. Dockery, A.M., Duncan, A., Kiely, D., and Salazar, S. (2019) "Future proofing the WA economy: A roadmap to industrial diversification and regional growth," Bankwest Curtin Economics Centre, Focus on Industry Series, No. 4.

# ADVANTAGES OF A FOOD VALUE ADD PRECINCT

# ADVANTAGES OF A FOOD VALUE ADD PRECINCT

Value adding encompasses any activity that enhances the value of products to customers. The Department of Primary Industries and Regional Development described value adding as transforming agricultural produce into consumer packaged food.

In addition to that, value added foods are typically sold to consumers on a per meal/serving basis rather than per weight (Gidley, 2018). This results in products with higher margins but must be accompanied with added value to consumers in the form of convenience, nutrition and/or quality characteristics. However, it is beyond just moving from raw materials to a processed product.

Value adding can constitute a myriad of opportunities including:

- transforming raw products into highly processed or manufactured products;
- supplying new products or different varieties;
- increasing utilisation of by-products;
- introducing quality assurance standards;
- changing presentation to meet market requirements;
- providing expertise and/or services, including advice on product use and improved delivery and distribution;
- partially enhancing the value of products traditionally exported in their raw form;
- managing the use of natural resources more efficiently and sustainably in order to attract price premiums; or
- promotion and marketing activities to differentiate Australian products (Department of Agriculture, 1999).

Value can also be added at each stage of the agrifood value chain. The four main stages of the agrifood value chain are inputs, production, processing and delivery to consumers (Cucagna and Goldsmith, 2018).

| Agrifood value chain and activity | Potential value-adding opportunities – (FIAL, 2020) |
|---|---|
| **Stage 1: Inputs and equipment**<br>(up chain)<br>The inputs stage involves biotechnological, agro-chemical and fertilisers, animal health, animal breeding and farm equipment companies. | **Sustainable inputs:** Using biopesticides, organic fertilisers, and microbial fertilisers<br>**Animal feed and health:** Controlling transmissible diseases and using smart feed supplements<br>**Soil, water and land management:** Improving soil health and the sustainability of farm practices |
| **Stage 2: Production**<br>The production stage includes all activities involved in the production of raw food materials, such as crops and livestock commodities. | **Urban agriculture:** Improving the scale and efficiency of food grown in urban environments<br>**Sustainable fisheries:** Finding sustainable production techniques for aquaculture, wild fisheries and bivalve production<br>**Protected cropping:** Increasing the size of potential productivity gains linked to production of horticultural crops<br>**Technology in smallholder farms**: Increasing yield on smallholder farms (<2 hectares)<br>**Precision agriculture and big data:** Using innovative technology to improve the productivity on large farms<br>**Energy smart food:** Increasing energy efficiency in food production and manufacturing<br>Advanced breeding and fertilisation<br>**Increasing animal productivity** with techniques such as crossbreeding |
| **Stage 3: Processing**<br>The processing (food processing and manufacturing) stage converts raw materials into either branded or unbranded food products. Includes beverage, breweries, wineries, and packaged food companies. | **Food loss and waste:** Reducing food loss and waste throughout the supply chain<br>**Sustainable packaging:** Reducing unnecessary waste and increasing reuse / recycling of packaging<br>**Targeted eating:** Capturing opportunities in the product reformulation, functional food, and fortified foods market<br>**Plant-based and alternative proteins:** Encouraging adoption of alternatives to meat and fish |
| **Stage 4: Distribution**<br>(down chain)<br>Distributes, retail, sells and market food products to consumers. Included firms within food distribution, grocery retail, and food services. | **Direct to consumer model:** Developing new digital channels to provide food to consumers<br>**Supply chain transformation:** Using technologies to improve logistics and achieve efficiency gains<br>**Health and wellness:** Meeting the demand of the growing number of health conscious consumers<br>**Traditional proteins:** Encouraging adoption of traditional proteins such as meat, egg and dairy.<br>**Food fraud and safety:** Increasing food traceability and detecting origins of food products (e.g., certification, insurance and serialisation methods) |

What is the rationale for a food value add precinct and what are the advantages? The goal of a food value add precinct is to concentrate a significant number of business that transform raw primary products in order to increase their value. The transformation process "adds value" to the commodity that can therefore be sold at a higher price. This process could be as small as packaging fruit and vegetable for optimal transportation or as advanced as manufacturing a new fine product from a mix of individual ingredients.

The main advantage of a food value add precinct is to have a one-stop shop for all the required inputs and processes. The close proximity of these companies creates significant gains in productivity and a decline in production costs, therefore increasing firms' profitability.

In this section we will discuss the main advantages of a food value precinct as a tool for economic development.

## Economies of scale

The economies of scale is one of the main instruments that increases companies' profitability. By agglomerating in a central location, a firm has access to more goods and services which would allow it to increase production and increase the economies of scale.

For example, a packing company that has access to a significant amount of the same commodity could decide to specialise in the packaging of one product only which will increase the economies of scale. This specialisation would reduce the time spent in changing between one package to another as well as decreasing the cost since only a few inputs are needed to manufacture the package. Furthermore, these inputs can be bought at a cheaper price as the volume demanded has increased. These changes will ultimately lead to a decline in expenditures and increase in profits.

The food value add precinct could increase the economies of scale of each firm and increase the firm's GVA by reducing costs.

## Creating a critical mass

Another advantage of a food value precinct is the creation of a critical mass. Many manufacturing activities are not viable unless there are enough companies selling the same goods or enough of the same product for production to be worthwhile.

Let's think about a firm willing to produce organic food for babies. Unless this business has access to enough organic fruits and vegetables, manufacturing such a product is not viable. However, if the company is located close to a place where a lot of organic produce is available then the manufacturing of organic food for babies is possible.

The creation of a food value add precinct allows us to reach that critical mass which would in turn increase the number of businesses located in the area. As more and more firms reside in the locality, this will bring new opportunities in the food value add business.

## Economies of agglomeration

The economies of agglomeration is one of the main reasons why companies decide to converge to one area. The economies of agglomeration occur when many related firms co-locate together generating a network of businesses that increase productivity.

A firm that requires many services and inputs for production benefits from economies of agglomeration through reduced transportation costs. Companies with complex manufacturing processes would be more likely to locate in places with a wide variety of industries, therefore the economies of agglomeration would inevitably attract firms with high value added potential.

Furthermore, the economies of agglomeration increase the viability of some projects. The construction of a big refrigerated warehouse is only worthwhile if there are enough companies to use it. The economies of agglomeration can make some of these ideas possible.

## Externalities of inter-relatedness

The externalities of inter-relatedness increase the feasibility of some industries. For instance, if we think about the production of compost for the retail trade, one of the issues with this industry is to find cheap inputs to transform into compost, namely food and vegetables. However, being located in an area where a significant quantity of food waste is available and transportation costs are negligible due to proximity, compost production becomes profitable. This is one of the many externalities of inter-relatedness.

These externalities are only present where multiple companies working in similar related industries agglomerate together. These externalities decline when complementarity between firms is low.

## Higher productivity per worker and access to labour

All of the advantages above work through similar channels: the decline of production costs and the increase in productivity. The latter one is one of the main drivers of the increase in profitability and the rise of GVA per worker.

A food value add precinct could also increase the access to labour. This is because when related industries agglomerate close by, they often require similar skilled workers. As a result, the pool of workers with comparable skills increases. Therefore, it is easier for companies to find personnel with the required qualifications. Additionally, the agglomeration effect of related industries incentivises labour mobility across sectors and firms.


# INPUTS AND METHODOLOGY

# INPUTS AND METHODOLOGY

This chapter reports on the inputs to the analysis and the methodology for estimating the economic impact of the Canning Vale food value add precinct and the main assumptions of the model.

## Introduction

The assumptions are developed from information provided by the City of Canning, conversation with multiple stakeholders as well as an analysis of employment by industry class across Australia. The methodology for estimating the economic benefits of the development of a food value add precinct is briefly explained in this chapter and expanded in the Appendix.

This methodology will estimate the direct effect of a food value add precinct in Canning Vale linked to the net job creation of new food related businesses and the further development of existing advantages within the area. The indirect impact measures the job creation through the increased production of intermediate goods necessary for the production of 'new' goods.

To capture the benefits of the food value add precinct, we develop projections of industry growth that could be supported by the development of this initiative along with ongoing local government policies for the Perth region and the City of Canning. To develop these projections, we consider the geographic distribution of industries across Australia. Related industries frequently co-locate. Academic research shows that related industries are more likely to grow compared to unrelated industries. We analyse the co-location of industry classes in SA3 regions across Australia to generate an index describing the degree of relatedness between every pair of industry classes. Using this measure of relatedness we generate a measure of relatedness density of the Canning Vale industrial precinct that describes the feasibility of each industry. For more feasible industries, we benchmark employment projections based on current employment in those industries elsewhere in Australia where regions already have significant employment.

## Model assumptions

We use employment data by ANZSIC industry class from the 2016 census in SA2 regions across Australia.

In the case of the Canning Vale industrial precinct the analysis on SA2 regions was chosen as the boundaries of this area match perfectly the SA2 region of Canning Vale industrial area (see next section for an in-depth description of the targeted area of the Canning Vale LGA.

To capture the wider region for some parts of our analysis we include the SA3 region of the City of Canning which includes the industrial zone of Welshpool.

We estimate the degree of revealed comparative advantage (RCA) based on an SA2 region hosting a higher than average share of employment in an industry class. We estimate relatedness by measuring the frequency in which each pair of ANZSIC industry classes are both comparative advantages in SA2 regions across Australia. Relatedness density describes the intensity of relatedness between multiple industries, rather than pairs only. The relatedness density of an industry class can be thought of as a proxy for the likely feasibility of each industry class developing in the region. Therefore, the expected employment per industry is multiplied by its relatedness density and a probability of occurrence equal to 10 per cent the industry feasibility.

Source: © Google Maps, 2022.

## Regional industry analysis

One of the main policy directions from the WA government is the 'Diversify WA' economic development framework. This strategy has aims to decrease the WA economy's reliance on the mining sector.

The Smart Specialisation approach identifies the priorities for regional and local development. It takes into account what a region is good at and the diversity of its industry portfolio to investigate what are the optimal options for diversification. This is the analysis that we will undertake in the following section. For more details about this framework and methodology, please refer to Future Proofing the WA Economy Report (Bond-Smith et al., 2019).

A food value add precinct such as the one being considered in Canning Vale, aims to ramp up the strengths of the food industries already present in the area and to diversify businesses in the precinct. This ultimately creates opportunities for new companies and job creation in the region. Therefore, the economic impact of the precinct should arguably include the likely potential value added and employment in new and growing industries.

Research has shown that regional economies grow into industries that are already related to existing activities. We use relatedness density to identify the industries that are likely to grow in the Canning Vale area as a result of support from the proposed precinct and other local development policies. We also use relatedness density to weight the likelihood that we expect each particular industry will expand.

We assume that if achieved, industry expansion would imply employment increases equivalent to the 10$^{th}$, 5$^{th}$ and 2$^{nd}$ percentile of other regions in Australia that currently have a higher performance than the Canning Vale industrial precinct. For industries in which Canning Vale is already above the 80th percentile, we assume a growth cap of maximum 10 per cent relative to the current industry levels considering these industries are already performing well.

This analysis highlights:

i. Industries that are already performing so well in the Canning Vale region that substantial additional improvement is less likely;

ii. Industries in which Canning Vale already has an advantage, with a scope to increase capacity to levels comparable with elsewhere in Australia; and

iii. Industries which are related to Canning Vale's existing strengths but are not yet a comparative advantage for Canning Vale.

We expand on the results of this analysis later in the report.

## Economic impact analysis

The economic contribution of the proposed food value add precinct is assessed on the value added and full-time equivalent employment created through employment creation in new industries and further expansion of opportunities that already present in the area.

The three main components of value added are: direct, indirect, and induced value added. These are briefly described here and more detail is included in the Appendix to this report.

### Direct value added

Direct value added is equal to revenue less the value of the intermediate goods and services used in production. The remaining share of revenue is equal to the value added by the labour, capital and knowledge inputs to production. Direct value added is calculated based on the following items:

- Labour income of employees;
- Profits before interest, tax, depreciation, and amortisation; and
- Production taxes less subsidies.

For the food value add precinct these measures cannot be measured yet. The estimates used in this report are based on industry averages of the value added per worker in the relevant activities. In particular these activities include:

- Development of new food value add opportunities;
- Expansion of non-food value add industries that are related to new and existing food value add possibilities; and
- Projected growth on mature industries.

### Indirect value added

The source of indirect economic impact is the value added by labour and capital inputs to produce the intermediate goods and services used by the activities included in the direct contribution.

### Induced value added

Finally, the induced value added is the value of the outputs produced by labour and capital used to produce household goods and services that are purchased by the employee households in the direct contribution. For the purpose of this analysis we will apportion some of the household purchases of goods and services that resulted from the direct and indirect job creation.


# FOOD AND AGRIBUSINESS LANDSCAPE IN WA AND CANNING VALE

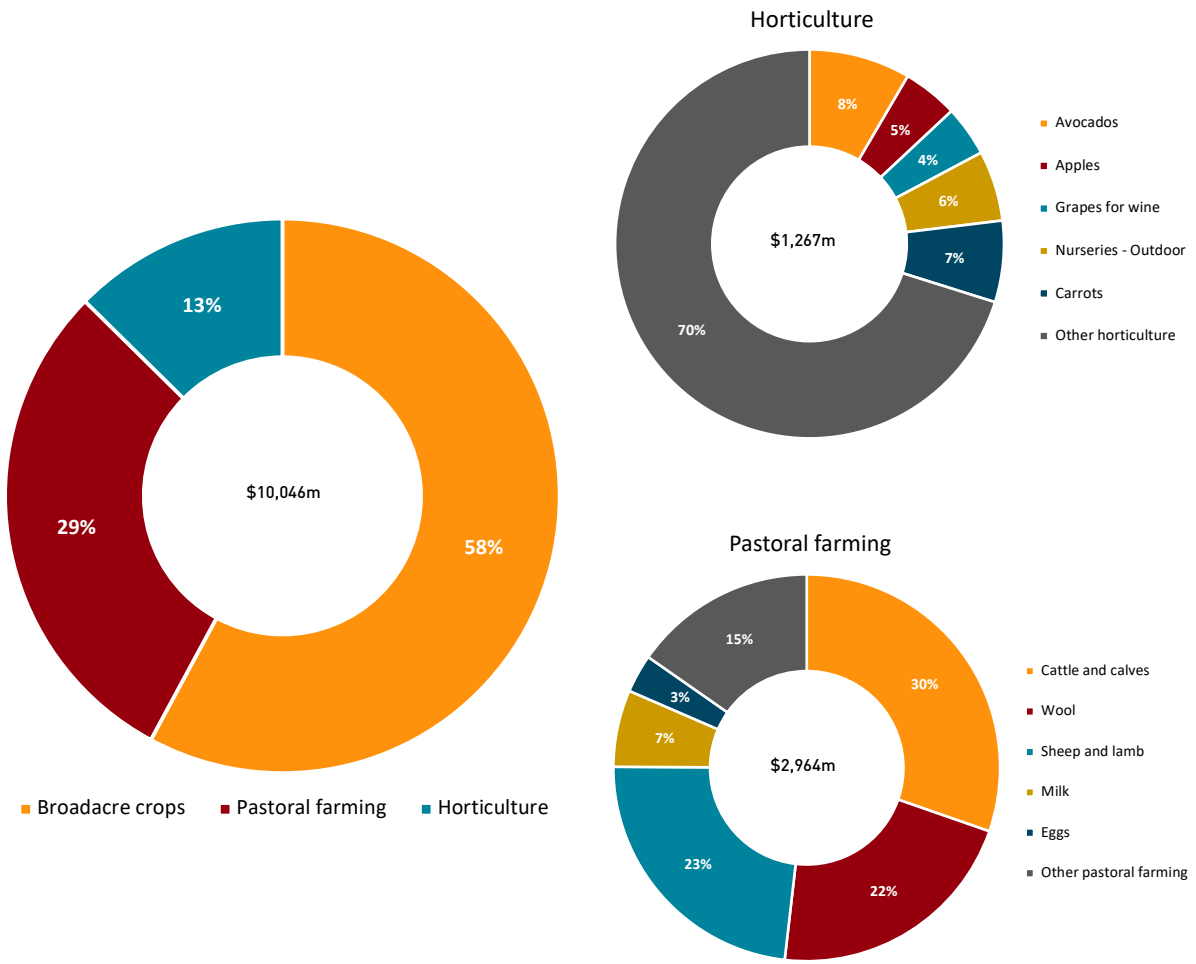
# FOOD AND AGRIBUSINESS LANDSCAPE IN WA AND CANNING VALE

## Employment and contribution of the food sector in WA

The goal of the food value add precinct is to support one of the main strengths of the WA industries: the agriculture, forestry and fishing (AFF) sector. Agricultural production in WA is currently valued at $10,046m as of the 2020-21 year (Figure 5), with broadacre crops contributing 58 per cent of that value, followed by pastoral farming (29%) and horticulture (13%), a slight fall from the previous reported figure stemming from a drop in the value of pastoral and broadacre crops, although somewhat balanced out by a rise in the value of horticulture.

Of the $5,814m contribution from broadacre farming, a plurality comes from wheat (34%), with barley making up 22 per cent of production value, followed by canola (12%), with other pulses and oats both at 4 per cent. Pastoral farming contributes $2,964m in production value, the largest contributor of which is cattle and calves (30%), followed by sheep and lamb (23%) and wool (22%).

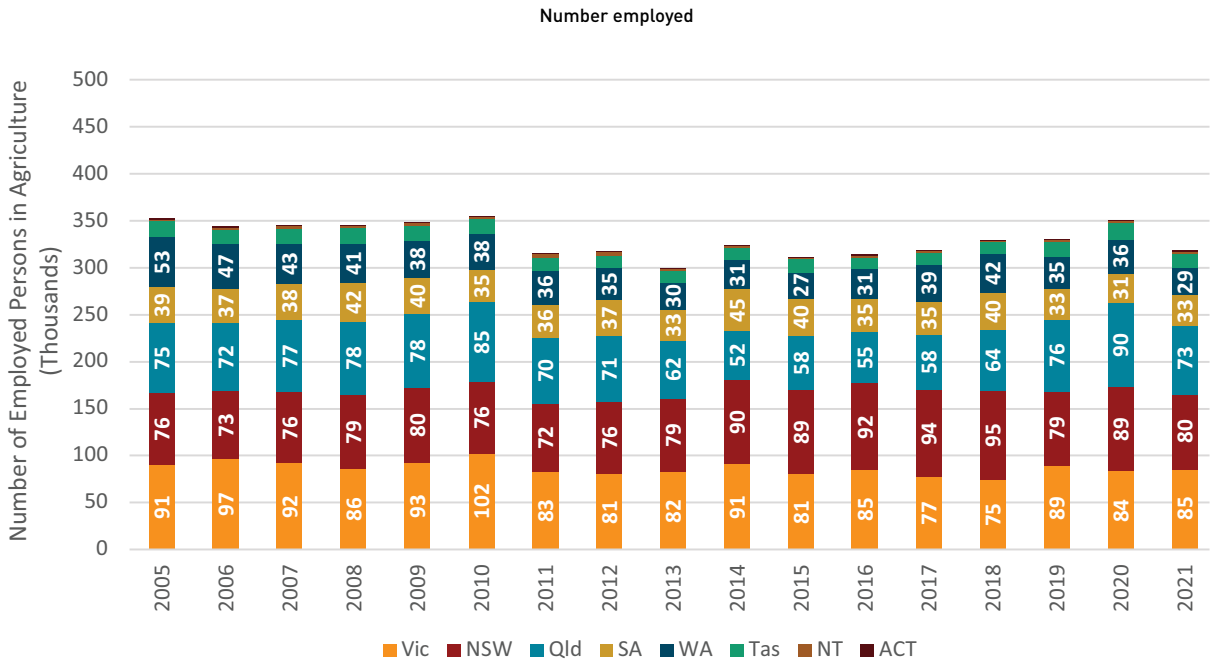
FIGURE 2: Value of WA agriculture by broad sector, 2020–21

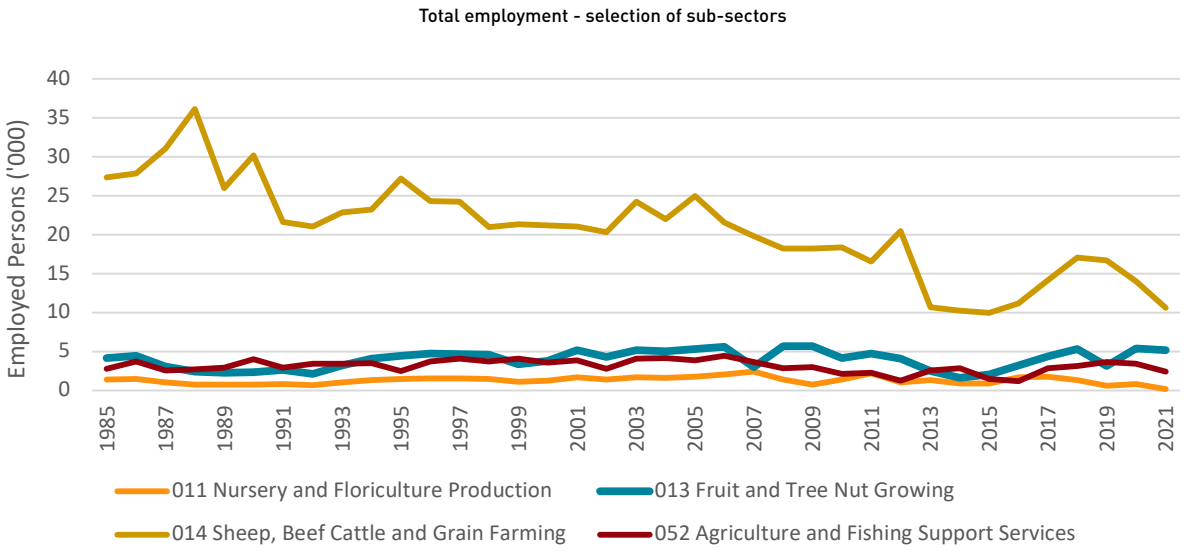



Source: Bankwest Curtin Economics Centre | ABS cat 7503.

Horticulture is one of the main commodities traded in the Canning Vale precinct, particularly through the Perth Market City distribution centre. This centralises produce from WA farmers but also from international and eastern states markets. The impact of horticulture is non-negligible to the WA economy, with a contribution of $1,267m to the state's GVA. The majority of horticultural goods (70%) fall under the umbrella of "other" produce here below. The single largest contributor to this category is avocados at 8 per cent. Other horticulture includes tree nut growing, other fruits, and flowers, amongst others.

FIGURE 3: Employment trends in agriculture by state and territory, 2005 to 2021 and share of employment by state, WA, May 2021



In response to the economic slowdown from the COVID-19 pandemic, the labour market for agriculture has shrunk between 2020 and 2021. Tasmania has continued to have the largest proportion of agricultural workers to total employed persons on a state-by-state basis, even if its contribution to total national employment in agriculture is relatively small compared to larger states. Since 2018, agricultural employment has once again began to slow down in WA; falling from a high of 42,000 to a low of 29,000 as of 2021.

Despite a declining trend in the overall employment in the agricultural sector, not all the sub-sectors have experienced the same decline. The horticultural sector, on the right hand side of Figure 3 represented by the teal line, has remained constant in the last 30 years. Employment in fruit and tree nut growing, which also includes a significant part of the Canning Vale wholesale market, has been increasing since 2014 and now employs more than 5,000 people in WA, twice as much as it did five years ago.

The increase commercialisation of some fruits such as avocados and mangoes that were historically imported from overseas, has boosted this sector, especially in the north and south west of the state where the tropical and sub-tropical climate is more suitable for this type of fruit growing.

Canning Vale currently has a strong focus on the processing and distribution of horticultural goods and fruits, however if this produce is only sold unprocessed there is a missing opportunity for the manufacturing sector. A food value add precinct could allow for WA's strong horticultural sector to develop further while increasing the value of products.

TABLE 1: Employed persons in selected agricultural sub-sectors, WA, 2016-2021

| Date | Nursery and Floriculture Production | Fruit and Tree Nut Growing | Sheep, Beef Cattle and Grain Farming | Agriculture and Fishing Support Services |
|---|---|---|---|---|
| Feb-16 | 1,886 | 2,723 | 11,611 | 888 |
| May-16 | 1,249 | 2,678 | 7,661 | 1,652 |
| Aug-16 | 2,968 | 3,040 | 12,008 | 976 |
| Nov-16 | 639 | 4,320 | 13,556 | 1,326 |
| Feb-17 | 1,104 | 4,734 | 9,842 | 2,872 |
| May-17 | 2,273 | 4,856 | 14,713 | 3,769 |
| Aug-17 | 651 | 3,822 | 14,409 | 3,054 |
| Nov-17 | 3,134 | 3,984 | 17,743 | 1,619 |
| Feb-18 | 1,299 | 7,276 | 17,094 | 2,518 |
| May-18 | 2,086 | 5,070 | 15,879 | 4,001 |
| Aug-18 | 696 | 5,538 | 16,883 | 2,400 |
| Nov-18 | 1,218 | 3,381 | 18,301 | 3,558 |
| Feb-19 | 1,204 | 3,114 | 17,170 | 1,872 |
| May-19 | 307 | 1,889 | 19,309 | 5,228 |
| Aug-19 | 0 | 2,383 | 16,147 | 3,187 |
| Nov-19 | 966 | 5,201 | 14,234 | 4,341 |
| Feb-20 | 922 | 3,011 | 12,819 | 4,861 |
| May-20 | 1,547 | 3,424 | 15,313 | 4,089 |
| Aug-20 | 688 | 7,006 | 13,071 | 1,285 |
| Nov-20 | 0 | 7,963 | 14,750 | 3,377 |
| Feb-21 | 194 | 4,537 | 12,130 | 2,835 |
| May-21 | 203 | 5,781 | 9,102 | 1,996 |

Source: Bankwest Curtin Economics Centre | ABS cat 6291.0.

A closer look at the horticultural sector gives us a better understanding of the distribution of horticulture by WA regions. A wide variety of horticultural goods are produced across WA; at this stage, most production is concentrated in Bunbury and the Wheat Belt (see Table 2). The north west of WA is quickly developing specifically in some niche products such as berries and tomatoes in particular but the resurgence of nurseries is giving it an edge for tree growing.

The horticultural sector in WA accounts for nearly $850 million in the 2019-20 financial year. Avocados currently generate the most value for the WA horticultural industry, and continue to remain in high demand for their use in culinary products. Carrots, oranges, and potatoes are also products that have a high value in WA's horticulture sector. Almost half of the GVA of the horticultural sector comes from vegetable retail, however the fruit sector has been catching up rapidly and represents a significant opportunity for growers in the state.

TABLE 2: Value of horticulture industry in WA and regions, 2019–20

| Market Garden | Bunbury | Mandurah | North East | North West | South East | South West | Wheat Belt | North Outback | South Outback | Total WA |
|---|---|---|---|---|---|---|---|---|---|---|
| **Nurseries, cut flowers or cultivated turf - Total** | **17,341** | **605** | **17,345** | **36,568** | **32,936** | | **21,336** | **750** | **4,140** | **131,020** |
| Nurseries | | 511 | 16,472 | 33,354 | 28,343 | | 14,624 | | 2,753 | 96,058 |
| Nurseries - Undercover | | 511 | 162 | 10,986 | 17,936 | | 1,487 | | 273 | 31,355 |
| Nurseries - Outdoor | 7,938 | | 16,310 | 22,367 | 10,408 | 1,412 | 13,138 | 137 | 2,480 | 74,191 |
| Cut flowers | 4,064 | | 63 | | 136 | 1,538 | 3,240 | 18 | 1,108 | 10,168 |
| Cut flowers - Undercover | 2,087 | | | | 89 | 1,027 | 531 | | | 3,734 |
| Cut flowers - Outdoor | 1,977 | | 63 | | 47 | 511 | 2,709 | 18 | 1,108 | 6,433 |
| Cultivated turf | | 94 | 810 | 3,214 | 4,456 | | 3,471 | | 278 | 12,323 |
| **Fruit and nuts (excluding grapes) - Total** | **181,985** | **2** | **6,476** | **28,158** | **21,320** | **277** | **68,314** | **6,806** | **20,722** | **334,060** |
| Orchard fruit - Apples | 49,152 | | | | 6,799 | | 2,236 | | | 58,187 |
| Orchard fruit - Avocados | 100,665 | | | 2,985 | 948 | 277 | 2,030 | | 7 | 106,912 |
| Orchard fruit - Cherries | 276 | | | | 64 | | 19 | | | 360 |
| Orchard fruit - Mandarins | 481 | 1 | 13 | | 160 | | 9,503 | | | 10,158 |
| Orchard fruit - Mangoes | | | | | | | 157 | 836 | 3,230 | 4,223 |
| Orchard fruit - Nectarines | 740 | | 7 | | 4,409 | | 1,270 | | | 6,427 |
| Orchard fruit - Olives | 2,136 | | | | | | 7,420 | | 25 | 9,581 |
| Orchard fruit - Oranges | 213 | | | | 23 | | 23,130 | | | 23,366 |
| Orchard fruit - Peaches | 185 | | 22 | | 2,946 | | 629 | | | 3,782 |
| Orchard fruit - Pears (including Nashi) | 4,883 | | 581 | | 1,172 | | 650 | | | 7,287 |
| Orchard fruit - All other orchard fruit n.e.c. | 15,517 | 1 | 306 | | 3,794 | | 3,176 | 868 | 302 | 23,964 |
| **Grapes - Total** | **43,549** | **3,228** | **10,416** | | **129** | | **14,305** | | **5,781** | **77,408** |
| Grapes - Wine production | 35,118 | | 4,316 | | 129 | | 13,599 | | | 53,162 |
| Grapes - All other uses | 8,431 | 3,228 | 6,100 | | | | 706 | | 5,781 | 24,246 |
| Berry fruit - Strawberries | | | 5,547 | 23,590 | | | 12,952 | | | 42,088 |
| Berry fruit - All other berries | 5,020 | | | | 352 | | 4,081 | | | 9,453 |
| Other fruit - All other fruit n.e.c. | 2,374 | | | | 652 | | 1,059 | 213 | 793 | 5,091 |
| **Vegetables - Total** | **187,646** | | **1,111** | **41,802** | **10,181** | | **98,350** | **24,162** | **33,579** | **396,831** |
| Beans (including french and runner) | 64 | | | 981 | | | 14 | 1,968 | 1 | 3,027 |
| Broccoli | 8,649 | | | | | 1 | 7,191 | 1 | | 15,841 |
| Cabbages | 265 | | | | 903 | | 3,195 | 373 | | 4,736 |
| Capsicum (excluding chillies) | 10 | | 986 | | 883 | 0 | | 0 | 14,703 | 16,582 |
| Carrots | 55,604 | | | | | | 30,136 | | | 85,740 |
| Cauliflowers | 2,481 | | | | | | 8,378 | | | 10,859 |
| Lettuces | 10 | | | 5,053 | 1,532 | 3,110 | 12,956 | 4 | | 22,665 |
| Melons | 7,771 | | | 113 | | 2 | 97 | 10,948 | 2,616 | 21,547 |
| Mushrooms | | | | | | | | | | 0 |
| Potatoes | 57,016 | | | | | 357 | 11,888 | | | 69,262 |
| Pumpkins | 1,827 | | | | 84 | 2 | | 10,853 | | 12,766 |
| Tomatoes | 4,965 | | | 25,978 | 9 | 532 | 43 | 4 | 4,803 | 36,334 |
| All other vegetables n.e.c. | 18,104 | | 124 | | 6,771 | | 24,109 | 11 | 5,818 | 54,938 |
| **Total Horticulture Value** | **389,897** | **3,741** | **34,476** | **92,054** | **59,973** | **5,694** | **195,250** | **26,215** | **40,833** | **848,132** |

Source: Bankwest Curtin Economics Centre | ABS cat 7503.

## The food value add business in the Canning Vale industrial area

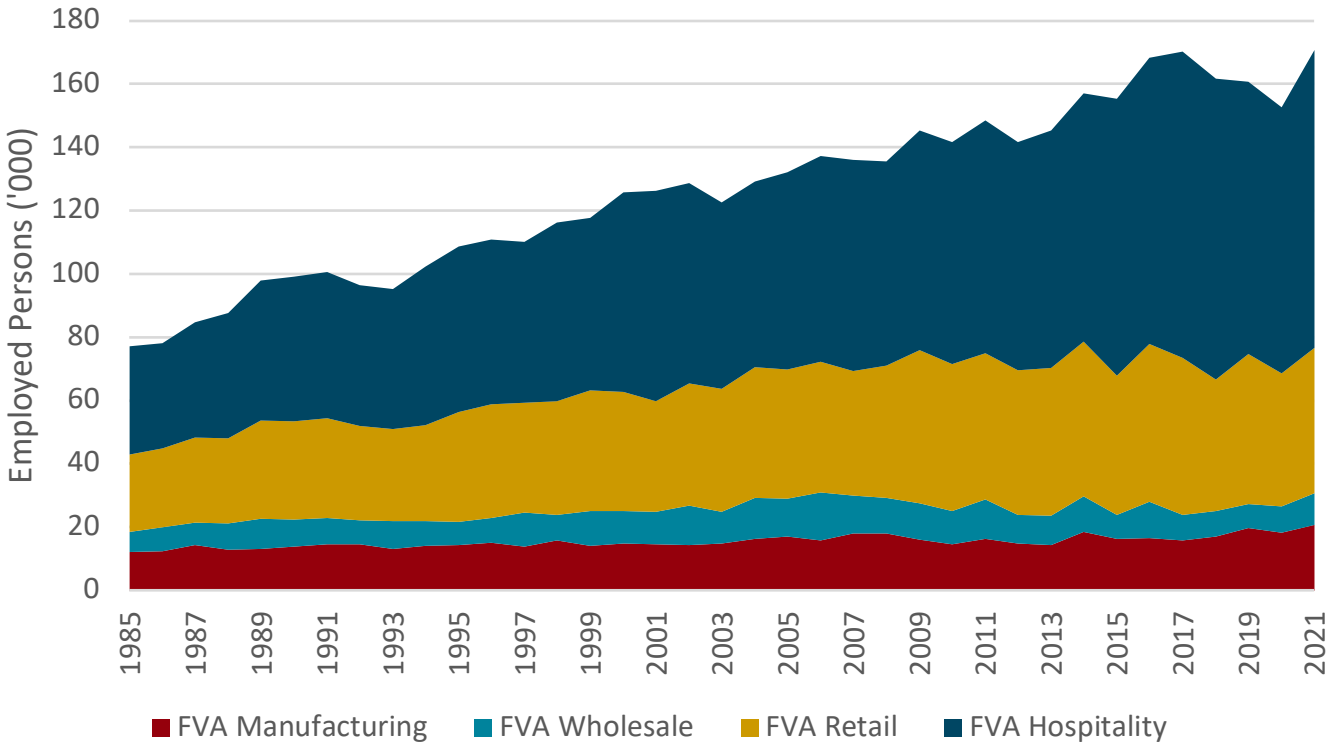
Given the strengths of WA in the agricultural and horticultural sector, it is natural to seek for further opportunities in this industry. One of the main characteristics of this sector is the low price of commodities. As primary inputs, these can be easily produced in other countries, particularly South East Asia, which brings intense competition in this sector. This is amplified because labour costs overseas are usually low which drives prices down.

As such, WA should find a way to increase the value of products by transforming them beyond the raw commodity.

This upward differentiation will add value to the food items and allow an increase in prices, ultimately sheltering producers from market fluctuations and competition. This is why it is key to further develop the food value add sector in Western Australia.

Figure 4 shows the number of employed persons in the food value add sectors in WA. Even though the majority of the employment comes from the hospitality sector, we can observe a slight increase in the manufacture of food value add products, especially since 2017.

FIGURE 4: Total food value add employed persons in WA, by subgroup, 1985 to 2021




Source: Bankwest Curtin Economics Centre | ABS cat 6291.0.

Most of the growth in employment comes from retail of food value add (FVA) products and hospitality. The number of people working in FVA wholesale has, on the other hand, remained quite constant in the past three decades.

A clearer picture appears once we have a look at the share of business in the Canning Vale industrial area (see Table 3 below). There are some 234,000 businesses in WA, 24 per cent of which are based in WA's regions and 0.45 per cent within the Canning Vale industrial area.

The highest number of businesses in the Canning Vale industrial zone are in the wholesale trade industry. This is not only the highest percentage of businesses in the area but also across all other WA regions. Following wholesale trade, rental, hiring and real estate services is the runner-up in terms of industry concentration in Canning Vale and manufacturing occupies the third place. It is worth noting that among all businesses within Canning Vale, manufacturing is one of the leading sectors and this is despite the fact that the Welshpool industrial zone is not included in this area. So there are interesting manufacturing opportunities in the Canning Vale area.

Of all business in WA, around 7 per cent (16,300) are in the agricultural sector. This share is much higher across many of the regions, with agriculture presenting the largest number of businesses in the Gascoyne, Goldfields-Esperance, Great Southern, Mid-West and Wheatbelt regions. Agriculture presents the second largest count of businesses in the South West and the third largest in the Kimberley.

**TABLE 3: Share of businesses in WA by SA4, Canning Vale SA3 and Canning Vale industrial area SA2, 2020 (%)**

| Industry | Mandurah | Perth | NE Perth | NW Perth | SE Perth | SW Perth | Wheat Belt | N Outback | S Outback | Canning | Canning Vale | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agriculture, Forestry and Fishing | 5.2 | 1.9 | 2.5 | 1.5 | 1.8 | 2.2 | 41.2 | 6.4 | 23.7 | 0.6 | 0.9 | 7.0 |
| Mining | 0.6 | 4.0 | 0.7 | 0.5 | 0.6 | 0.8 | 0.5 | 0.8 | 2.3 | 0.7 | 1.7 | 1.2 |
| Manufacturing | 4.0 | 1.8 | 5.8 | 3.6 | 4.2 | 4.6 | 3.4 | 3.2 | 3.1 | 5.5 | 13.4 | 3.8 |
| Electricity, Gas, Water and Waste Services | 0.5 | 0.2 | 0.4 | 0.2 | 0.3 | 0.3 | 0.3 | 0.5 | 0.4 | 0.3 | 0.4 | 0.3 |
| Construction | 21.8 | 8.5 | 18.8 | 23.0 | 16.1 | 16.8 | 11.3 | 19.2 | 14.0 | 13.5 | 12.7 | 16.6 |
| Wholesale Trade | 2.6 | 2.4 | 3.8 | 2.9 | 4.0 | 3.3 | 2.0 | 1.9 | 2.0 | 5.6 | 17.7 | 3.0 |
| Retail Trade | 7.2 | 4.1 | 6.0 | 5.2 | 5.3 | 5.5 | 5.1 | 7.3 | 5.7 | 5.8 | 7.4 | 5.3 |
| Accommodation and Food Services | 4.3 | 4.1 | 3.7 | 3.0 | 3.9 | 3.7 | 3.1 | 5.8 | 4.5 | 3.9 | 1.1 | 3.8 |
| Transport, Postal and Warehousing | 7.1 | 2.5 | 12.9 | 9.7 | 16.6 | 7.6 | 4.8 | 7.9 | 6.7 | 18.0 | 3.7 | 8.8 |
| Information Media and Telecommunications | 0.5 | 1.0 | 0.8 | 0.7 | 0.7 | 0.7 | 0.3 | 0.6 | 0.2 | 0.8 | 0.3 | 0.7 |
| Financial and Insurance Services | 9.1 | 16.3 | 6.8 | 9.2 | 7.5 | 9.6 | 4.6 | 6.5 | 7.3 | 7.0 | 6.8 | 9.3 |
| Rental, Hiring and Real Estate Services | 10.0 | 15.6 | 8.9 | 9.8 | 9.5 | 11.7 | 9.0 | 11.6 | 10.1 | 9.8 | 16.1 | 10.8 |
| Professional, Scientific and Technical Services | 9.2 | 19.6 | 11.1 | 13.2 | 11.1 | 13.4 | 4.5 | 7.6 | 5.6 | 10.0 | 8.4 | 12.1 |
| Administrative and Support Services | 3.5 | 3.4 | 4.4 | 4.2 | 5.0 | 3.5 | 1.9 | 6.4 | 3.1 | 5.2 | 1.8 | 3.9 |
| Public Administration and Safety | 0.4 | 0.2 | 0.5 | 0.3 | 0.4 | 0.3 | 0.1 | 0.4 | 0.2 | 0.3 | 0.0 | 0.3 |
| Education and Training | 1.1 | 1.4 | 1.2 | 1.3 | 1.2 | 1.5 | 0.5 | 1.0 | 0.7 | 1.1 | 1.0 | 1.2 |
| Health Care and Social Assistance | 5.7 | 9.3 | 4.1 | 5.5 | 5.1 | 8.0 | 2.6 | 4.0 | 3.7 | 5.4 | 1.4 | 5.9 |
| Arts and Recreation Services | 1.5 | 1.1 | 1.3 | 1.1 | 1.2 | 1.6 | 0.6 | 0.7 | 0.7 | 0.9 | 0.7 | 1.2 |
| Other Services | 5.8 | 2.4 | 6.2 | 4.7 | 5.2 | 4.7 | 3.9 | 7.7 | 5.9 | 5.4 | 4.4 | 4.7 |
| Currently Unknown | 0.0 | 0.3 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.4 | 0.2 | 0.1 | 0.3 | 0.2 |
| **Total** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **3.0** |

Note: The largest three industries by region are denoted by the gold, silver and bronze shading. CVC information correspond to the Canning Vale industrial area.

Source: Bankwest Curtin Economics Centre | ABS cat 8165.

## Export markets

With relations between Australia and China growing more strained over time as the latter continues to push for an expanded sphere of influence, it's highly likely that Australia's portfolio of trade partners will grow more diversified in the future which is an important factor that needs to be considered for the hub.

In value terms, WA's key commodity exports and the top destination countries are reported. Wheat is the highest value commodity of WA's agriculture exports, remaining reasonably steady since 2013 and making up a plurality of the state's total exports. The second and third largest are canola and barley, interchanging their rank on almost a yearly basis.

In terms of destination, China is still a critical trading partner, but the scope of China's influence took a large drop in the 2020-21 financial year, whilst other nations such as Saudi Arabia, Indonesia, and Thailand made up a larger proportion of WA's total export value; indicating that WA's export destinations may be growing more diversified as more of the Asia-Pacific region comes together to form a combined bloc in resistance to pushes from China to expand its sphere of influence.

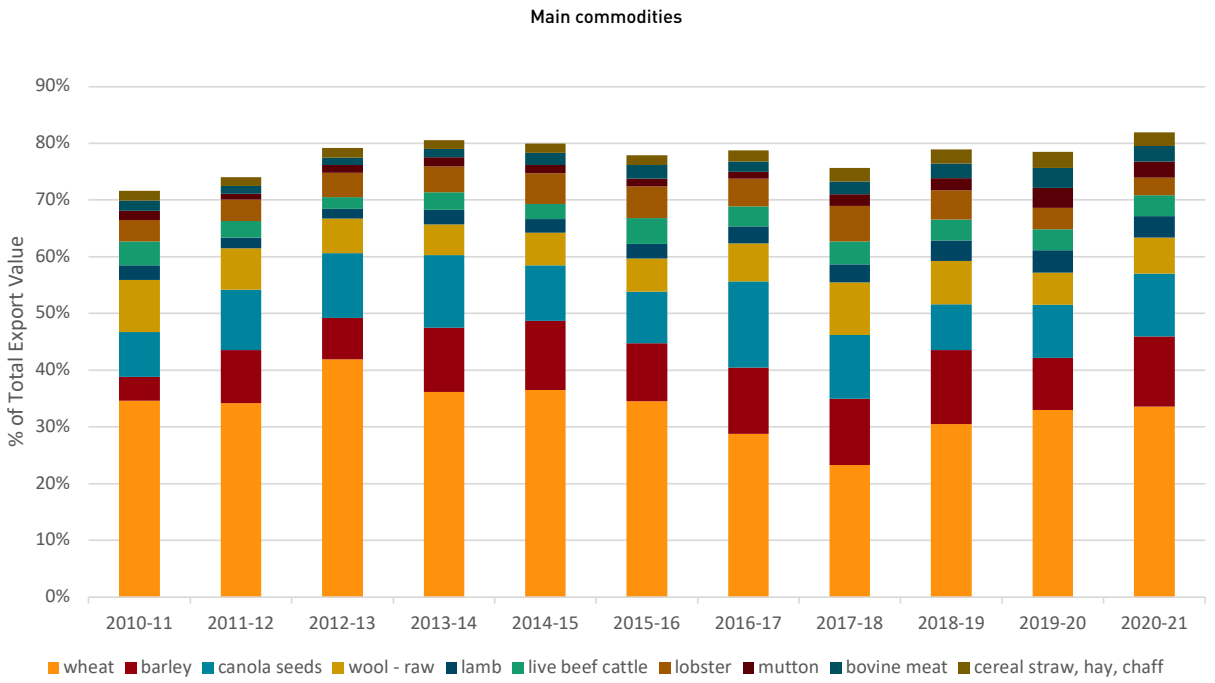
Growing demand from emerging Asian economies, with changing consumer preferences demonstrating huge potential in developing Asian markets, and updated trends showing continued potential for growth in these nations present a strong export opportunity.

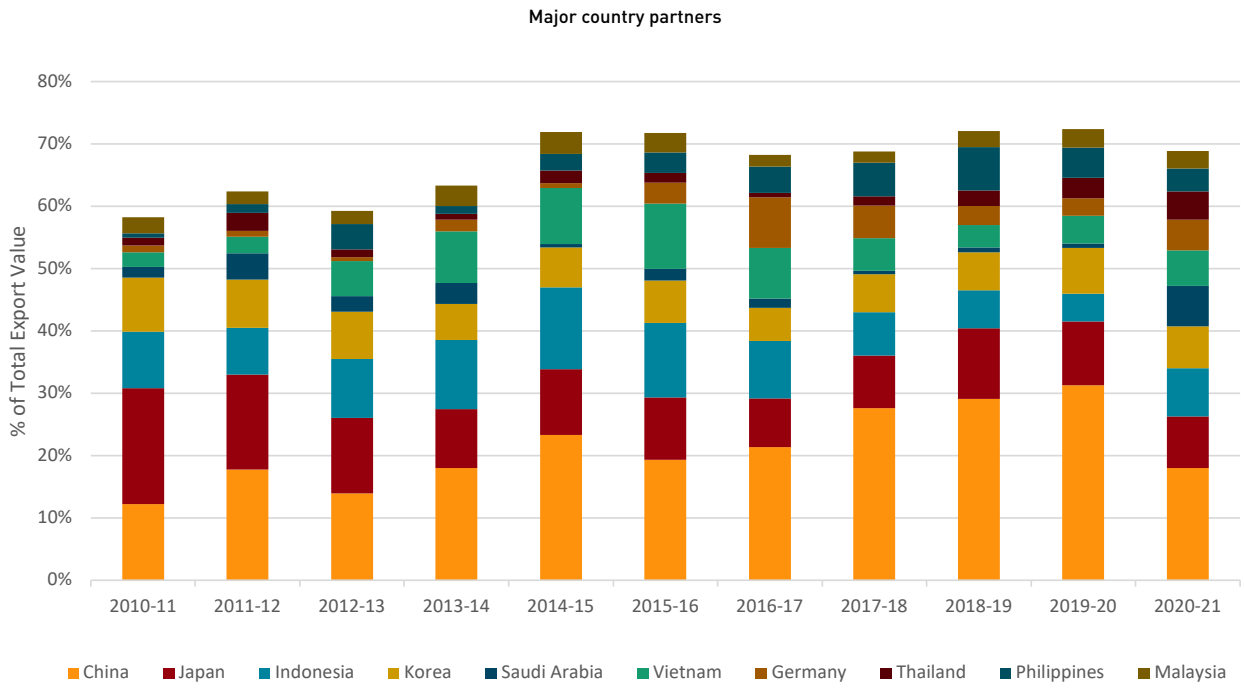
Interestingly, we can see that whilst China has historically held large shares of WA's agricultural area's for the state's main exports, the nation's share of the 2020-21 financial year exports has been much smaller than previous years reflecting the reduction in the proportion of WA's overall exports to China compared to other nations in the 2020-21 year.

One area where China has remained in a strong position is in lamb exports, where China has continued to import a significant share of WA's produce.

Furthermore, exports to Germany make up a significant proportion of WA's main exports, being the largest importer of WA's wheat, wool, and canola in the 2020-21 financial year. In terms of barley exports, in recent years it appears that Thailand has become an increasingly important trade partner as a larger proportion of the state's barley is sold there.

FIGURE 5: WA's top 10 agriculture exports by main commodity, and top trading partners 2014 to 2020




Note: 2020-21 data is missing 'confidential data' and is therefore subject to change, when such data is included in the total in 2022. Top ten commodities and top destinations as of 2020-2021.

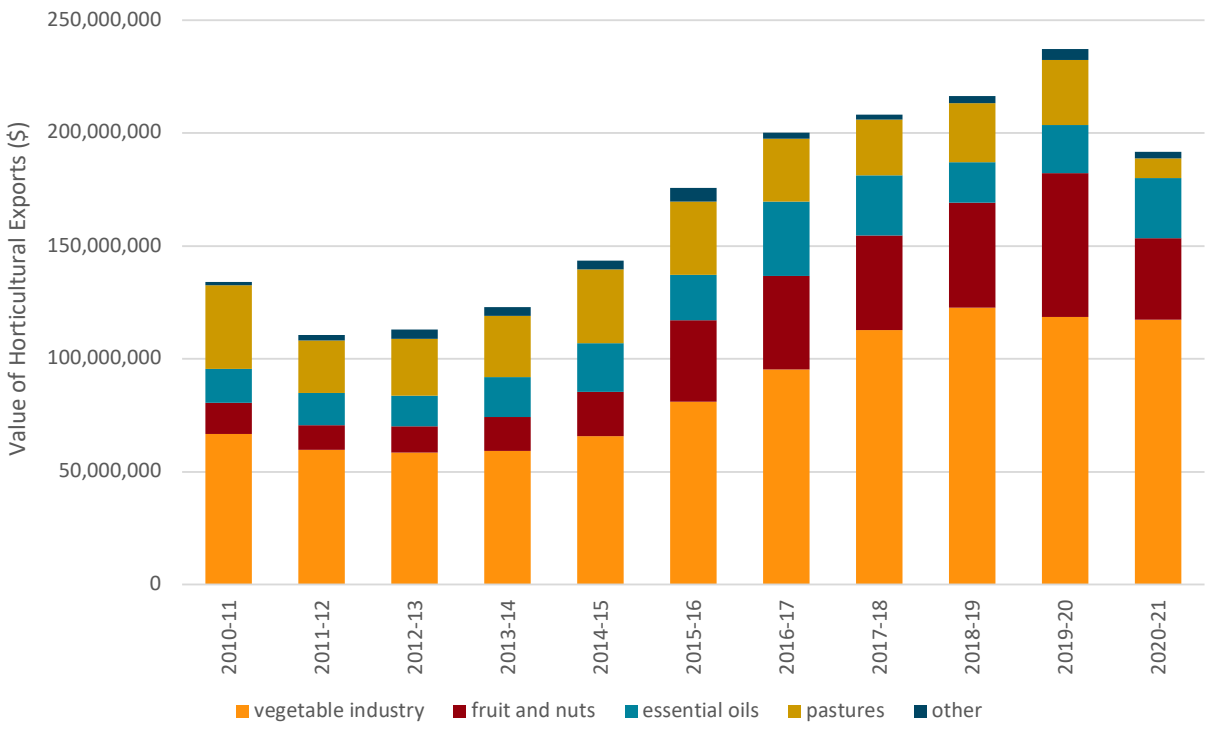
Source: Bankwest Curtin Economics Centre | DAFWA and ABS

## Horticultural exports

Horticultural exports have seen strong growth over the past years, predominately driven by growth in the value of vegetable industry exports. However, vegetable exports stagnated somewhat during the 2019-20 financial year, and remained slow during the 2020-21 financial year as well. This is likely to be one of many impacts from the COVID-19 pandemic and its effect on worldwide production and consumption of horticultural products.

Fruits and nuts have also (discounting COVID-19 induced shocks) been growing in export value at a steady rate over time, and present a good opportunity for WA to take advantage of increasing worldwide demand for this horticultural industry. In total, exports of horticultural from WA were estimated at $240 million in 2019-20, with vegetable exports increasing by 76 per cent and fruit and nuts by 163 per cent in the past 10 years. Other horticultural industries such as essential oils have not seen such strong growth probably due to being more niche in value compared to other horticultural products that possibly grow in demand as WA's export partners continue to observe population growth.

FIGURE 6: Value of WA's horticultural exports over time, 2021–21



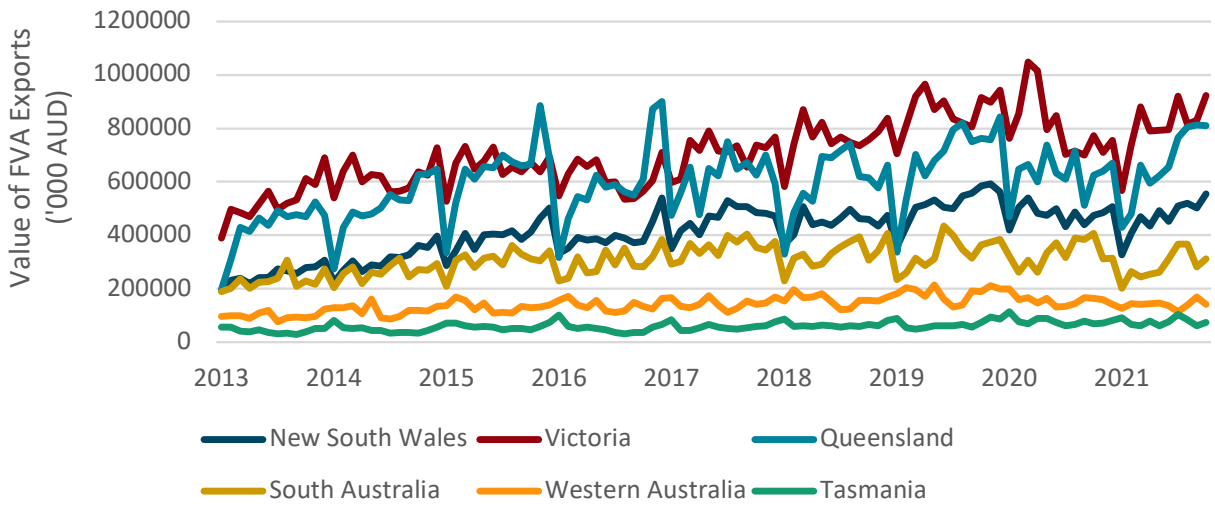

Note: 2020-21 data is missing confidential data and is therefore subject to change. Top 5 commodities by value, in current prices.
Source: Bankwest Curtin Economics Centre | DAFWA and ABS.

## Food value add exports

Compared to other states, WA's agribusiness exports have remained relatively steady over the past 8 years; compared to the significant level of growth observed in Victoria, Queensland, and New South Wales. Victoria and Queensland traditionally formed the largest share of Australia's value add exports, followed by New South Wales and to a lesser extent South Australia.

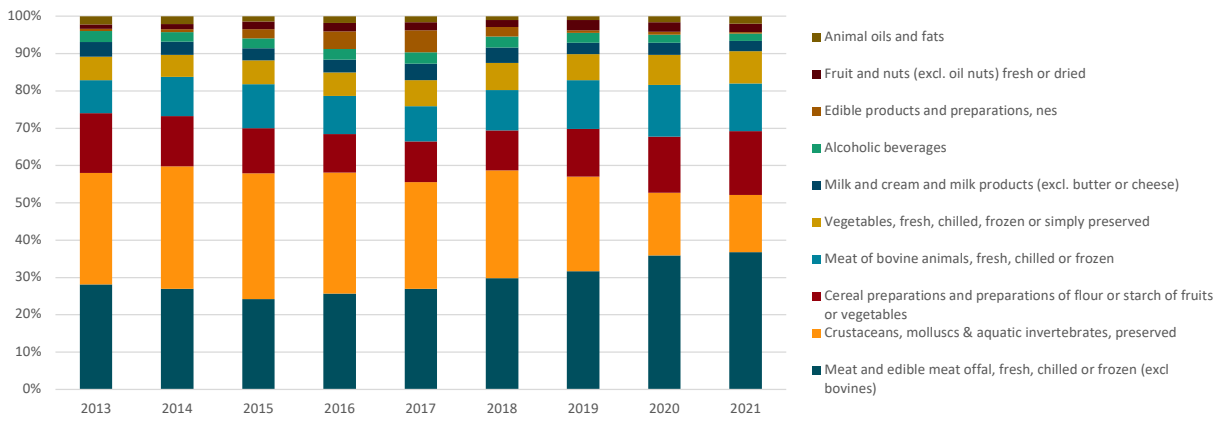
In terms of the makeup of WA's food value added exports, frozen non-bovine meat form the largest proportion of the state's value add exports over time. Crustaceans such as crabs have also generally formed a significant share of WA's export base, but over time have lost ground to other export categories. Processed cereals such as flour or fruit starch have also proved to be a significant export over time; showing that value add processes can be an important aspect of the export chains of Western Australia.

FIGURE 7: Total Value of Food Value Add Exports, by State over Time, in AUD ('000s)




Source: Bankwest Curtin Economics Centre calculated using data from ABS Data Explorer.

FIGURE 8: Makeup of Top Value Add Exports in WA, over time




Source: Bankwest Curtin Economics Centre calculated using data from ABS Data Explorer.

## Long term demand for food consumption

A food value add hub will serve an important role as a centre for the distribution of agricultural exports and imports. As such, it is worth modelling the future value of various agricultural goods in order to determine what areas and trade partners WA should focus on to derive the most profitability.

Figure 9 show the food intake projection up to the year 2035 of WA's main trade partners. This has been accomplished by revising the projections of future consumption preferences first calculated for the "From Paddock to Plate" BCEC Focus on Industry Report.

It is worth noting that currently the data available regarding caloric intake and food preferences does not take into account the impacts of the COVID-19 pandemic. Due to the effects of lockdowns on productivity and GDP growth, the rate of growth in daily caloric consumption for nations such as Indonesia and Vietnam may be somewhat slower than projected.

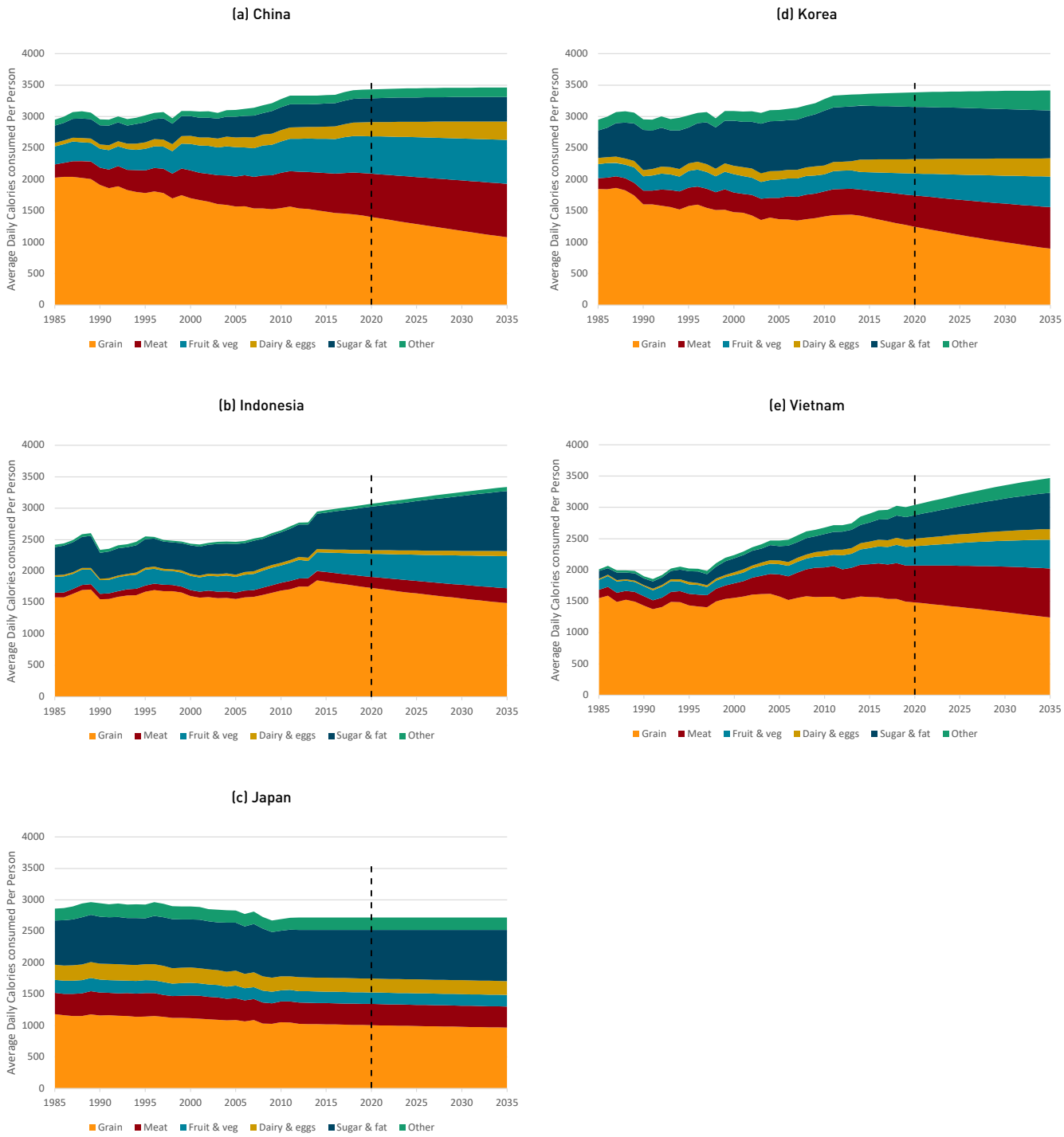
The level of returns and growth from WA's trading partners varies. Developed nations such as China and South Korea are modelled to have limited expansion in their daily caloric intake per person in the future, maxing out at around 3,500 calories per day per person, with future trends predicting more changes in the makeup of caloric consumption as opposed to the amount calories consumed.

Other nations, such as Indonesia and Vietnam, show more promising growth trends, as their GDP per capita expands and more people can afford to consume more goods in terms of calorie consumption. Finally, Japan appears to be very much stagnant, with projected calories consumed per capita remaining level and consumer preferences barely changing in the future.

Following the growing trend in horticultural export value as observed in the last section, many of WA's main trading partners have a projected expansion in demand for "produce" goods, including vegetables, fruits, and nuts. China, Korea and Indonesia are projected to observe the highest increase in produce consumption and WA should focus on the export of fruits and vegetables to these countries.

Meanwhile, demand for grain over time is modelled to shrink as the GDP per capita of our trading partners expands over time. Meat consumption, on the other hand, is predicted to increase significantly, especially in China and Vietnam.

FIGURE 9: Projected nutritional intake – WA main trading partners 1985–2035




Source: Bankwest Curtin Economics Centre | BCEC analysis using Food and Agriculture Organization for the United Nations and World Bank data.

# THE CANNING VALE INDUSTRIAL PRECINCT

# THE CANNING VALE INDUSTRIAL PRECINCT

## The Canning Vale industrial precinct is located in the south east corner of the Perth metropolitan region and accounts for a total area of 6.67 kilometres squared.

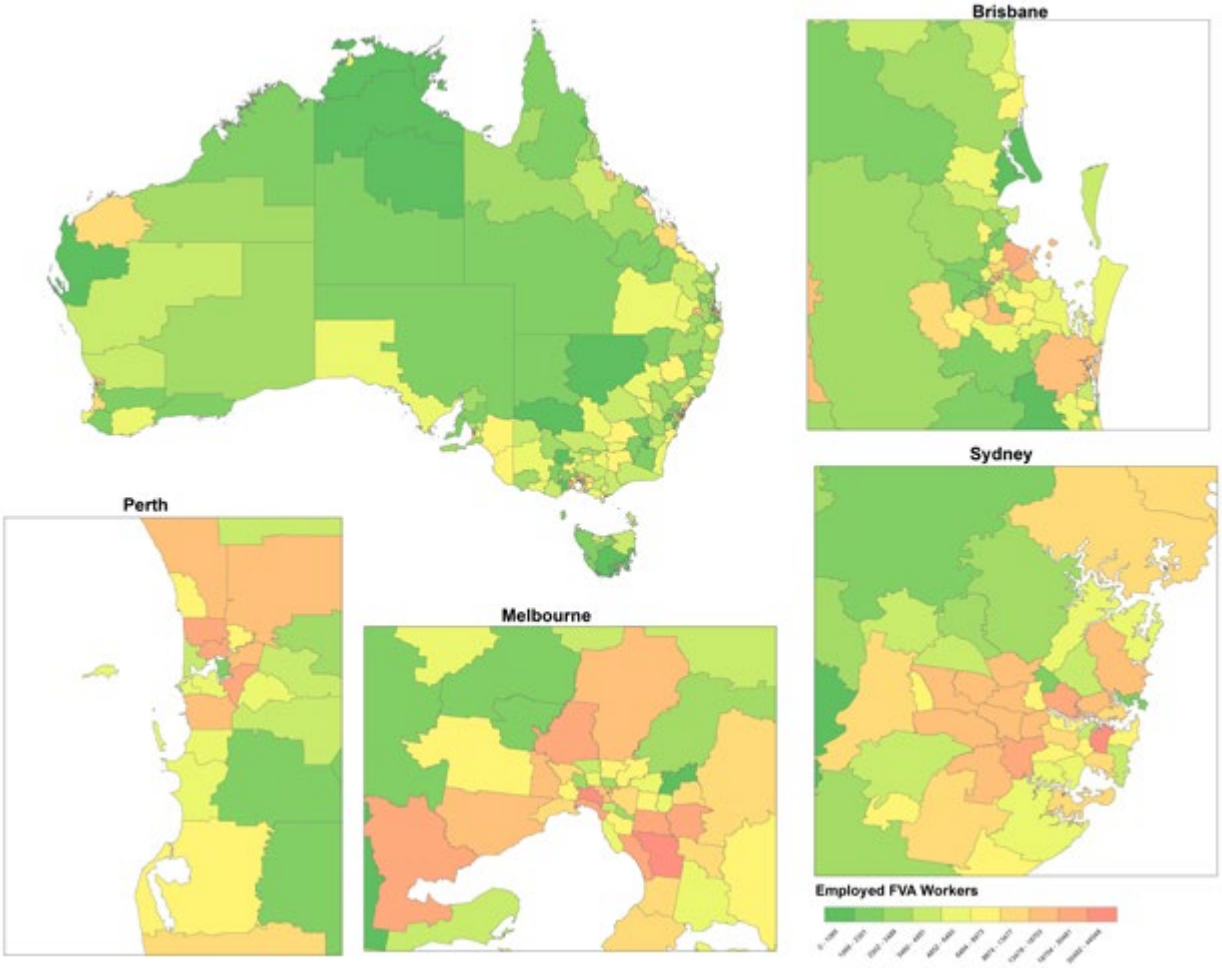
The Canning Vale industrial area is located within the City of Canning, just 15km south west of the Welshpool industrial area. The Canning Vale industrial area is bordered by the Roe Highway to the north, the train rail line to the south, Nicholson Road to the east and by the north east corner of Ken Hurst Park to the west.

One of the main characteristics of the Canning Vale industrial precinct is the high concentration of industries and the complete allocation of space to commercial use only. As such, the Canning Vale area has remained virgin of residential development becoming a specialised area for industry development.

FIGURE 10: Canning Vale industrial precinct boundaries


Source: Bankwest Curtin Economics Centre | Authors' calculations based on ABS SA2 and SA3 shapefiles.

FIGURE 11: Food value add workers by SA3




Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

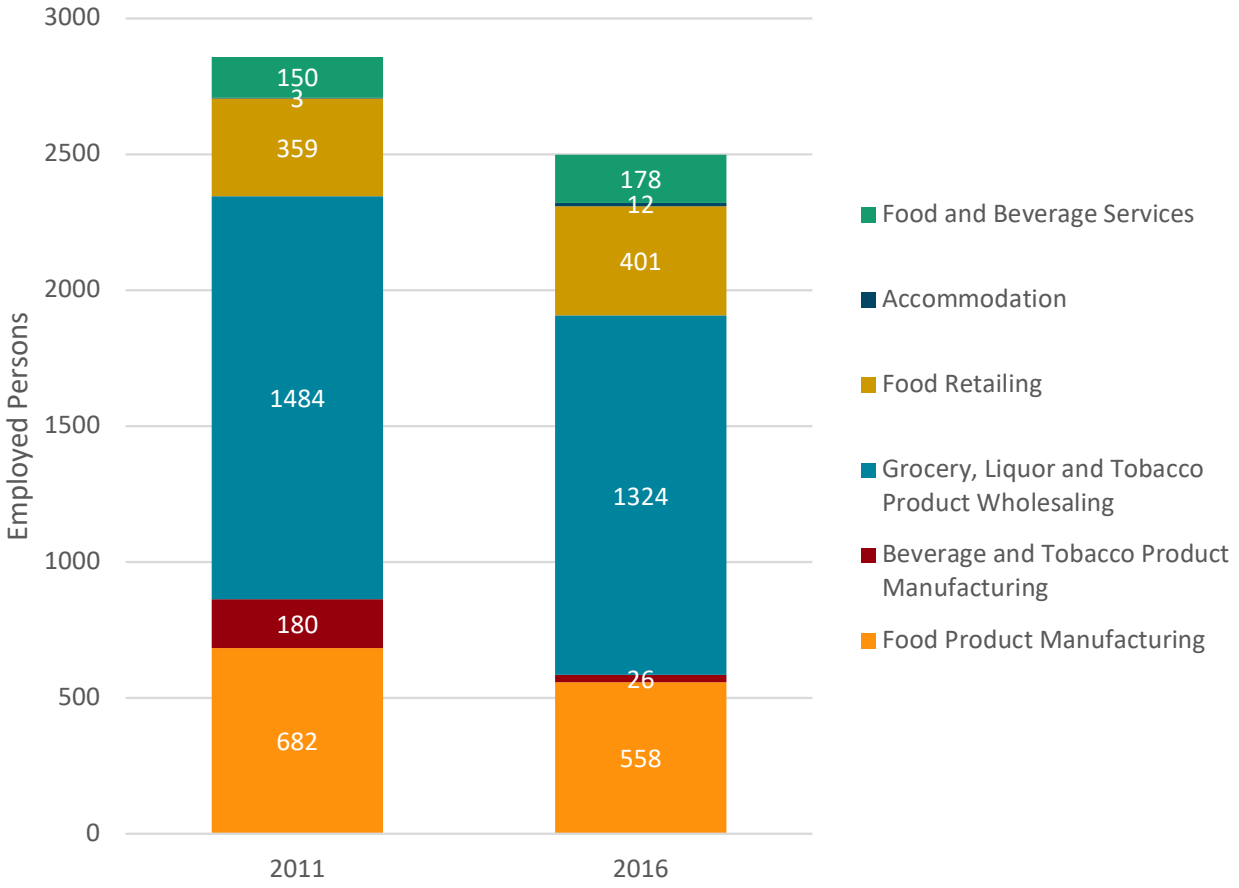
Figure 11 shows the number of food value workers relative to the total number of employment by SA3 and the Canning Vale industrial precinct. What we observe is that Canning Vale as well as the City of Canning have very high employment numbers in food value add industries relative to the rest of Australia. The Canning Vale region employs more than 21,000 people in food value add industries, by far the largest employer in WA and the 9th nationally. An outstanding number.

If we look at the proportion of food value add jobs relative to the total number of jobs, only Kwinana and Melville have comparable numbers. In contrast, other regions such as the Peel and the South West and the Albany region only have moderate numbers of workers in the food value add industry.

Elsewhere in Australia, we observe that the metropolitan cities CBDs have higher number of workers in this industry as a share of total employment. Melbourne seems to have the highest share of food value add workers, followed by Sydney and Brisbane.

Observing the decomposition by type of broad food value add category, Figure 11 shows that in 2016, around 2,500 people worked in a food related sector in Canning Vale, a slight decrease from 2011 figures. Most of this decline is due to falling employment rates in the beverage and tobacco product manufacturing and wholesaling as well as decreasing numbers in the food product manufacturing. On the other hand, food retailing and food and beverage services employment have both increased slightly between the 2011 and 2016 census.

FIGURE 12: Canning Vale industrial precinct employment in food value add industries, 2011 and 2016




Source: Bankwest Curtin Economics Centre | Authors' calculations based on ABS Census 2011 and 2016.

These results are clear evidence of the advantages of the Canning Vale precinct in food related activities. This is a strong results as the Smart Specialisation approach indicates that regions should diversify in industries that are related to the region's capabilities and assets. The diversification strategy should be built from an existing industrial base.


# WHY CANNING VALE? ADVANTAGES AND SYNERGIES

# WHY CANNING VALE? ADVANTAGES AND SYNERGIES

In this section we will present the Smart Specialisation approach for the Canning Vale precinct. We will show the advantages and synergies of this area relative to the rest of Australia. We will also introduce some of the future opportunities of employment for the Canning Vale region.

## Access to infrastructure

Access to infrastructure is key to develop a food value add precinct. As it has been showed in the Fresh Park Venlo study case, quick access to road, freight and airport infrastructure is key to developing a successful model for a food value add precinct. From Figure 13 to Figure 15 we show the infrastructure capabilities around the Canning Vale industrial precinct.

The precinct is located in close proximity to main infrastructure, notably the Jandakot airport almost bordering the Canning Vale industrial district to the west. Perth airport is also located at a close distance, only 15 minutes away, separating these two areas by main roads. The Jandakot airport could represent a potential opportunity for the Canning Vale industrial area. Internationally, a significant number of food value add precincts have developed close to airports, notably the Manukau in New Zealand and closer to home the future development of the Western Sydney International Airport agrifood cluster should also serve as a food hub innovation precinct. Evidently, a development of such scale would require significant help from the state, vast political will and a clear development strategy for a Jandakot-Canning Vale industrial precinct.

Even though the Canning Vale district is located inland, there is a direct connection to the Fremantle port through South Street and Leach Highway. A significant number of imports and exports of produce go through the Canning Vale industrial centre. It is important to note that even after the port is transitioned to the Kwinana Outer Harbour (Westport), Canning is still logistically appealing, with existing road linkages and potential for a new intermodal transport hub (currently being investigated by City of Canning) supporting the new port location.

Access to ports and airports is fundamental to boost the exports of food related products to overseas markets. This is even truer for food value add products than with raw produce as the export of these transformed goods represent a significant opportunity. As explained by Stahl[5], business location is dependent mostly of two factors; access

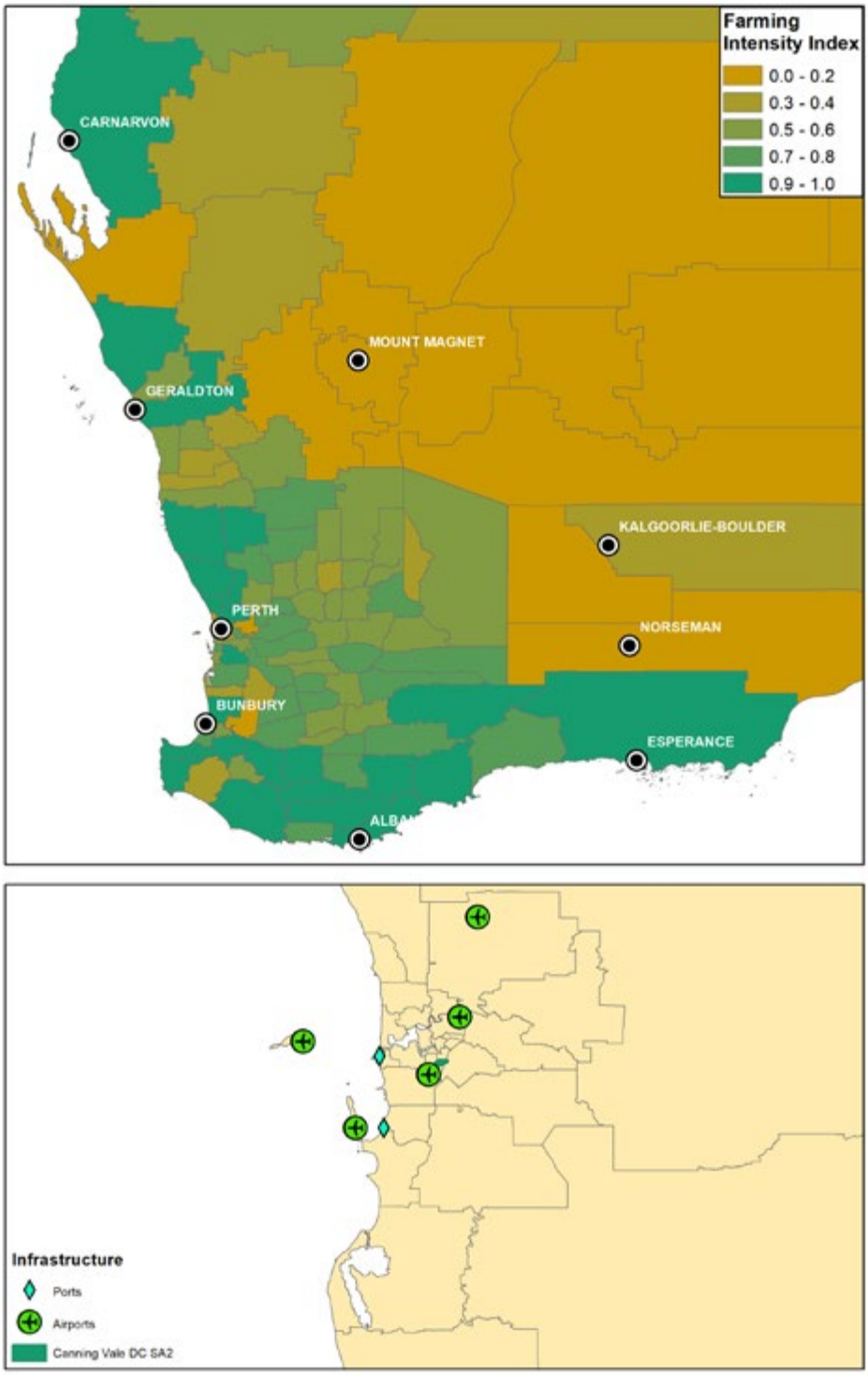
to costumers or access to production inputs. The former explains why we often observe related businesses close together while the latter explains the concentration of services in highly populated areas. Hence, accessibility to exports' hubs represents a significant advantage as it allows businesses to be closer to their international markets.

Of equivalent importance is the access to main roads. Main roads are the most straightforward connection between consumers, producers and intermediaries. As we observe in Figure 14, the Canning Vale industrial zone is attached to some of the main road axes of Perth, notably Roe Highway delimiting the precinct on the north, and the main entrance of the Great Eastern Highway to Perth. There is only a 10 minutes' drive to Albany Highway, on which a significant number of produce comes from the Albany and Esperance regions. Similar time is needed to reach the Kwinana Highway from the Canning Vale industrial precinct, giving quick access to the South West region in particular.

It is worth noting that the majority of produce arriving and leaving the Canning Vale industrial precinct actually originates from the Eastern states. The Perth Markets is the largest wholesaling market of fruits and vegetables in WA. It centralises produce coming from the Eastern states but also from all regions of WA as well as from international markets.

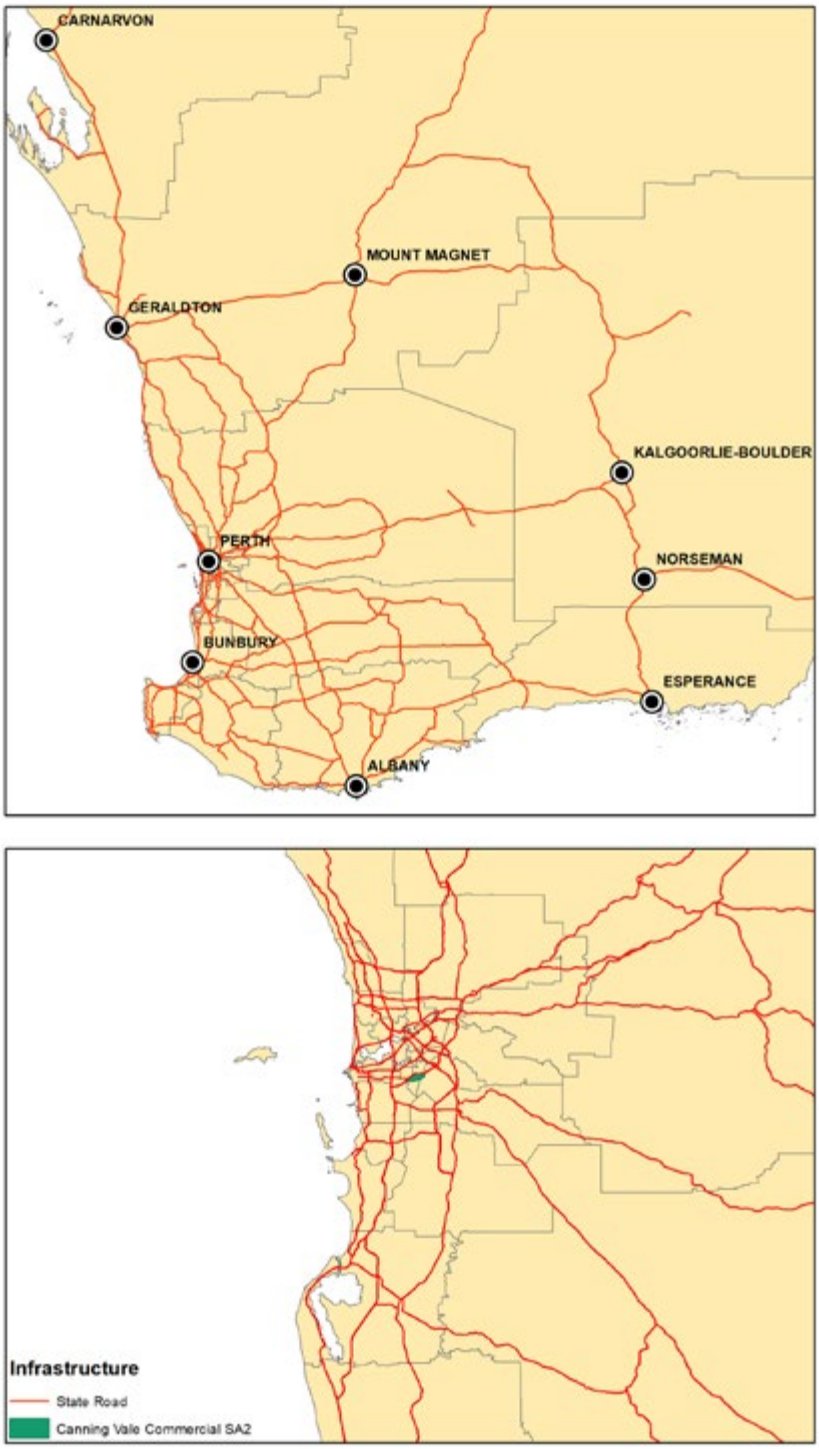
5 Stahl, K. (1987). Theories of urban business location. In Handbook of regional and urban economics (Vol. 2, pp. 759-820). Elsevier.

FIGURE 13: Employment in agriculture industries, port and airport infrastructure, WA, 2021



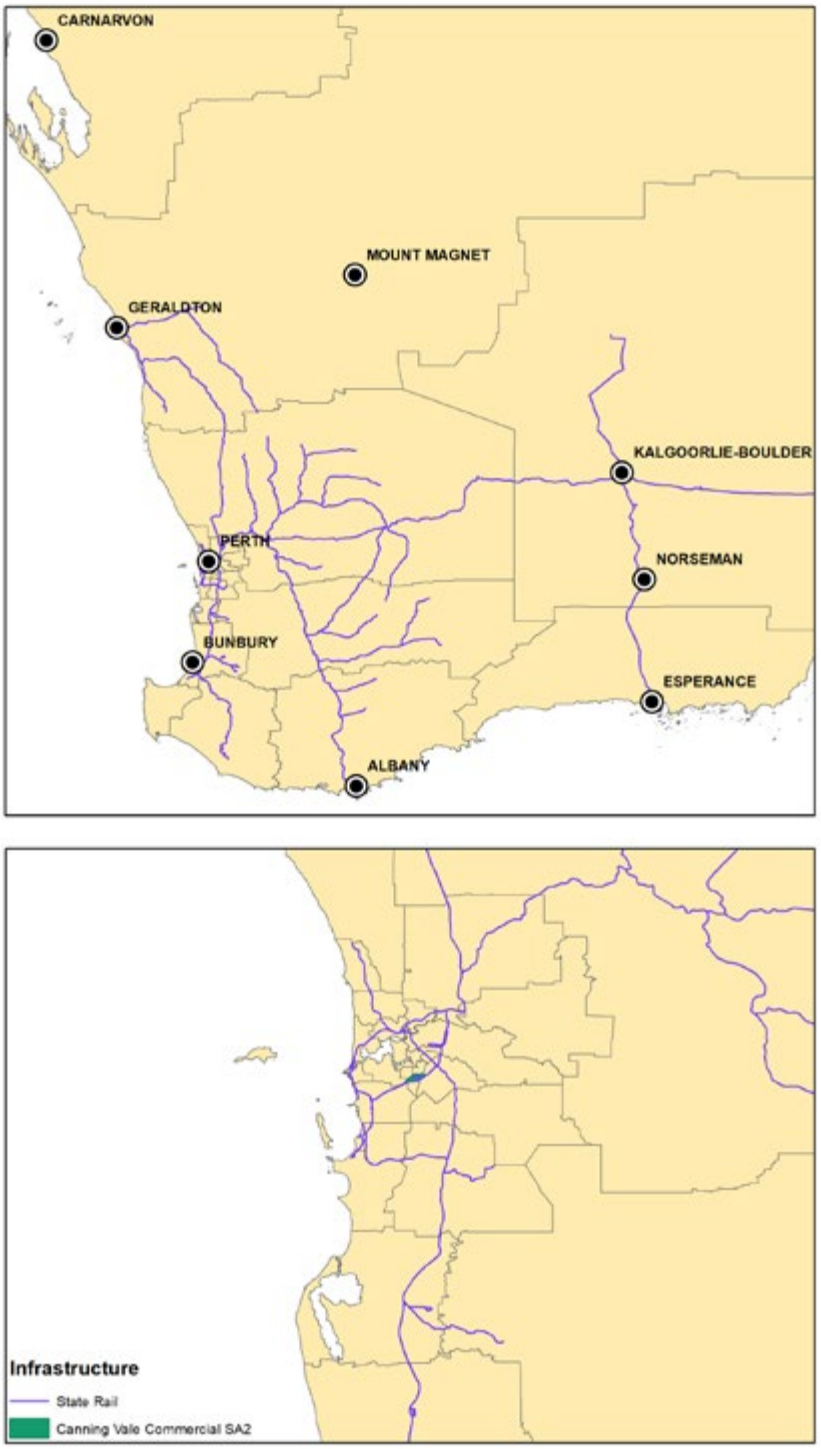

Source: Bankwest Curtin Economics Centre | BCEC analysis using WA infrastructure shapefiles.

FIGURE 14: Western Australia and Perth state roads, 2021




Source: Bankwest Curtin Economics Centre | BCEC analysis using WA infrastructure shapefiles.

FIGURE 15: Western Australia and Perth train rails, 2021




Source: Bankwest Curtin Economics Centre | BCEC analysis using WA infrastructure shapefiles.

Last but not least, access to rail freight which until now has been an untapped opportunity for the Canning Vale industrial precinct. Despite bordering the precinct to the south, the rail line does not currently have a stop at the precinct. If one was to be introduced the attractiveness of the precinct would be remarkably increased as greater quantities of produce could be transported faster and more efficiently. This is even more pertinent as the world transitions to a low carbon economy as rail transport provides an easy and sustainable solution providing it is powered by clean energy sources.

The current rail line that borders the Canning Vale precinct serves a broad variety of regions. Primarily, the rail has direct access to the Kwinana port which according to the state development plans will become the main merchandise port in the Perth metropolitan area in the medium term. Secondly, the rail connects the trains coming from the Eastern states via the town of Kalgoorlie. Finally, it has access to a broad variety of the WA regions, in particular those with a high concentration of farms and horticulture produce. Products can come from the Wheatbelt area in the north, all the way from Geraldton and as far as Albany and Esperance in the south. Other significant agricultural regions are also connected from to the same rail lane, notably Busselton and Bunbury to the South West.

### Looking forward: a proposed Canning Vale intermodal terminal (IMT)

The Canning Vale industrial precinct is a key hub for freight distribution, owing to its key strategic location which has direct access to the Fremantle Port as well as the new Kwinana Outer Harbour port (Westport). Currently, the precinct gains significant economic benefit from freight transportation, and there is expected to be an increased freight load due to the anticipated Westport project, which involves removing pressure on Fremantle Port by redirecting freight to an outer harbour port in Kwinana. Subsequently, there has been strong stakeholder demand for the development of an intermodal terminal (IMT) located within the Canning Vale industrial precinct.

An IMT is a site used to transfer freight from one mode of transport to another, such as from rail to road. Typically, an IMT consists of a core terminal, terminal support areas and an industry park. The core terminal is the assembly area for trains and trucks for the transfer of freight. The terminal support areas support the core terminal's functions, particularly through transport operations and warehousing. The industry park is land for businesses and industries who would benefit from the close proximity to an IMT.[6]

The benefits of a Canning Vale IMT industrial precinct for a food value add precinct are substantial. The primary benefit is that an IMT would increase the efficiency of freight transportation, which is essential in light of the expected growth in freight loads and population in the city of Canning over the coming years. An IMT generates efficiency by promoting the use of rail for freight transportation as opposed to trucks, which therefore increases capacity – resulting in larger freight loads being distributed in a faster time. This increased efficiency has a flow-on effect as it also reduces supply chain pressures.

Crucially, rail services through an IMT typically transport freight that is for consumer use, including food products and manufactured goods. This is particularly important for the Canning Vale industrial precinct as it would generate significant improvements in efficiencies and capacity for food product transportation within the precinct.

Furthermore, the Canning Vale industrial precinct generates a significant amount of traffic activity, in part owing to its role as a hub for freight transportation. Currently, the burden of this traffic activity falls on the road network, resulting in widespread congestion in main roads in Canning Vale and the wider city of Canning. An IMT would assist in alleviating the pressure on main roads through a higher proportion of freight being transported by rail, and it would allow businesses to have the option of transporting freight by rail as opposed to road. This would be advantageous for new businesses looking to transport food products and related freight to and from the Canning Vale industrial precinct. The additional benefit arising from the reduced road transportation under an IMT is that environmental emissions will be reduced as rail transport is significantly more environmentally friendly, with road freight producing 16 times as much carbon pollution as rail freight per tonne kilometre.[7]

6 Department of Planning and Infrastructure (2021), Planning for Container Handling Facilities in the Cockburn/Kwinana Area, Government of Western Australia, available at https://www.wa.gov.au/system/files/2021-05/PRJ_-Planning-for-Container-Handling-Facilities-in-the-Cockburn-Kwinana-Area.pdf.

7 Australasian Railway Association (2020), Value of Rail 2020, Australasian Railway Association, available at https://ara.net.au/wp-content/uploads/REPORT-ValueofRail2020-1.pdf.

FIGURE 16: Canning Vale industrial area, 2022


Source: © Google Maps, 2022.

The proposed IMT site takes full advantage of Canning Vale's strategic location for freight transportation, with direct connection to the Fremantle Port via South Street in addition to a connection to the anticipated Westport through Anketell Road. The IMT would therefore serve as a centralised logistics hub, which allows for efficient and easy distribution of freight to and from the various ports.

However, establishing a Canning Vale IMT would require a high level of upfront capital expenditure as well as various government approvals. Despite this, there is historical evidence in favour of government support in developing IMT's, with several IMT's established in various WA cities, including the Forrestfield Intermodal Terminal (FIT) and the Perth Freight Terminal at Kewdale. Additionally, in 2021, the Australian Government committed 5 million dollars toward the development of the Kenwick IMT through its National Freight and Supply Chain Strategy, which will connect with Roe Highway Logistics Park and offer a rail to Fremantle Port via the North Quay Rail Terminal.[8]

8 Department of Infrastructure, Transport, Regional Development and Communications (2021), Kenwick Intermodal Terminal, Australian Government, available at https://investment.infrastructure.gov.au/projects/ProjectDetails.aspx?Project_id=110522-20WA-NP.

## What are the advantages in the Canning Vale industrial precinct?

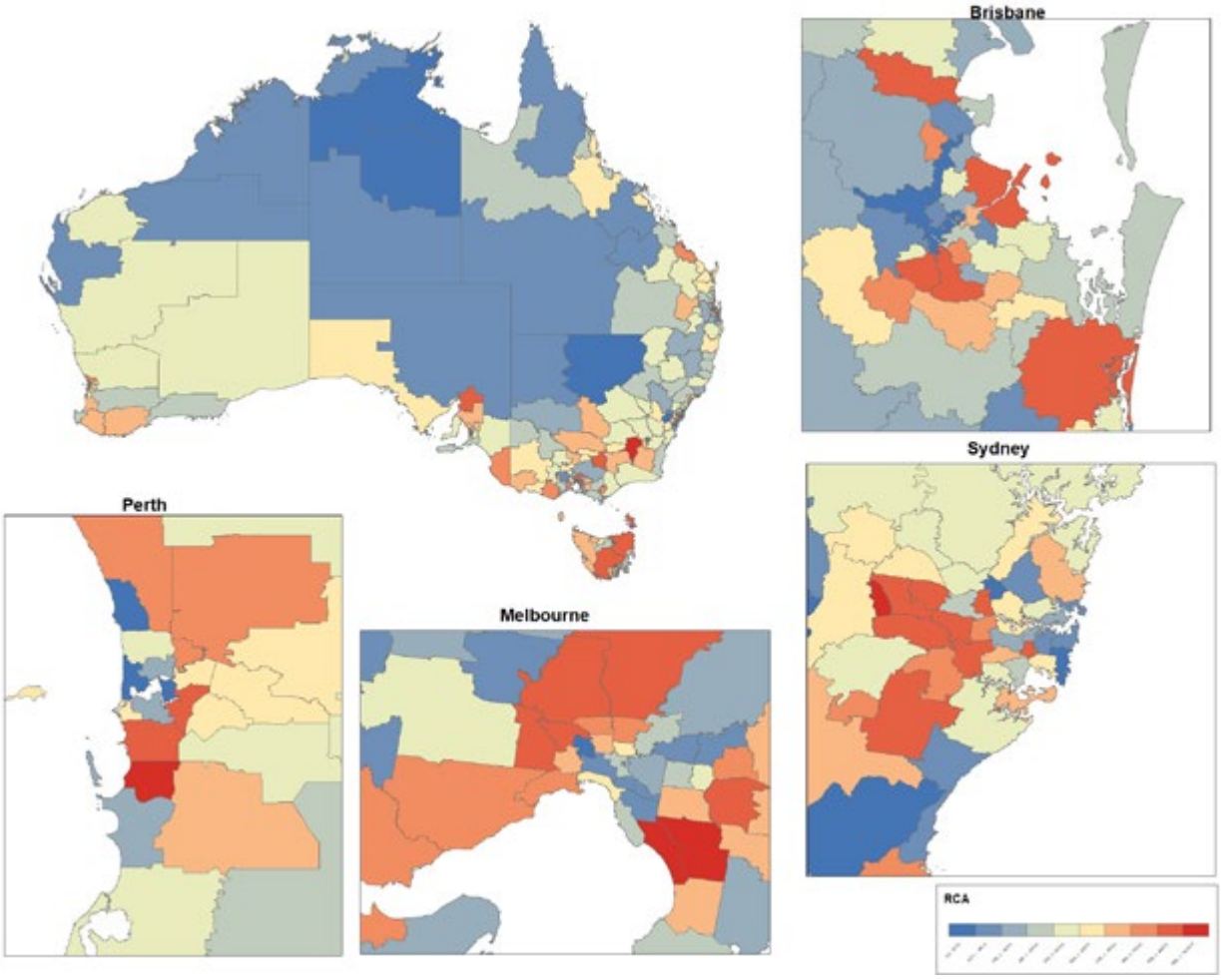
The regional industry analysis used to generate projections of industry growth in the Canning Vale area provide an indication of existing strengths and potential opportunities.

This section discusses the Canning Vale industrial precinct's existing strengths and how it could help to support growth of a diversified range of industries in the area. Diversified growth provides resilience to the local economy and supports wider state government objectives. This section also discusses the current advantages of the food value add industries already present in the area.

One of the main economic indicators that help us understand the advantages of each region is the relative comparative advantage (RCA). It describes the level of employment of a region relative to the average of Australian regions. When this index is higher than 1, this indicates that the industry is a strength in the given location. The higher the RCA, the higher the advantage. This index provides a good indication of the existing capabilities in the regions upon which new industries can build.

The Canning Vale industrial area has numerous strengths, especially in the food value add industry. This is evidenced in Figure 17, which shows the relative comparative advantage of Australian regions at the SA3 level. The employment data already provides a good indication of the strength of the Canning Vale area in the food value add industry. The RCA results confirm the significant impact of this sector in the Canning Vale precinct, in fact it shows that Canning Vale has three times the average of employment of a typical Australian region. This is also true when we look at the whole City of Canning, although in this case the advantage decreases to two times the average.

FIGURE 17: Relative comparative advantage per region, Australia and WA




Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

TABLE 4: Top food value add industries by relative comparative advantage, Canning Vale industrial area

| Industry | Competetive Advantage | Strategic Gain | Ubiquity | Feasibility | Employed Persons |
|---|---|---|---|---|---|
| General Line Grocery Wholesaling | 47.3 | 61.1 | 154 | 49.4 | 396 |
| Fruit and Vegetable Wholesaling | 46.2 | 37.1 | 265 | 45.0 | 491 |
| Grocery Liquor and Tobacco Product Wholesaling nfd | 17.0 | 69.2 | 141 | 49.4 | 22 |
| Specialised Food Retailing nfd | 16.2 | 57.3 | 39 | 41.9 | 4 |
| Basic Material Wholesaling nfd | 13.3 | 52.6 | 42 | 42.9 | 3 |
| Liquor and Tobacco Product Wholesaling | 12.3 | 47.0 | 252 | 39.5 | 55 |
| Bread Manufacturing Factory based | 11.1 | 22.6 | 803 | 19.8 | 353 |
| Seafood Processing | 10.5 | 36.8 | 110 | 41.5 | 20 |
| Fruit and Vegetable Retailing | 10.5 | 23.9 | 665 | 13.1 | 198 |
| Other Grocery Wholesaling | 10.3 | 44.1 | 486 | 49.2 | 296 |
| Other Goods Wholesaling nfd | 9.6 | 75.0 | 68 | 49.0 | 5 |
| Fish and Seafood Wholesaling | 9.4 | 49.1 | 200 | 48.9 | 29 |
| Meat and Meat Product Manufacturing nfd | 8.4 | 50.4 | 70 | 48.7 | 6 |
| Wholesale Trade nfd | 5.3 | 44.9 | 547 | 47.0 | 103 |
| Potato Corn and Other Crisp Manufacturing | 4.6 | 66.9 | 25 | 52.9 | 8 |
| Food Product Manufacturing nfd | 4.2 | 43.4 | 439 | 45.1 | 56 |
| Meat Poultry and Smallgoods Wholesaling | 4.1 | 43.3 | 342 | 45.5 | 33 |
| Manufacturing nfd | 4.0 | 44.5 | 607 | 48.1 | 277 |
| Other Store Based Retailing nfd | 3.9 | 45.2 | 401 | 36.5 | 14 |
| Cereal Pasta and Baking Mix Manufacturing | 3.0 | 53.4 | 138 | 48.4 | 16 |
| Fruit and Vegetable Processing | 2.1 | 37.2 | 250 | 45.0 | 22 |
| Accommodation and Food Services nfd | 1.9 | 36.1 | 337 | 15.5 | 5 |
| Food Retailing nfd | 1.8 | 32.1 | 658 | 29.0 | 13 |
| Beer Manufacturing | 1.5 | 43.0 | 185 | 40.4 | 8 |
| Biscuit Manufacturing Factory based | 1.4 | 49.4 | 93 | 49.9 | 5 |
| Other Food Product Manufacturing nec | 1.4 | 41.8 | 304 | 43.0 | 19 |
| Fresh Meat Fish and Poultry Retailing | 1.3 | 22.0 | 1,059 | 15.1 | 37 |
| Soft Drink Cordial and Syrup Manufacturing | 1.2 | 48.5 | 160 | 46.3 | 11 |

Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

The Table 4 shows the extent of relative comparative advantage for the top 20 food value add industries. General line grocery wholesaling and food and vegetables wholesaling have by far the largest RCA of any industry. The RCA of these industries is close to 47, which means that the Canning Vale industrial area, has 47 times more employment in each of these industries than that in the average Australian SA2. Other types of wholesaling such as grocery, liquor and tobacco products, fish and seafood, and meat poultry among others also appear to have a substantial comparative advantage in the precinct.

These results offer crucial support for the food value add precinct in Canning Vale. It highlights the important share of food products that already transit through the industrial precinct and also shows the substantial role played by Canning Vale in centralising food related commodities and creating a critical mass. This is vital to develop this industry further as well as to create significant economies of scale. These results conclusively show that Canning Vale is a central location for the food industry.

These are not the only commodities that show strong results in the Canning Vale area; food manufacturing also pulls its weight, with bread manufacturing, seafood processing, meat product manufacturing, potato, corn and other food production manufacturing being among the best performers. All of the above industries have at least an RCA of 4, which means that there are at least four times more people employed in this sector in Canning Vale than in the average Australian region.

TABLE 5: Top industries by relative comparative advantage, Canning Vale industrial precinct

| Industry | Competetive Advantage | Strategic Gain | Ubiquity | Feasibility | Employed Persons |
|---|---|---|---|---|---|
| Metal Container Manufacturing nfd | 177.5 | 83.7 | 8.0 | 69.8 | 13 |
| General Line Grocery Wholesaling | 47.3 | 61.1 | 154.0 | 49.4 | 396 |
| Fruit and Vegetable Wholesaling | 46.2 | 37.1 | 265.0 | 45.0 | 491 |
| Natural Rubber Product Manufacturing | 42.5 | 78.2 | 51.0 | 54.2 | 26 |
| Industrial Gas Manufacturing | 31.6 | 63.9 | 116.0 | 50.3 | 107 |
| Sheet Metal Product Manufacturing* | 31.3 | 67.2 | 159.0 | 50.9 | 126 |
| Other Goods and Equipment Rental and Hiring nfd | 24.6 | 70.8 | 97.0 | 49.6 | 17 |
| Public Order and Safety Services nfd | 24.4 | 68.7 | 69.0 | 44.2 | 12 |
| Other Specialised Industrial Machinery and Equipment Wholesaling | 24.1 | 57.5 | 253.0 | 49.0 | 316 |
| Aluminium Rolling Drawing Extruding | 22.9 | 72.4 | 96.0 | 50.1 | 57 |
| Furniture Floor Covering and Other Goods Wholesaling nfd | 22.8 | 70.9 | 144.0 | 49.9 | 33 |
| Other Fabricated Metal Product Manufacturing nfd | 20.5 | 68.5 | 111.0 | 51.9 | 18 |
| Pump and Compressor Manufacturing | 19.5 | 63.6 | 131.0 | 49.6 | 61 |
| Hardware Building and Garden Supplies Retailing nfd | 19.2 | 71.3 | 27.0 | 51.9 | 3 |
| Other Mining Support Services | 18.7 | 37.3 | 250.0 | 44.4 | 217 |
| Other Fabricated Metal Product Manufacturing nec | 18.2 | 57.2 | 285.0 | 49.4 | 122 |
| Rental and Hiring Services except Real Estate nfd | 17.9 | 55.6 | 278.0 | 47.5 | 47 |
| Architectural Aluminium Product Manufacturing | 17.1 | 55.6 | 244.0 | 50.9 | 147 |
| Other Motor Vehicle and Transport Equipment Rental and Hiring | 17.0 | 52.8 | 243.0 | 47.3 | 57 |
| Mining and Construction Machinery Manufacturing | 17.0 | 56.0 | 203.0 | 48.0 | 116 |
| Grocery Liquor and Tobacco Product Wholesaling nfd | 17.0 | 69.2 | 141.0 | 49.4 | 22 |
| Structural Metal Product Manufacturing nfd | 16.2 | 69.5 | 83.0 | 53.0 | 13 |
| Specialised Food Retailing nfd | 16.2 | 57.3 | 39.0 | 41.9 | 4 |
| Printing and Printing Support Services nfd | 15.7 | 70.5 | 62.0 | 50.4 | 7 |
| Metal Furniture Manufacturing | 15.7 | 73.0 | 74.0 | 51.5 | 14 |
| Steel Pipe and Tube Manufacturing | 15.3 | 77.0 | 73.0 | 50.8 | 11 |
| Other Hardware Goods Wholesaling | 14.5 | 37.6 | 645.0 | 47.3 | 431 |
| Scientific Testing and Analysis Services | 14.3 | 36.0 | 465.0 | 44.4 | 262 |

Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

However, although the Canning Vale industrial precinct seems to specialise in food related industries, other type of industries also stand out. The Table 5 shows us the RCA of all industries regardless of whether they are linked to the food industry or not. The most significant finding is the strong performance of other manufacturing industries specifically those related to metal transformation and machinery manufacturing.

Despite these sectors not being directly associated with food value add products, they certainly complement them and increase the overall industry network of the Canning Vale precinct. Moreover, the RCA values of scientific testing and analysis show that a large proportion of the workforce in this area is highly qualified, resultantly increasing the economic benefits from new upcoming sectors. A diversified economy increases the opportunities for new companies to be created and to evolve. Furthermore, industries in which the strategic gain is high can only emerge in places with large company networks and specialised skills. What we observe here is the evidence of these different types of industries.

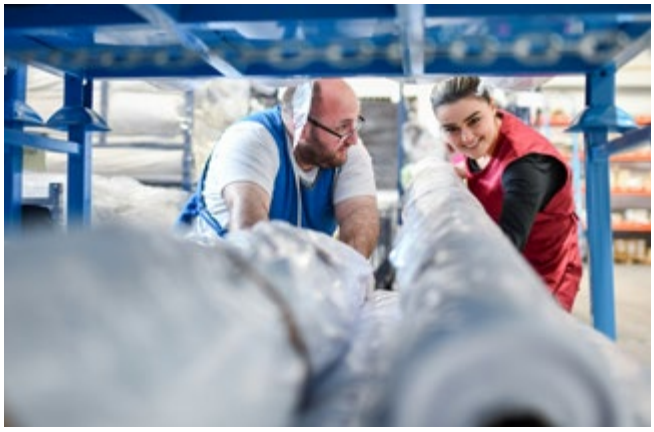
Next to the comparative advantage is the strategic gain of each industry. The strategic gain demonstrates how much the economy gains with the introduction of this sector. The higher the strategic gain, the higher the value added of the product and the higher the price. These would be considered the key industries to develop as they would be complex and often niche, causing competition for these products to be low.

Among the food value add products, wholesaling seems to have the largest strategic gain. This gain is likely to be from the centralisation of products in a unique location. On the other hand, when we look at all sectors in the Canning Vale precinct most of the manufactured products have very high strategic gains. This is because these companies need more inputs and skill to produce a commodity, increasing their value add. Even if food value added products have higher strategic gains than the raw products, their transformation does not require as much specialised processes as those of other manufacturing products.

Wholesaling has been strongly leveraged for strategic gain in China, as evidenced in the city of Guangzhou. Guangzhou is a strong area for textile and clothing production, and the city has developed a vast range of wholesale markets all focusing solely on textiles and clothing. For example, the Guangzhou China Fabrics & Accessories Centre is one of the largest textile centres in Asia at 310,000m$^2$ with over 4,000 stores, with Guangzhou Textile Exchange Park and Changjiang Fabrics & Accessories Centre each holding over 1,500 stores each. The focus on textile wholesaling has strongly contributed to Guangzhou having the 26$^{th}$ highest GRP (gross regional product) amongst all Asian and United States cities in 2015.[9]

Wholesaling can also be leveraged for strategic gain with respect to food products. In Delhi, a street market known as Khari Bholi is renowned for wholesale grocery and food products such as rice and tea. Neighbouring Khari Bholi is the Gadodia Market, which is now the largest spice wholesaler in the world.[10] The effect of these two markets being close together is that the area is now a constantly busy commercial district with a constant flow of traders and shoppers.

The examples of Delhi and Guangzhou demonstrate how a concentrated focus on a subset of wholesaling such as food or textiles can result in strong commercial activity and industry growth within a city. The Canning Vale industrial precinct would be strongly positioned to capitalise on their comparative advantage in food wholesaling through the addition of a food value add precinct.



## Wide variety of industries

A healthy economy is an economy that does not rely heavily on a handful of goods. The overall WA economy is extremely concentrated. Most of WA gross value add product and income is derived from the mining sector. The issue with this high reliance is that the economy is at the mercy of the volatility of commodity prices and trade wars. To avoid it, the pool of companies should be diversified, providing maximum protection against economic hazards.

So how concentrated or diverse are the networks of businesses in the Canning Vale industrial precinct? Figure 18 shows the diversity index of industries by SA3. As can be expected, the most diverse zones are those close to the city's CBD. Melbourne in particular is quite diversified as is the south west and north of Sydney and Brisbane CBD and south metropolitan area.

In WA regions the north of Perth CBD and the Melville area have some of the largest diversification indexes. Nevertheless, the City of Canning and the Canning SA3 have by far the largest diversification index across all jurisdictions in WA. Canning has the fourth most diverse number of industries in Australia, only behind Kingston, Dandenong and Knox. This remains true when the analysis is done at the SA2 level, where the Canning Vale industrial precinct ranks 17 across Australia and only third in the state after Malaga and Welshpool.

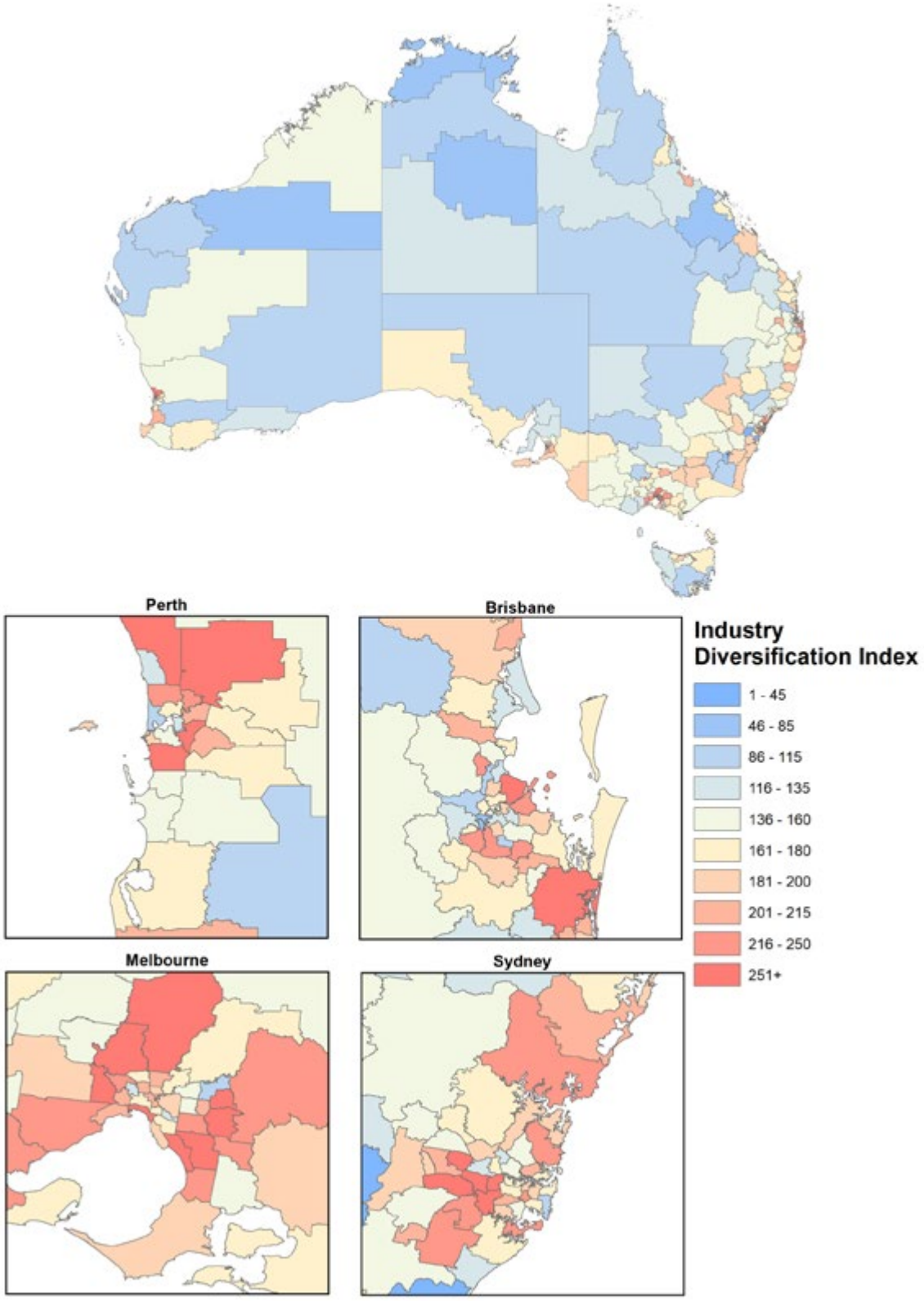
This diversity of industries in the precinct is crucial to enable the development of niche and complex sectors with significant economic strategic gains. A healthy network of businesses will act as a catalyst for start-ups, will further increase the profitability of some firms and allow for gains in productivity and declining costs.

The main take away is the enormous potential in the Canning Vale industrial precinct. This area can be seen as an incubator for new industries, for both food value add businesses as well as for the manufacturing sector more broadly. Companies are attracted to places where agglomeration effects are important, location is not chosen at random. The diversification of industries in Canning Vale makes it an excellent candidate as a location to develop additional value added products.

9 Japan Centre for Economic Research (2018), Emerging cities, sinking cities in Asia, JCER, available at https://www.jcer.or.jp/english/emerging-cities-sinking-cities-in-asia-by-2030.

10 On the Grid (2019), Gadodia Market, available at https://onthegrid.city/new-delhi/old-delhi/gadodia-market.

FIGURE 18: Industry diversification index by SA3, Australia and WA




Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

## High inter-connectedness in food value add industries

The setup of any new industry involves risk, but risk can be minimised by building on Canning Vale's existing capabilities. To do so, it is necessary to know what opportunities are most feasible given the current capabilities of the regions. The concept of relatedness helps to do so by revealing the closest related industries or technologies to existing comparative advantages.

Relatedness shows how closely related two industries are to one another, in terms of their tendency to be geographically co-located across Australia. This measure ultimately explains how feasible the development of an industry is within the Canning Vale industrial precinct. It is a proxy of the success rate of industry creation.

TABLE 6: Top industries by feasibility status, food value add products, Canning Vale industrial precinct

| Industry | Competetive Advantage | Strategic Gain | Ubiquity | Feasibility | Employed Persons |
|---|---|---|---|---|---|
| Potato Corn and Other Crisp Manufacturing | 52.9 | 66.9 | 25.0 | 4.6 | 8 |
| Other Food Product Manufacturing nfd | 52.8 | 72.6 | 12.0 | 0.0 | 0 |
| Bakery Product Manufacturing nfd | 50.2 | 69.5 | 53.0 | 0.0 | 0 |
| Biscuit Manufacturing Factory based | 49.9 | 49.4 | 93.0 | 1.4 | 5 |
| General Line Grocery Wholesaling | 49.4 | 61.1 | 154.0 | 47.3 | 396 |
| Grocery Liquor and Tobacco Product Wholesaling nfd | 49.4 | 69.2 | 141.0 | 17.0 | 22 |
| Other Grocery Wholesaling | 49.2 | 44.1 | 486.0 | 10.3 | 296 |
| Other Goods Wholesaling nfd | 49.0 | 75.0 | 68.0 | 9.6 | 5 |
| Fish and Seafood Wholesaling | 48.9 | 49.1 | 200.0 | 9.4 | 29 |
| Cured Meat and Smallgoods Manufacturing | 48.9 | 51.6 | 136.0 | 0.0 | 0 |
| Beverage Manufacturing nfd | 48.7 | 70.7 | 44.0 | 0.0 | 0 |
| Meat and Meat Product Manufacturing nfd | 48.7 | 50.4 | 70.0 | 8.4 | 6 |
| Poultry Processing | 48.4 | 34.1 | 176.0 | 0.4 | 7 |
| Cereal Pasta and Baking Mix Manufacturing | 48.4 | 53.4 | 138.0 | 3.0 | 16 |
| Manufacturing nfd | 48.1 | 44.5 | 607.0 | 4.0 | 277 |
| Wholesale Trade nfd | 47.0 | 44.9 | 547.0 | 5.3 | 103 |
| Ice Cream Manufacturing | 46.9 | 51.4 | 81.0 | 0.0 | 0 |
| Oil and Fat Manufacturing | 46.9 | 56.1 | 85.0 | 0.0 | 0 |
| Soft Drink Cordial and Syrup Manufacturing | 46.3 | 48.5 | 160.0 | 1.2 | 11 |
| Sugar and Confectionery Manufacturing nfd | 46.0 | 52.6 | 4.0 | 0.0 | 0 |
| Confectionery Manufacturing | 45.9 | 46.6 | 174.0 | 0.0 | 0 |
| Cheese and Other Dairy Product Manufacturing | 45.8 | 36.7 | 150.0 | 0.2 | 3 |
| Meat Poultry and Smallgoods Wholesaling | 45.5 | 43.3 | 342.0 | 4.1 | 33 |
| Food Product Manufacturing nfd | 45.1 | 43.4 | 439.0 | 4.2 | 56 |
| Fruit and Vegetable Wholesaling | 45.0 | 37.1 | 265.0 | 46.2 | 491 |
| Fruit and Vegetable Processing | 45.0 | 37.2 | 250.0 | 2.1 | 22 |
| Dairy Produce Wholesaling | 44.9 | 54.5 | 134.0 | 0.0 | 0 |
| Beverage and Tobacco Product Manufacturing nfd | 44.7 | 74.6 | 7.0 | 0.0 | 0 |

Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

Table 6 and Table 7 show the most feasible industries to develop given the current industrial park in the Canning Vale industrial precinct. This index ranges from 0 to 100, with 100 meaning the precinct has 100 per cent of the industries necessary to create the given product. Interestingly, it seems that the overall capabilities for the development of food value add products is already significant. All of the top 20 food values add industries have a feasibility index of 45 or higher. Hence, of all the industries necessary for the development of the food value add products, the Canning Vale industrial precinct already has more than 45 per cent of the capabilities necessary. This is especially true for the wholesaling and the manufacturing sector on the food value add domain.

This figure is outstanding specifically when one seeks to develop food value add businesses in the area. Canning Vale does not only have a significant advantage in this sector but also the capabilities to do so. The precinct will not be starting from the scratch but instead would be building on its current strengths. This is the Smart Specialisation approach, where a region should always build on existing capabilities otherwise companies might not be naturally attracted to the region. If this is true the government support and resources would be required to attract firms and for projects to succeed.

Other than food value add products, the Canning Vale industrial area has substantial feasibility in the development of other manufactured goods. Notably metal container manufacturing, basic chemical manufacturing and textile and metal manufacturing.

TABLE 7: Top industries by feasibility status, all products, Canning Vale industrial precinct

| Industry | Feasibility | Strategic Gain | Ubiquity | Competetive Advantage | Employed Persons |
|---|---|---|---|---|---|
| Metal Container Manufacturing nfd | 69.8 | 83.7 | 8.0 | 177.5 | 13 |
| Basic Chemical Manufacturing nfd | 62.8 | 80.4 | 3.0 | 0.0 | 396 |
| Motor Vehicle Parts and Tyre Retailing nfd | 61.4 | 81.8 | 5.0 | 0.0 | 491 |
| Mineral Metal and Chemical Wholesaling nfd | 60.0 | 80.2 | 8.0 | 0.0 | 26 |
| Other Professional Scientific and Technical Services nfd | 59.4 | 59.3 | 2.0 | 0.0 | 107 |
| Specialised Industrial Machinery and Equipment Wholesaling | 58.6 | 80.2 | 10.0 | 0.0 | 126 |
| Petroleum and Coal Product Manufacturing nfd | 58.2 | 78.1 | 13.0 | 0.0 | 17 |
| Basic Non Ferrous Metal Product Manufacturing nfd | 57.7 | 75.6 | 16.0 | 0.0 | 12 |
| Domestic Appliance Manufacturing nfd | 57.1 | 100.0 | 5.0 | 0.0 | 316 |
| Textile Manufacturing nfd | 57.0 | 70.1 | 9.0 | 0.0 | 57 |
| Fertiliser and Pesticide Manufacturing nfd | 56.9 | 68.5 | 4.0 | 0.0 | 33 |
| Iron and Steel Forging | 56.6 | 73.6 | 22.0 | 0.0 | 18 |
| Paper Bag Manufacturing | 56.6 | 86.2 | 19.0 | 10.0 | 61 |
| Waste Treatment Disposal and Remediation Services nfd | 56.1 | 78.5 | 24.0 | 0.0 | 3 |
| Ceramic Product Manufacturing nfd | 55.6 | 71.4 | 14.0 | 0.0 | 217 |
| Prefabricated Wooden Building Manufacturing | 55.5 | 66.2 | 5.0 | 0.0 | 122 |
| Furniture and Other Manufacturing nfd | 55.1 | 65.8 | 4.0 | 0.0 | 47 |
| Nut Bolt Screw and Rivet Manufacturing | 54.9 | 79.8 | 43.0 | 6.5 | 147 |
| Textile Product Manufacturing nfd | 54.5 | 72.1 | 29.0 | 0.0 | 57 |
| Cleaning Compound and Toiletry Preparation Manufacturing nfd | 54.4 | 80.9 | 20.0 | 0.0 | 116 |
| Natural Rubber Product Manufacturing | 54.2 | 78.2 | 51.0 | 42.5 | 22 |
| Polymer Product and Rubber Product Manufacturing nfd | 54.2 | 82.9 | 58.0 | 8.8 | 13 |
| Polymer Foam Product Manufacturing | 54.1 | 77.3 | 60.0 | 4.6 | 4 |
| Other Construction Services nfd | 54.1 | 72.3 | 49.0 | 9.5 | 7 |
| Other Machinery and Equipment Manufacturing nfd | 54.0 | 79.9 | 26.0 | 0.0 | 14 |
| Pump Compressor Heating and Ventilation Equipment Manufacturing nfd | 53.9 | 84.2 | 8.0 | 0.0 | 11 |
| Trailer and Other Motor Vehicle Wholesaling | 53.7 | 79.1 | 54.0 | 4.4 | 431 |
| Non Ferrous Metal Casting | 53.4 | 70.0 | 19.0 | 0.0 | 262 |

Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

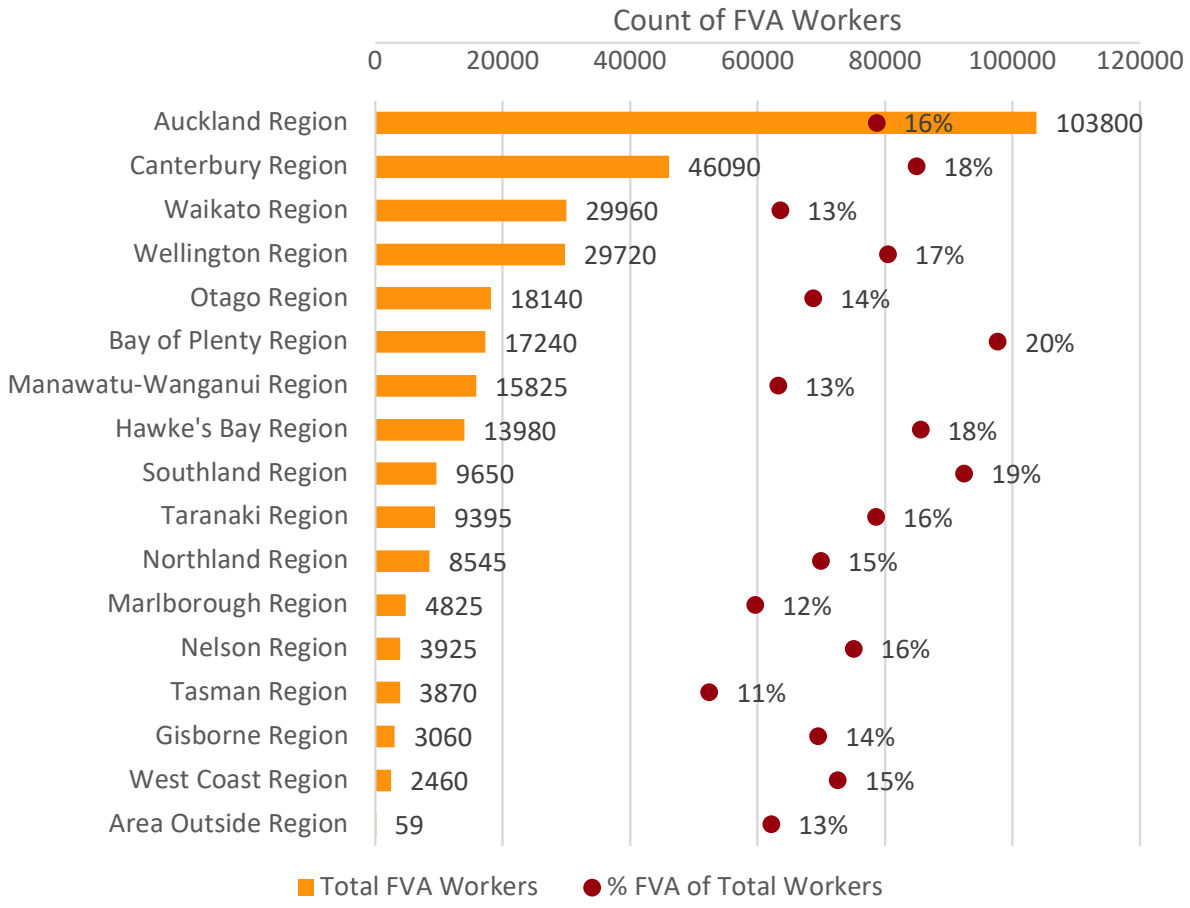

# CASE STUDY

# CASE STUDY

## The New Zealand example

Food value add forms an extremely important part of New Zealand's export base; with approximately NZ$29.4 billion of exports deriving from this sector, almost a third of the nation's total exports. The key products of interest consist of honey, fresh cheese, and cutting edge "innovative foods" that are yet to fall under direct classification.[11] Value add businesses primarily operate out of key logistics hubs primarily concentrated in Auckland which encompasses "nearly 3,000 food and beverage firms, and 50 per cent of the country's largest firms."[12] For example, Frucor is a major beverage manufacturer that is currently operating out of the suburb of Manukau producing drinks such as Just Juice and V which are then exported to nations across the Asia-Pacific region and beyond.[13]

FIGURE 19: Count and Per Cent of Total FVA Workers in New Zealand, by Region




Source: Bankwest Curtin Economics Centre | BCEC analysis using Stats NZ Census Data.

11 Coriolis (2017) Emerging Growth Opportunities in New Zealand Food & Beverage, Ministry for Primary Industries. Available at https://www.mbie.govt.nz/dmsdocument/2209-emerging-growth-opportunities-nz-food-beverage-pdf.

12 City of Auckland (2021) Value-add is the future of food exports, Auckland Unlimited, https://www.aucklandnz.com/invest/news/value-add-future-food-exports.

13 City of Auckland (2020) Frucor: Preparing for long-term growth, Auckland Unlimited, https://www.aucklandnz.com/invest/success-stories/frucor.

Much like Western Australia, horticultural industries such as kiwifruit and apples are an important part of New Zealand's exports, with $6.4 billion worth of produce in 2019 and a growth rate close to 65 per cent in the last 10 years.[14] As a part of the government's innovation plan, high-value innovative robotics technologies are in the process of being integrated into the horticulture production process aiming to address labour supply issues and create more innovative industries in both the agriculture and food value add sector.

Domestic industries are not just the sole benefactors of a food value add precincts as these hubs also serve both as key import locations as well as targets for foreign direct investment. For example, Yili Industrial Group Company Limited is a Mongolian diary producer focusing on the Chinese market with an extensive investment into processing in New Zealand.[15] As dairy products often need to remain fresh, minimising travel time is an extremely important factor of production. Hence, New Zealand's position in the Asia-Pacific market made it a strong choice for a value add investment. This is also the reason why a food value add precinct in Canning Vale could prove to be a valuable endeavour due to West Australia's relative proximity to export partners such as Indonesia and Malaysia. This allows for fresher horticultural exports to reach these key destinations faster.

Finally, beyond the organisational factors that play into Auckland's distribution hubs, value add and "agritech" innovation is now the current target for the New Zealand government's agribusiness investment. Taking a "quality over quantity" approach to exports, this has increased and fostered the country's diversification lookout of the economy.[16] Government subsidised initiatives such as the New Zealand Food Innovation Network aim to spur research and development into new food products across the nation. Facilities such as the Foodbowl in Auckland enable growing agrifood businesses to experiment and develop new products in a highly effective manner because of their position in Auckland's value add hub.[17]

Hence, a similar innovation facility in Canning Vale could create new opportunities for growing agriculture and value add firms to expand their product lines in a manner that enables the Western Australian food and beverages industry to be more competitive both nationally and internationally.

14 Horticulture New Zealand (2021) About the horticulture industry in New Zealand, Horticulture New Zealand, https://www.hortnz.co.nz/about-us/.

15 City of Auckland (2021) Value-add is the future of food exports, Auckland Unlimited, https://www.aucklandnz.com/invest/news/value-add-future-food-exports.

16 Ministry of Business, Innovation, & Employment (2020) Agritech Industry Transformation Plan, New Zealand Government. Available at https://www.mbie.govt.nz/dmsdocument/11572-growing-innovative-industries-in-new-zealand-agritech-industry-transformation-plan-july-2020-pdf.

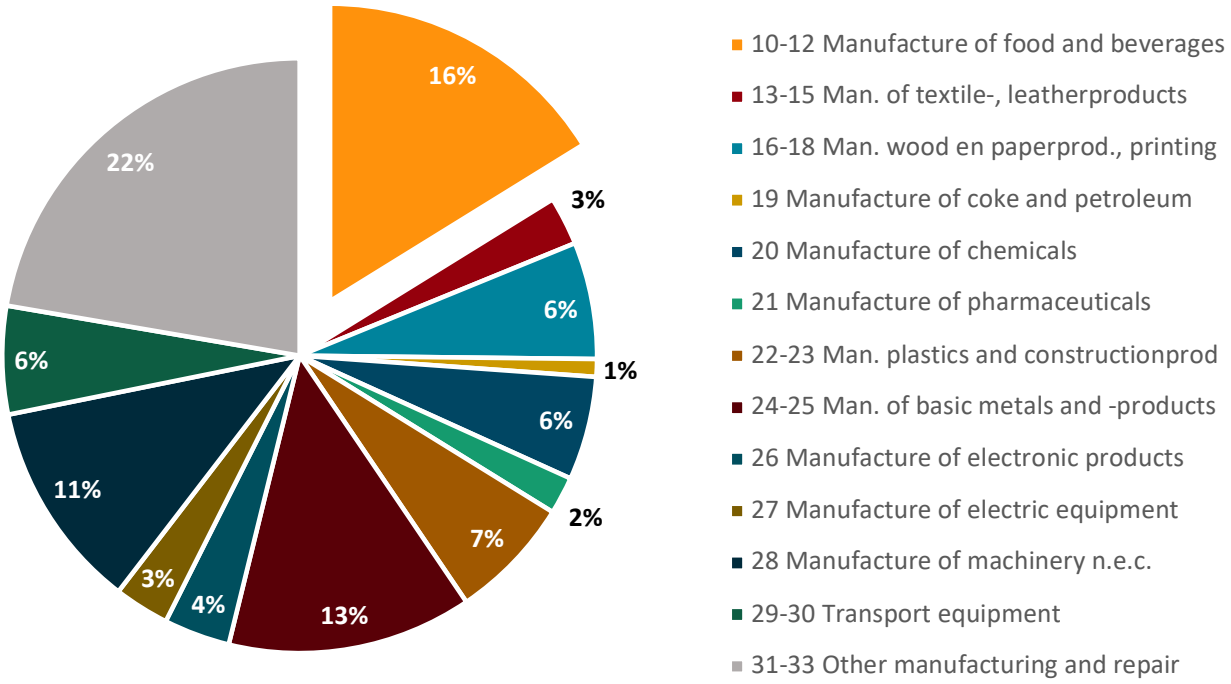
17 New Zealand Food Innovation Network (2021), The Foodbowl, New Zealand Food Innovation Network, https://foodinnovationnetwork.co.nz/locations/foodbowl.

## The Case of Netherlands

The Netherlands is one of the leading agricultural and horticultural exporters in the global market. The nation exported more than €94 billion worth of agricultural goods in 2019, to both the EU countries and markets further abroad such as China.[18] Horticulture forms the plurality of Dutch agricultural exports, focusing on products such as flowers, plant bulbs, and tree nursery product.

Nevertheless, the Netherlands also exports a noteworthy share of meat and dairy products as well.[19] There are over 6,930 food processing firms based in the Netherlands, however roughly 5,610 of these firms have less than 10 employees. Major global food value added businesses such as Coca Cola also have factories in the nation.[20] Food and beverage manufacturing workers also form a plurality of manufacturing workers in the Netherlands.[21]

FIGURE 20: Per cent of manufacturing workers in the Netherlands by industry sub sector




Source: Bankwest Curtin Economics Centre | BCEC analysis using CBS Open data StatLine.

18 Government of the Netherlands (2020), Dutch agricultural exports worth €94.5 billion in 2019, Government of the Netherlands, https://www.government.nl/latest/news/2020/01/17/dutch-agricultural-exports-worth-%E2%82%AC94.5-billion-in-2019.

19 CBS (2021), Agricultural exports staying rooted, Government of the Netherlands, https://www.cbs.nl/en-gb/news/2021/03/agricultural-exports-staying-rooted.

20 United States Department of Agriculture (2021) Food Processing Ingredients, Government of the United States. Available at https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Food%20Processing%20Ingredients_The%20Hague_Netherlands_03-30-2021.

21 CBS (2021), Employed labour force; economic activity (SIC 2008), Government of the Netherlands. Available at https://opendata.cbs.nl/statline/portal.html?_la=en&_catalog=CBS&tableId=82807ENG&_theme=1080.

One of the largest precincts focused on food value add industries in the Netherlands is located in the province of Gelderland which hosts the Netherlands' Food Valley platform, an independent program focused on food system innovation across retailers, investors, and researchers.[22] The province of Gelderland is the base of operations for over 1,510 international food firms and 20 research institutes;[23] including Wageningen University, one of the world's leading universities in agricultural and forestry research.[24]

Many international firms have a presence in Gelderland, including large food manufacturers such as Unilever. The latter has a long standing partnership with Wageningen University developing new equipment for food value add products and focusing on sustainable innovation such as new forms of recyclable packaging among many others.[25] For the value add precinct in Canning Vale, this could illustrate the importance of forming partnerships with large brands who have an interest in expanding their value add from or into Australia considering the advantage that WA has in terms of the proximity to the Asia-Pacific region.

What primarily separates a food innovation hub such as the Food Valley from something like the proposed value add precinct in Canning Vale is that the former is primarily focused on research and development of new products, whereas the latter is more focused on manufacturing and distribution. The innovation role can be played by the food innovation precinct constructed in the Peel region. The primary source of regional competitive advantage for the Canning Vale industrial area is in manufacturing industries which makes food value manufacturing somewhat more feasible for the commercial area compared to research and development. Whilst something akin to a future partnership with researchers at nearby institutions such as Curtin or Murdoch Universities could be an important avenue for food value research and development, at this stage Canning Vale industrial is in a better position to focus on manufacturing. The partnership and complementarity between the Peel food innovation precinct and a future food value add manufacturing precinct in Canning Vale is key for the development of the WA food sector as a whole.


22 Foodvalley (2021), About us, Foodvalley, https://www.foodvalley.nl/about-us/.

23 Invest in Holland (2021), Holland's Taste for Innovation, Netherlands Foreign Investment Agency, https://investinholland.com/news/hollands-taste-innovation/.

24 Wageningen University (2021), Why Wageningen?, Wageningen University and Research, https://www.wur.nl/en/wageningen-university/why-wageningen-university.htm.

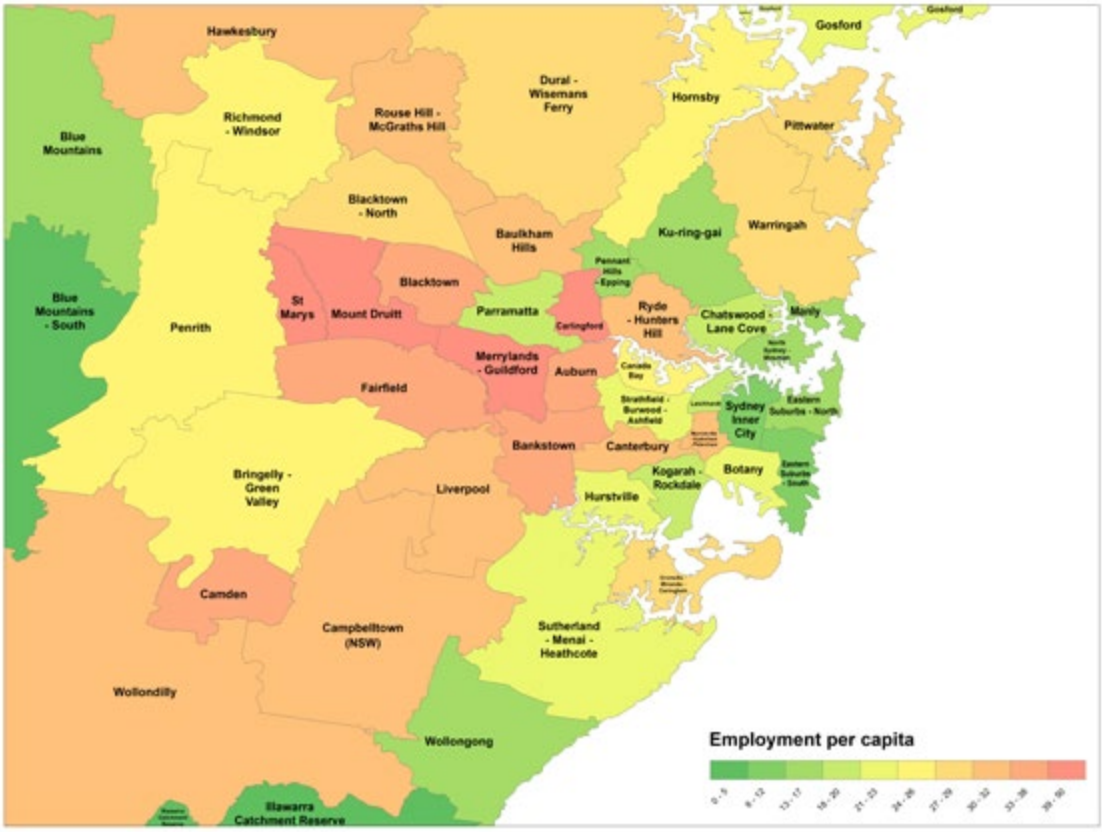
25 Wageningen University (2020), Six months of Unilever on Wageningen Campus, Wageningen University and Research, https://www.wur.nl/en/newsarticle/six-months-of-unilever-on-wageningen-campus.htm.

## The West Sydney airport

Western Sydney is one of Australia's main food value regions, with areas such as St Marys, Mount Druitt, Merrylands – Guildford, and Carlingford having a strong concentration of value add workers per capita, serving as the overall food value hub of New South Wales' agricultural sector.[26] Western Sydney is home to a wide variety of large food manufactures such as Arnott's, where products such as Tim Tams are manufactured in baking factories based in Huntingwood and Mount Druitt, alongside other baked goods and sweet snack foods.[27] Western Sydney's major role in NSW exports has led to the proposal for an airport to be constructed in the Bringelly – Green Valley area, which would potentially serve as an export hub in and out of the Western Sydney area.[28]

The Western Sydney airport is projected to have numerous economic benefits for a wide range of sectors across New South Wales including retail trade, manufacturing, wholesale trade, and accommodation and food services, all of which encompass the food value add industries.[29] Hence, the particular interest of the airport for the food value industry in the Western Sydney region. Analysts at KPMG predict that a theoretical fresh food precinct developed alongside the airport could create 12,000 value add jobs. This food value add precinct would focus on innovation and sustainable agricultural practices in an emulation of food hubs such as the Food Valley in the Netherlands,[30] taking advantage of nearby research institutions such as Western Sydney University and its Hawkesbury Agripark.[31]

FIGURE 21: Employment in FVA Industries per Capita by SA3, Sydney Area




Source: Bankwest Curtin Economics Centre | BCEC analysis using Census data.

26 NSW Farmers' Association (2018), Growing NSW's Food Economy – Linking Sydney and the Central West, NSW Farmers' Association. Available at https://www.nswfarmers.org.au/UploadedFiles/NSWFA/Poilcy%20Industry/NSWFAFoodEconomy.pdf.

27 Investment NSW (2021), Western Sydney Products, Government of NSW, https://invest.nsw.gov.au/invest/locate/western-sydney/western-sydney-products.

28 Department of Infrastructure, Transport, Regional Development and Communications (2021), About the airport, Government of Australia, https://www.westernsydneyairport.gov.au/about.

29 Department of Infrastructure, Transport, Regional Development and Communications (2017), Jobs for Western Sydney - Building Western Sydney airport, Government of Australia. Available at https://www.westernsydneyairport.gov.au/sites/default/files/booklet-jobs_for_western_sydney.pdf.

30 KPMG (2017), Think big, think fresh, NSW Farmers Association. Available at https://assets.kpmg/content/dam/kpmg/au/pdf/2017/western-sydney-fresh-food-precinct.pdf.

31 Investment NSW (2021), Food and Agribusiness, Government of NSW, https://invest.nsw.gov.au/invest/locate/western-sydney/opportunities/food-and-agribusiness.

The opening of an agribusiness precinct alongside the airport also presents a number of exciting opportunities for foreign direct investment into the Western Sydney area and local food value businesses. One major foreign firm with a significant presence in Western Sydney is Asahi Breweries, from Tokyo, Japan, an alcoholic beverage producer. Asahi owns a sizeable manufacturing and distribution centre in Huntingwood, Mount Druitt[32]; as well as a significant investment in other local beverage firms including the recent acquisition of Carlton and United Breweries.[33] In the same manner that the airport could enable exports of domestic products to international markets, it also presents the opportunity for foreign exporters to bring in new products for Australian consumers.

The Canning Vale industrial area is also in close proximity to Jandakot Airport and Perth airport, providing similar advantages to the Western Sydney airport precinct. The Western Sydney Airport is intended to serve as a full service airport capable of operating in domestic, international, and freight flight services.[34] This provides an advantage on the exports of produce and food value added products to international markets, making the Western Sydney airport precinct even more attractive. The location of Canning Vale could also offer similar benefits with the difference that Perth is even closer to the Asian markets compared to NSW.

## The Danish example

Denmark has a sizeable agricultural export industry and is one of the only nations in the Nordic-Baltic region with a net export of agricultural goods,[35] with an estimated output of 9,473 million Euros in 2020. Agricultural exports made up roughly 24 per cent of the nation's total exports,[36] their primary exports consisting of pork, milk, and cereals.[37] A sizeable share of the labour force is focused on the food value portions of manufacturing, wholesale, retail, and hospitality industries.[38] Similar to its European Union contemporary in the Netherlands, Denmark's agricultural sector has a strong focus on research, development, and innovation and the general value add process.

One of Denmark's primary food based value add districts is the "Agro Food Park", on the outskirts of Aarhus. Agro Food Park hosts more than 80 firms and 1,200 workers facilitating both the company and research sides of agriculture in Denmark. It fulfils a similar role in the economy to that of "Food Valley" in the Netherlands.[39] Firms involved in the Agro Food Park include SEGES who claim to be the leading research and innovation centre for agribusiness in Denmark, with a strong focus on improving agricultural sustainability and the development of new farming technologies.[40]

Around 20 per cent of the total value added in Danish food exports was attributed to foreign-controlled enterprises in 2014; but unlike the Food Valley in the Netherlands, Denmark lacks highly visible examples of giant foreign firms such as Coca-Cola or Unilever. One example of a prominent multinational firm in the park is Arla, a dairy cooperative of more than 12,000 farmers across seven European nations.[42]

Much like the Food Valley in the Netherlands, the Agro Food Park in Denmark is focused primarily on research and innovation rather than the proposed manufacturing angle being considered for the Canning Vale industrial area. However, one essential point of comparison would be the extensive infrastructure connections afforded to both the Denmark agricultural industry and the Canning Vale industrial value add precinct, with Denmark's exports being supported by the nation's extensive transport infrastructure through rail, ferry, and air connections, emphasising the important role that transport infrastructure can play in the performance of a theoretical value add precinct in Canning Vale.

32 Google Maps (2021), 27 Huntingwood Dr, Alphabet Corporation, https://goo.gl/maps/1YFDDv7AHmviK3MF9.

33 Carlton United Breweries (2020), Asahi completes CUB acquisition, CUB, https://cub.com.au/asahi-completes-cub-acquisition/.

34 Department of Infrastructure, Transport, Regional Development and Communications (2017), Western Sydney Airport, Government of Australia, https://www.westernsydneyairport.gov.au/.

35 International Trade Association (2019), Denmark – Agricultural Sector, Government of the United States of America, https://www.export.gov/apex/article2?id=Denmark-Agricultural-Sector.

36 Danish Agriculture & Food Council (2019), Denmark – a Food and Farming Country Facts & Figures, Danish Agriculture & Food Council, available at https://agricultureandfood.dk/news-and-press/news/2020/facts-and-figures.

37 European Commission (2021), Statistical Factsheet Denmark, European Union. Available at https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/farming/documents/agri-statistical-factsheet-dk_en.pdf.

38 Pernille Stender (2020), Average number of employed by period, sex, age, socioeconomic status, industry (DB07) and time, Statistics Denmark. Available at https://www.statbank.dk/statbank5a/default.asp?w=1920.

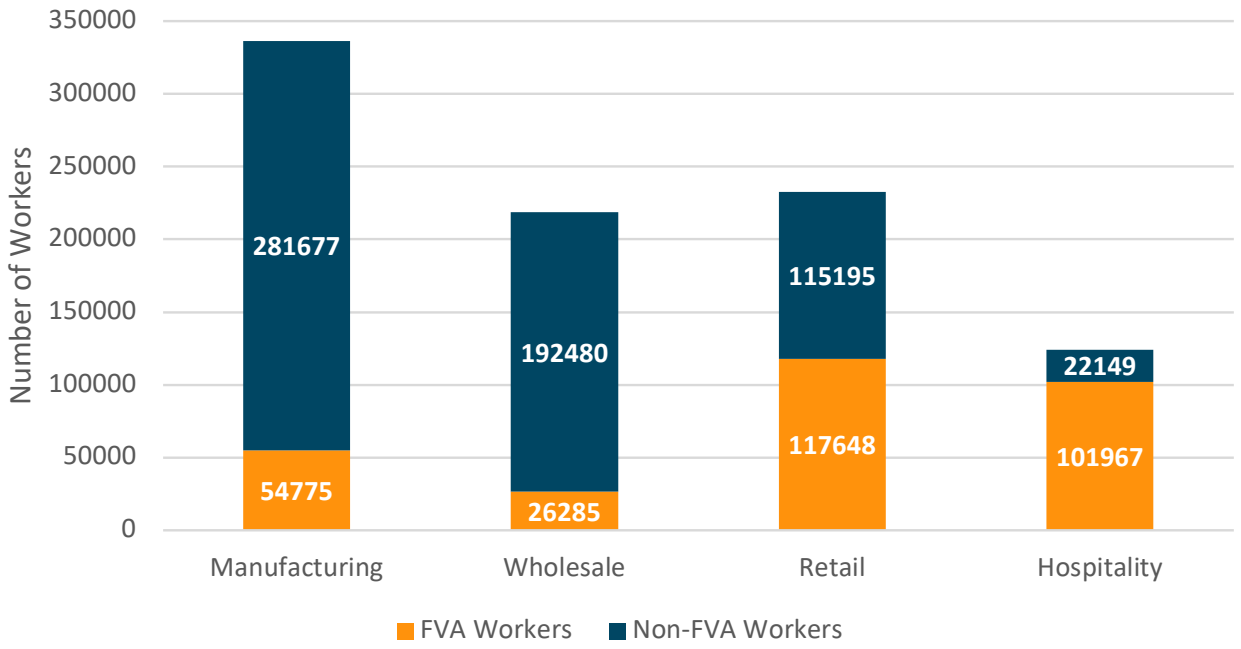
39 Agro Food Park (2021), What is Agro Food Park?, LANDBRUG & FØDEVARER F.M.B.A, https://www.agrofoodpark.com/about-agro-food-park/.

40 SEGES (2021), About Us, SEGES, https://en.seges.dk/About-us.

41 OECD (2017), Denmark Trade and Investment Statistical Note, OECD. Available at https://www.oecd.org/investment/Denmark-trade-investment-statistical-country-note.pdf.

42 Agro Food Park (2021), Arla Innovation Centre, LANDBRUG & FØDEVARER F.M.B.A, https://www.agrofoodpark.com/companies/arla-innovation-centre/.

FIGURE 22: Share of FVA Workers in Industry Sectors with a FVA Component in Denmark




Source: Bankwest Curtin Economics Centre | BCEC analysis using Statistics Denmark Data.

# ECONOMIC IMPACT ANALYSIS

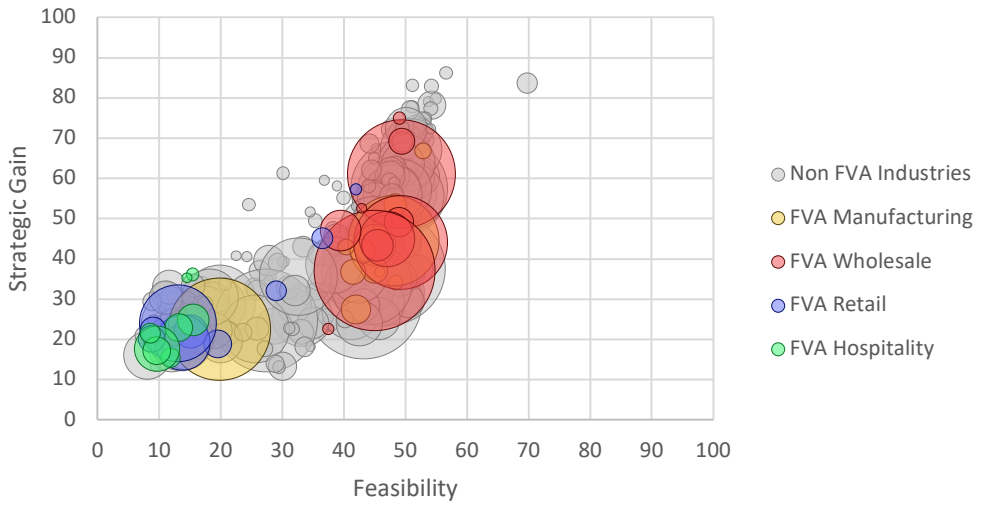
# ECONOMIC IMPACT ANALYSIS

The relative comparative advantage (RCA) and industry relatedness allows us to find the relatedness density of the different regions. The relatedness density for one sector identifies how many of that sector's related industries are already present in the area (such as it typical suppliers and customers). Therefore, this would allow for further development of start-ups in that sector. Hence, the relatedness density captures the capabilities of a given industry to develop further in a particular location.

The concept of relatedness density is vital, as it provides insights into which industries a region can target for development - those that relate to existing sectors but are not yet established locally. This will decrease the risk of diversification by building on current strengths. It is a more 'organic' growth rather than imposing a given industry in a random locality.

On the other hand, the strategic gain informs about the opportunities from which Canning Vale can benefit the most. Industries with high strategic gain produce very high value added products. These businesses often require an important network of companies in close proximity. These are strategic because the complexity of the products and processes mean that they have very niche and lucrative markets with very few competitors.

FIGURE 23: Overall industry feasibility and strategic gain, Canning Vale industrial precinct




Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.


In Figure 24 we show the revealed opportunities for the Canning Vale industrial precinct. The RCA indicates how mature these industries are in the area. A RCA smaller than one implies significant development opportunities, while a higher RCA implies that the industry is already mature with limited growth prospects. We plot these sectors against the feasibility for each industry to develop further in the Canning Vale industrial precinct given the current industry composition and the sector's strategic gain.

First of all, it is observed that wholesale retail is already an advantage in the precinct and that its further development may be difficult (bottom figure).

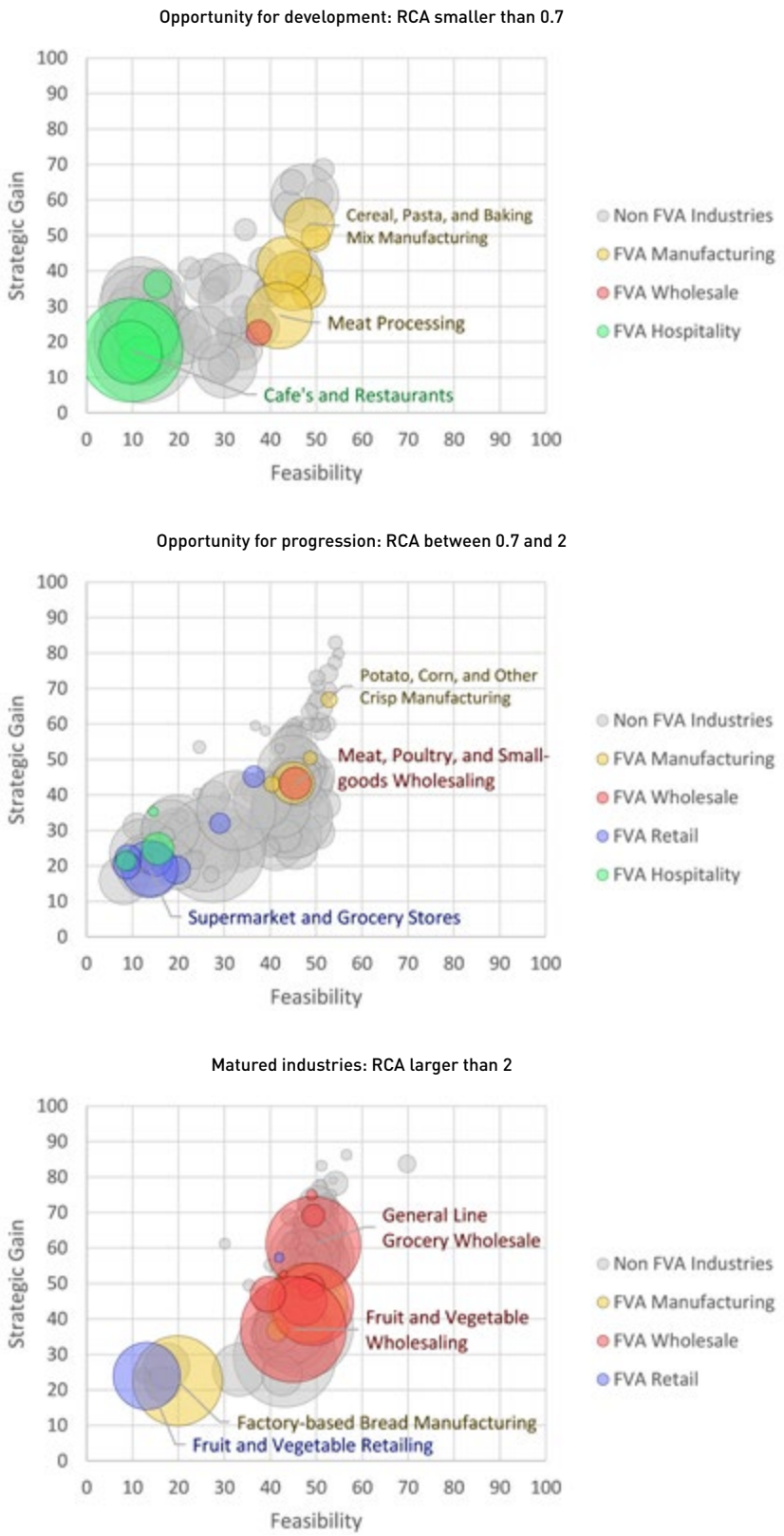
On the other hand, food value add (FVA) manufacturing appears to be a strong diversification opportunity. The majority of the sub-categories within FVA manufacturing have not yet matured, however the feasibility measure stands out. It would appear that a transition towards these industries would occur with relative ease. Additionally, the strategic gains are relatively high.

What this means is that the analysis reveals very interesting opportunities for food value add manufacturing products in the Canning Vale industrial area. The precinct already has a strong network of companies related to food value add products, therefore the creation of new businesses in this sector would be supported by this network making them much more likely to succeed.

Furthermore, the expected gain from diversifying into food value add manufacturing products is relatively high. This implies high returns from the sale of these products, a smaller number of competitors in the industry and an important strategic move for the City of Canning. The development of these industries will in turn attract more businesses to the area and increase the overall benefits to the local area.

The combination of the feasibility of production of the food value add product and the expected strategic gain from its development do appear as the strongest strategies for diversification in the Canning Vale industrial area. Overall, these data provide some indication of the economic potential from the further development of a food value add precinct in the Canning Vale area.

FIGURE 24: Revealed opportunities, Canning Vale industrial precinct




Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

## Economic impact evaluation of the Canning Vale food value add precinct

The food value add precinct would promote growth not only of food value businesses but also, more generally, of the overall industry base. In this section we show the *expected* economic impact of building a food value add precinct that takes into account this report's recommendations.

The economic impact is the result of developing the existing industries further but also the consequence of new industries entering the Canning Vale commercial precinct. We present the projections in terms of the compensation of employees, gross operation surplus and income from taxes. The sum of these three aspects represent the gross value added from the food value add precinct. The expected employment of these three scenarios is also presented below.

We consider three scenarios for the projected economic impact from developing the precinct:

- A conservative (low) estimate that limits the return on investment to a narrow scope of industry classes within the food value sector;
- A medium (mid) scenario that extends the economic impacts to a wider group of related industry classes beyond food value, including food retail, construction, transport and warehousing, and;
- A broad (high) scenario that extends the projected economic impacts to the broadest group of industry sectors, excluding only industry classes that are not feasible.

The principle underling these scenarios is that in the low scenario where investment is not high, the main repercussions of the precinct only extend to the food value add industries, in the mid scenario all other industries related to the food industry observe an impact and in the last one all feasible industries in Canning Vale are taken into account.

In order to estimate the potential growth of each sector, we hypothesise that, thanks to the food value add precinct, the industries in Canning Vale would grow from their current position to reach similar levels of growth than the second, fifth and tenth percentile of comparable regions with better economic performance in those industries.

This assumption reflects the efficiency with which the City of Canning successfully achieves the implementation of the report's recommendations. The better the City of Canning is at managing and operating the precincts the higher the relative comparative advantage level the industry can reach.

These projections also include an estimate of the likelihood of expansion based on the relatedness of industries to existing activity in Canning Vale and growth is based on comparable locations across Australia. We expand on the details of industries and growth later in the report.

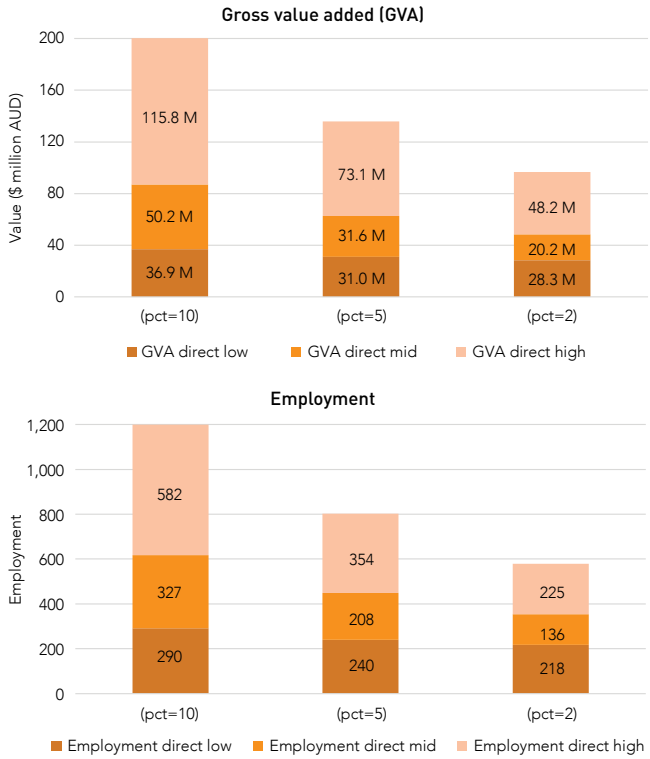
## Direct economic impact

Figure 25 shows the total direct impact of the Canning Vale food value add precinct for the different scenarios and hypothesis over a ten year horizon.

As its name indicates, the direct economic impact relates to the industries that are directly affected by the creation of a food value add precinct. The direct economic impact is equal to revenue less the value of the intermediate goods and services used in production. The remaining share of revenue is the value added by labour, capital and knowledge inputs into production.

In the first ten years of operation, the total direct GVA estimates range between $28.3m-$36.9m for the low scenario to $76.5m-$202.9m for the high scenario (quantity of investment). Employment would increase by 218-290 and 579-1,200 respectively. Evidently, depending on how well the City of Canning manages to implement the recommendations the resulting direct impact also differs. For instance, if we pick the mid scenario, going from the 5th to 10th percentile increases the direct GVA from $31m to $36.9m, for the low scenario from 240 to 290 the number of direct new workers.

FIGURE 25: Economic evaluation – direct impact under different scenarios, over a 10 year horizon

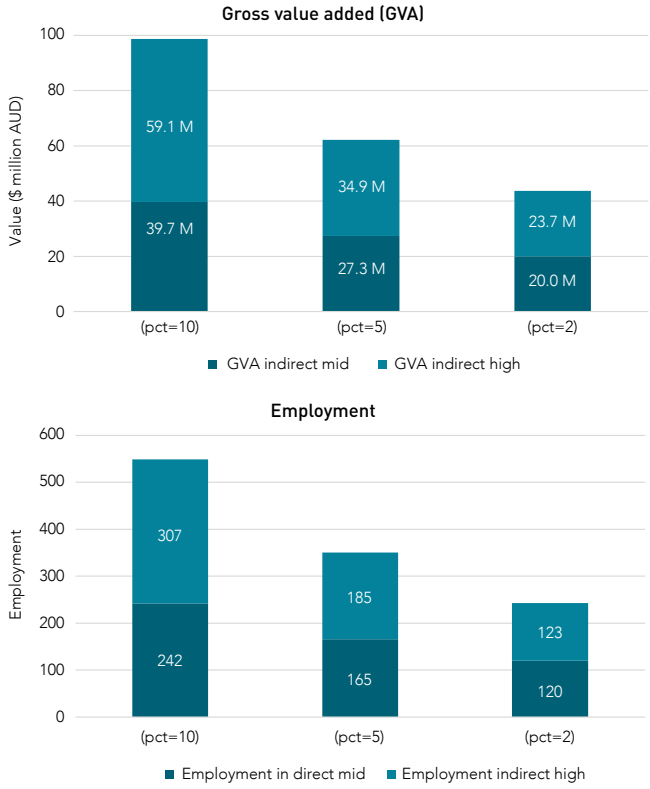



Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

## Indirect and induced economic impact

In Figure 26 we observe the indirect economic impact of the food value add precinct. The indirect economic contribution comes from the creation or expansion of new industries producing intermediate goods to businesses directly impacted by the food value add precinct. The most important source comes from the total value of the labour and capital inputs of the organisations producing the intermediate goods and services. The other source comes from its customers purchasing goods and services from other organisations as part of the process of purchasing goods and services.

FIGURE 26: Economic evaluation – indirect impact under different scenarios, over 10 year horizon

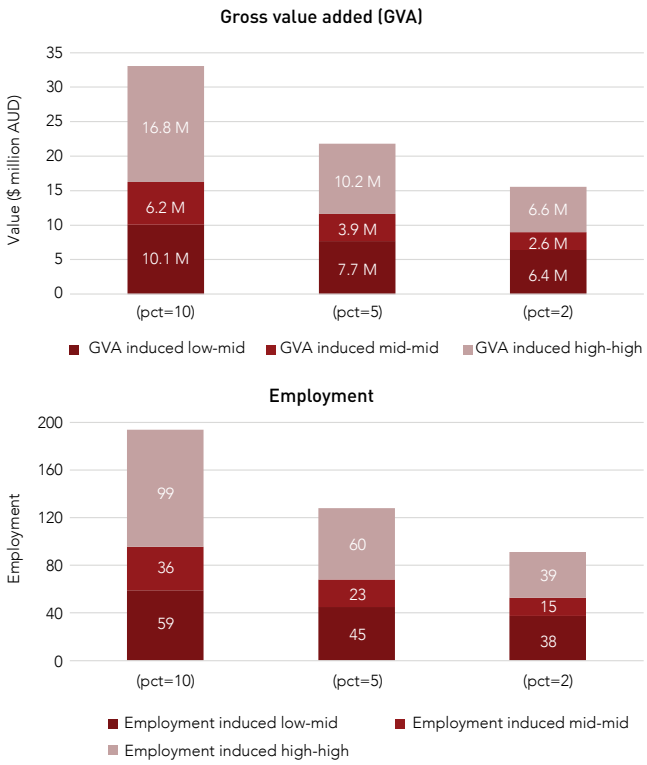



Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

Contrary to the direct contribution, the indirect effect can only be estimated for the mid and high scenario due to the restricted number of industries available in the input-output table. This prevents us from having a fine definition of all food value industries and as a result calculations are only possible for the broader categories of food value add products.

The results here demonstrate again that the overall gains in GVA depend on both the efficiency of the City of Canning to fruitfully apply the recommendations and the amount of investment put forward. In the ten year horizon, the Canning Vale industrial precinct can expect a total indirect impact ranging from $20.0m to $23.7m (2nd decile) depending on the level of investment and from $20.0m to 39.7m (mid scenario) depending on the efficiency of execution. Continued growth can be expected as well in the following years.

FIGURE 27: Economic evaluation – induced impact for different scenarios, 10 year horizon




Notes: The GVA and employment projections for induced impacts are based on Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.
Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

Finally, the induced economic impact reflects gains to businesses stemming from the consumption activities of new employees and their families. The projections of induced value derive from the estimated numbers of potential new jobs created through the direct and indirect impacts under different scenarios. Given the fact that the low scenario is unavailable for the indirect impact, the results of the induced contribution in Figure 27 for the low scenario is the combination of the low direct and the mid indirect employment contributions.

As with the previous contributions, the potential number of workers and GVA depend on the investment and efficiency levels. For instance, for the lowest combination of investment and local government efficiency the number of additional induced workers is 38, whilst with the highest combination level this figure reaches almost 100 new derived employees.

Our preferred estimates of the wider economic impacts supposes a comparative advantage increasing to the 5th percentile, which means average efficiency to implement policies. The detailed annual calculations for these assumptions are presented in Table 8 for the GVA calculations and in Table 9 for the employment values.

Direct GVA increases could be $3.1m-$13.6m in 2024 increasing to $31.0m-$135.7m in 2033 with continuing additional growth in subsequent years. Indirect GVA growth could be $1.4m-$6.2m in 2024 increasing to $13.5m-$62.2m in 2033 with continued growth. Induced GVA growth could be $0.8m-$2.2m in 2024 increasing to $7.7m-$21.8m in 2033. This implies an overall GVA increase of $5.2m-$22m in 2023 increasing to $52.2m-$219.7m in 2033.

**TABLE 8: Expected annual GVA in a 5th percentile scenario**

| | | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 10 Y NPV |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Low scenario | GVA direct low | $3.1 | $4.0 | $5.2 | $6.7 | $8.6 | $11.1 | $14.4 | $18.6 | $24.0 | $31.0 |
| | GVA indirect mid | $1.4 | $1.7 | $2.3 | $2.9 | $3.8 | $4.9 | $6.3 | $8.1 | $10.5 | $13.5 |
| | GVA induced low-mid | $0.8 | $1.0 | $1.3 | $1.7 | $2.1 | $2.8 | $3.6 | $4.6 | $5.9 | $7.7 |
| | **Total (low scenario)** | **$5.2** | **$6.7** | **$8.7** | **$11.2** | **$14.5** | **$18.8** | **$24.2** | **$31.3** | **$40.4** | **$52.2** |
| Mid scenario | GVA direct mid | $6.3 | $8.1 | $10.4 | $13.5 | $17.4 | $22.5 | $29.1 | $37.5 | $48.5 | $62.6 |
| | GVA indirect mid | $2.7 | $3.5 | $4.6 | $5.9 | $7.6 | $9.8 | $12.7 | $16.4 | $21.2 | $27.3 |
| | GVA induced mid | $1.2 | $1.5 | $1.9 | $2.5 | $3.2 | $4.2 | $5.4 | $7.0 | $9.0 | $11.6 |
| | **Total (mid scenario)** | **$10.2** | **$13.1** | **$16.9** | **$21.9** | **$28.3** | **$36.5** | **$47.1** | **$60.9** | **$78.6** | **$101.6** |
| High scenario | GVA direct high | $13.6 | $17.5 | $22.6 | $29.2 | $37.8 | $48.8 | $63.0 | $81.4 | $105.1 | $135.7 |
| | GVA indirect high | $6.2 | $8.0 | $10.4 | $13.4 | $17.3 | $22.4 | $28.9 | $37.3 | $48.2 | $62.2 |
| | GVA induced high | $2.2 | $2.8 | $3.6 | $4.7 | $6.1 | $7.8 | $10.1 | $13.1 | $16.9 | $21.8 |
| | **Total (high scenario)** | **$22.0** | **$28.4** | **$36.7** | **$47.3** | **$61.1** | **$79.0** | **$102.0** | **$131.7** | **$170.1** | **$219.7** |

Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

For the same scenarios as the GVA employment figures, employment figures follow similar paths. In 2024, a low case scenario would create close to 37 new jobs compared to 130 in the high scenario. Ten years later, the new employment figures would oscillate around 375 to 1,280 for low to high scenario. These figures include the sum of the direct, indirect and induced employment contributions.

In 2024, on average 60 per cent of expected jobs comes the direct contribution and this proportion remains constant throughout the ten years of this study. The proportion of new employment coming from the indirect and induced contribution is expected to reach on average 30 per cent and 10 per cent respectively.

**TABLE 9: Expected annual employment in a 5th percentile scenario**

| | | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 10 Y NPV |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Low scenario | FTE direct low | 24 | 31 | 40 | 52 | 67 | 86 | 111 | 144 | 186 | 240 |
| | FTE indirect mid | 9 | 11 | 15 | 19 | 25 | 32 | 41 | 53 | 69 | 89 |
| | FTE induced low-mid | 5 | 6 | 8 | 10 | 13 | 16 | 21 | 27 | 35 | 45 |
| | **Total (low scenario)** | **37** | **48** | **63** | **80** | **104** | **134** | **173** | **224** | **290** | **374** |
| Mid scenario | FTE direct mid | 45 | 58 | 75 | 97 | 125 | 161 | 208 | 269 | 347 | 448 |
| | FTE indirect mid | 17 | 21 | 28 | 36 | 46 | 59 | 77 | 99 | 128 | 165 |
| | FTE induced mid | 7 | 9 | 11 | 15 | 19 | 24 | 32 | 41 | 53 | 68 |
| | **Total (mid scenario)** | **68** | **88** | **114** | **147** | **190** | **245** | **317** | **409** | **528** | **682** |
| High scenario | FTE direct high | 80 | 104 | 134 | 173 | 223 | 288 | 373 | 481 | 621 | 803 |
| | FTE indirect high | 35 | 45 | 58 | 75 | 97 | 126 | 163 | 210 | 271 | 350 |
| | FTE induced high | 13 | 17 | 21 | 28 | 36 | 46 | 59 | 77 | 99 | 128 |
| | **Total (high scenario)** | **128** | **165** | **214** | **276** | **356** | **460** | **595** | **768** | **992** | **1,281** |

Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

## Diversification opportunities

Academic research has shown that regional and local economies grow by diversifying into industries related to their existing activities. BCEC's Future Proofing Report used this as a basis for policy advice to support regional diversification in Western Australia.[43] We make use of these analytical techniques to also assess diversification opportunities for the Canning Vale industrial area.

In this section we outline some of the possible diversification opportunities in the Canning Vale precinct. These are not in any particular order, but are clustered by similarity. These clusters are in manufacturing, wholesaling and other non-food value add opportunities.

It is worth noting that the sectors presented below are those that are currently non-existent or under-developed in the Canning Vale industrial precinct. Those that already have a strong advantage in the area such as fruit and vegetable wholesaling, road freight transport, general line grocery wholesaling or scientific testing and analysis services and food packaging are not included in the lists below.

The food value add precinct is anticipated to support the expansion of new manufacturing opportunities that are related to the Canning Vale industrial area's existing comparative advantages in manufacturing. These opportunities are shown in Table 10 through Table 12.

It is worth noting that the industries emphasised here are just a few of the candidates for diversification. Indeed, thanks to the diversity of industries within the Canning Vale industrial precinct, there are many industries with high feasibility for development.

The industries specified in these tables fulfil two specific requirements: a low comparative advantage in the area and excellent viability for growth. This is why the colours of the first two columns of the tables are quite monotonic, red for relative comparative advantage and green for feasibility. It is important to focus on those industries that are not yet developed (low comparative advantage) but for which Canning Vale has capabilities and networks (feasibility).

The other two columns relate to the employment potential in the precinct and the last one to the strategic gains of developing such an industry. The best case scenario would be to diversify into businesses that would provide significant employment but that would also allow the industrial base of Canning Vale to become more complex and technologically advanced (strategic gain).

### TABLE 10: Industry opportunities, food manufacturing industries

| | Relative advantage | Feasibility | Employment potential | Strategic gain |
|---|---|---|---|---|
| Prepared Animal and bird feed manufacturing | Negligible | Excellent | Excellent | Negligible |
| Meat Processing | Average | Excellent | Fair | Negligible |
| Cake and Pastry Manufacturing (Factory based) | Negligible | Excellent | Excellent | Average |
| Cured Meat and Smallgoods Manufacturing | Negligible | Excellent | Fair | Average |
| Soft Drink, Cordial and Syrup Manufacturing | Average | Excellent | Excellent | Average |
| Confectionery Manufacturing | Negligible | Excellent | Fair | Average |
| Beverage and Tobacco Product Manufacturing | Negligible | Excellent | Excellent | Fair |
| Grain Mill Product Manufacturing | Negligible | Excellent | Fair | Negligible |
| Ice Cream Manufacturing | Negligible | Excellent | Fair | Average |
| Milk and Cream Processing | Negligible | Excellent | Fair | Negligible |
| Poultry Processing | Poor | Excellent | Average | Poor |
| Wine and Other Alcoholic Beverage Manufacturing | Poor | Excellent | Fair | Negligible |
| Dairy Product Manufacturing | Negligible | Excellent | Average | Average |
| Other Food Product Manufacturing nfd | Negligible | Excellent | Fair | Fair |
| Potato Corn and Other Crisp Manufacturing | Poor | Excellent | Fair | Excellent |

Excellent Fair Average Negligible Poor

Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

43 Bond-Smith, S. Dockery, A.M., Duncan, A., Kiely, D., and Salazar, S. (2019) "Future proofing the WA economy: A roadmap to industrial diversification and regional growth," Bankwest Curtin Economics Centre, Focus on Industry Series, No. 4.

The analysis identifies key industries for diversification in food manufacturing including prepared animal and bird feed manufacturing, meat processing, confectionery manufacturing and beverage and tobacco product manufacturing among many others.

Potato, corn and other chips manufacturing have particularly high levels of strategic gain along with other food and beverage manufacturing. Even though other products may have a low strategic gain, they are still worth developing in the precinct, especially since they have high levels of feasibility. The only difference is that they would not provide a strategic advantage for the precinct.

Additionally to food value add businesses, extending wholesaling opportunities to other products such as cereal grain wholesaling, milk and cream processing, other agricultural product wholesaling and dairy produce wholesaling appear to be sources of opportunity for Canning Vale.

Wholesaling may not be one of the most complex services (low strategic gain) but it provides a centralisation of products which is key to developing networks and brings in new companies to the precinct.

Multiple non-food value add opportunities also come up in the analysis. Other professional and scientific equipment manufacturing, prefabricated wooden building manufacturing, fertiliser and pesticide manufacturing and basic chemical manufacturing are at the top of the list. Not only do these industries have a high feasibility but they also have excellent employment potential and fair strategic gain. Indeed, more complex manufacturing industries can complement nicely the food value add precinct bringing new opportunities and increasing the networks.

TABLE 11: Industry opportunities, wholesaling

| | Relative advantage | Feasibility | Employment potential | Strategic gain |
|---|---|---|---|---|
| Cereal Grain Wholesaling | Negligible | Excellent | Average | Negligible |
| Other Agricultural Product Wholesaling | Poor | Excellent | Fair | Negligible |
| Dairy Produce Wholesaling | Negligible | Excellent | Fair | Poor |
| Furniture and Floor Covering Wholesaling | Poor | Excellent | Average | Fair |
| Industrial and Agricultural Chemical Product Wholesaling | Average | Excellent | Average | Poor |

Excellent Fair Average Negligible Poor

Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

TABLE 12: Industry opportunities, other non-food or wholesaling related

| | Relative advantage | Feasibility | Employment potential | Strategic gain |
|---|---|---|---|---|
| Prefabricated Wooden Building Manufacturing | Negligible | Excellent | Excellent | Fair |
| Hardware and Building Supplies Retailing | Average | Excellent | Excellent | Poor |
| Other Professional and Scientific Equipement Manufacturing | Poor | Excellent | Average | Fair |
| Furniture and Other Manufacturing | Negligible | Excellent | Excellent | Fair |
| Fertiliser and Pesticide Manufacturing | Negligible | Excellent | Excellent | Fair |
| Basic Chemical Manufacturing | Negligible | Excellent | Excellent | Average |
| Mushroom and Vegetable Growing | Negligible | Excellent | Excellent | Negligible |
| Cement Lime Plaster and Concrete Product Manufacturing | Poor | Excellent | Average | Poor |
| Iron and Steel Casting | Negligible | Excellent | Excellent | Average |
| Textile Leather Clothing and Footwear Manufacturing | Average | Excellent | Average | Poor |

Excellent Fair Average Negligible Poor

Source: Bankwest Curtin Economics Centre | BCEC analysis using ABS data, 2016 Census.

# WHAT ARE THE NEEDS FOR FURTHER DEVELOPMENT

# WHAT ARE THE NEEDS FOR FURTHER DEVELOPMENT

The Australian food and beverage sector is the largest manufacturing industry accounting for 32 per cent of the country's turnover, with two-thirds of the agricultural production being exported (Greenville, 2021; Khoury, 2020).

Though much of Australia's agriculture and food are exported in bulk quantities of raw produce, it is transformed and value added in other countries, and often gets re-exported back into Australia. In 2014, 21 per cent of Australian agriculture and food exports were re-exported by trading partners such as China (Greenville, 2021). China itself uses 4 per cent of Australian agriculture and food exports as inputs into their own exports (Greenville, 2021). Australia's food and beverage value adding generates more than $29.1 billion in export value; and $148 million comes from Western Australia (Department of Primary Industries and Regional Development, 2021a, n.d.-a). In 2017-18, WA contributed to 7 per cent of Australia's annual food and beverage exports, with Victoria, Queensland and New South Wales contributing to 30 per cent, 25 per cent and 22 per cent respectively (Australian Food and Grocery Council and Ernst and Young, 2018).

In 2021, the McGowan Government awarded funding of $10.2 million to 18 agrifood businesses in the WA metropolitan and regional areas, through the Value Add Investment Grants program (Government of Western Australia, 2021a). The investment awarded each business between $250,000 and $750,000 and is geared towards projects that can boost local food and beverage manufacturing and value adding.

This funding is part of the State Government's $16.7 million Food and Beverage Fund, a four-year initiative to stimulate growth and recovery from COVID-19 (Department of Primary Industries and Regional Development, 2021b).

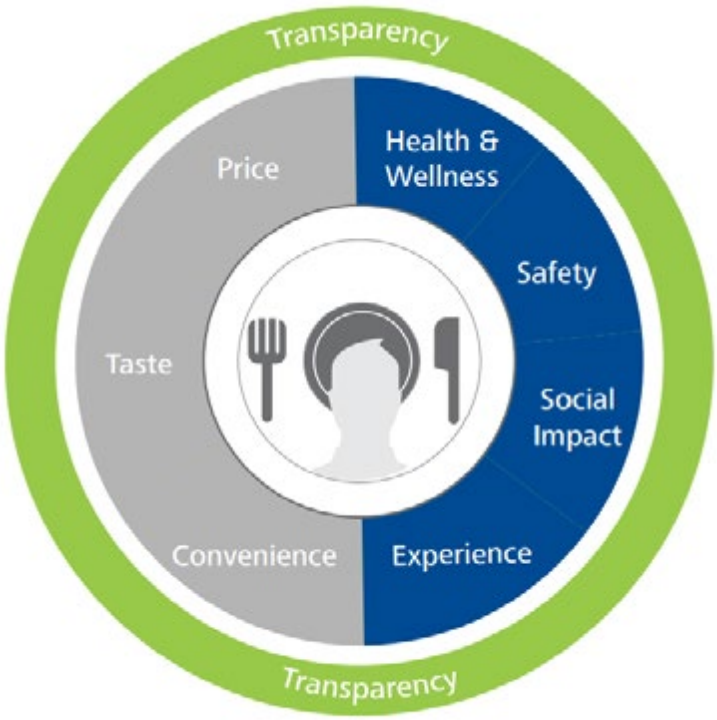
In the metropolitan areas, all businesses focus on the processing stage of the food value chain. 28.5 per cent operate in the meat industry and 14 per cent operate in the grain industry. The wine and beer industry consists of 14 per cent of businesses, and 28.5 per cent in the seafood industry. 43 per cent of the businesses are focused on the value adding opportunity of targeted eating, whereas 29 per cent are focused on supply chain transformation. In the region, there are 45 per cent of businesses focusing on the production stage of the food value chain, and 64 per cent are focusing on the processing stage (one business is focused on both the production and processing stage). Six out of the 11 businesses are operating in the horticulture industry (55%), and three are operating in the wine and beer industry (27%). The remaining funded project is in the meat and the seafood industry. Five businesses are focused on the value adding opportunity of supply chain transformation (45%); and three businesses are concentrated on precision agriculture and big data (27%), while two of the three are also looking at soil, water and land management.

## Macro consumer trend in food and beverage

There has been a big shift in how consumers obtain information and how this influences their purchase intentions towards food (Deloitte Consulting LLP, 2016). Consumers have the ability to access information about a product and share it via social media, which challenges companies' communication about its products. Empowered by the democratisation of information, many consumers are taking control of conversations surrounding food and beverages.

Deloitte Consulting LLP conducted a study in 2016, which included a survey of 5,000 consumers in the US with the aim to understand the value drivers that lead to purchase intent in the food and beverage industry. The report refers to the Consumer Value Driver Plate (Figure 28) which serves as a framework to illustrate the key drivers of purchase within the consumer food value equation. Historically, consumers made food purchasing decisions based on traditional value drivers such as taste, price, and convenience. However, there is a growing demand for different evolving value drivers including health and wellness, safety, social impact, experience, and transparency. These evolving value drivers have always been present in consumers' minds but historically were used predominantly for specialty, niche products/retail channels. Yet, the evolving value drivers are becoming more significant to a larger and more diverse group of consumers. It is important to note that the traditional value drivers have not lost their significance; rather, evolving value drivers are added to the equation to reflect the current drivers of consumer decision and now take up a greater proportion than before (Deloitte Consulting LLP, 2016).

FIGURE 28: The consumer value driver plate




Source: Deloitte Food Value Equation Survey 2015, Deloitte Analysis

Source: Deloitte Food Value Equation Survey 2015, Deloitte Analysis.

Consumers are increasingly using a combination of both traditional and evolving value drivers when making purchase decisions (Deloitte Consulting LLP, 2016). The research found that around half the consumers surveyed rated evolving value drivers higher than traditional value drivers when making a purchase decision (51%). Furthermore, consumer demands can span across multiple value drivers and it is not a "one size fits all". The following is a description of the five evolving value drivers.

## Health and wellness

Health and wellness is the most significant and complex evolving value driver to consumers when making purchase decisions. Previously, consumers focused on the nutritional content when making decisions related to health and wellness. However, nowadays a more holistic perspective is taken and consumers look at product attributes, qualitative product claims, and long-term considerations. Consumers are willing to pay a premium for 'healthier' products, particularly young buyers, those with higher incomes, those who have started a new diet or a new/modified exercise program, and those with children (Deloitte Consulting LLP, 2016).

The health and wellness trend is the largest economic opportunity for the value added food and beverage industry, and is driven by a growing number of health-conscious consumers paired with rising disposable incomes. Some examples of value adding trends that can be associated with health and wellness are:

- functional/fortified foods,
- personalised nutrition,
- mental and emotional wellbeing through innovative food and drink formulations,
- plant-based diet.

The research by the Food and Agribusiness Growth Centre (trading as Food Innovation Australia Limited) (FIAL) identified that health and wellness has a value added potential of $45 billion by 2030, with an average growth of 3 per cent per year (FIAL, 2020). Targeted eating (which includes functional/fortified food, low fat/sugar foods) was identified to have a value added potential of $20 billion by 2030 with an average growth of 7 per cent per year. Consumers are moving towards a more holistic approach to nutrition and its overall role in wellbeing, rather than just weight management.

There is a rise in demand for premium and sustainable foods including high-priced fresh foods, organic foods, as well as "free from" foods such as gluten-free products. Furthermore, consumers are becoming more educated and aware of health issues and overall wellbeing through online sources such as social media and online blogs/vlogs. An aging population also contributes to the rising demand for foods that are healthier and of better quality.

## Transparency

Consumers are demanding greater access to relevant information about the food they eat, in a clear, comprehensive, and understandable way to make informed choices. In Deloitte's 2015 Consumer Food Value Equation Survey, 15 per cent of the consumers surveyed considered a reason for the purchase of a recent item was that it had "clear and accurate labelling". Transparency can also play a big role in creating or restoring trust among consumers. Although most companies agree that transparency is one of the top priorities, they face significant challenges in meeting the consumers' needs for more detail about its products. For example, a limited ability to capture and verify data from multiple stakeholders across the value chain and companies' reluctance to share information/processes/data with other companies. For companies to satisfy this value driver, they need to gather and provide access to relevant information and be prepared to have 2-way engagement in order to promote trust.

In the food and beverage industry, transparency is the consumers' desire to know how and where the food was grown/made and their expectation for clear, accurate and useful information related to the food from the companies involved in the production and process (DuBois, n.d.). Consumers are becoming distrustful towards large companies and manufacturers and are concerned that these companies are prioritising profit over transparency (Deloitte Consulting LLP, 2016). According to a Mintel report (Mintel, 2015), 2 in 5 US millennials (43%) do not trust large food manufacturers compared to just 18 per cent of non-millennials. Around 74 per cent of millennials also stated that food companies should be more transparent about how they manufacture their products. Consumers are yearning for a genuine and authentic connection with brands and are now blending what is "authentic" with what is "ethical" when evaluating their trust towards the brand. There is a shift whereby the process has recently become part of the product itself.

In terms of value adding, there are opportunities to combat and address these concerns using data-driven solutions including (Department of Industry, n.d.):

- The use of blockchains to allow consumers to track a product across the entire supply chain in real-time (including information about handling, preparation and storage), enabling them to make informed purchasing decisions.
- The implementation of digital labelling solutions such as barcoding and image recognition technology to inform consumer about the origin and the production of their food.
- The utilisation of Digital Product Information Systems to standardise the transfer of digital information down the food chain.

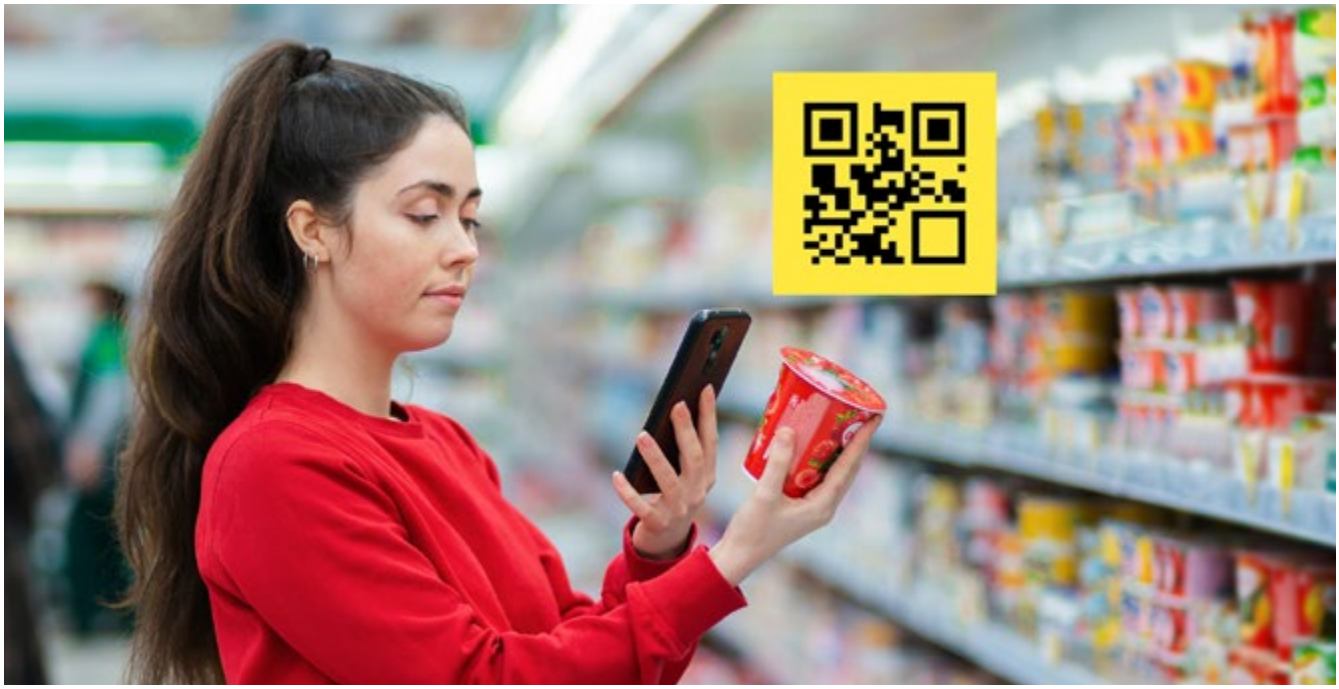
FIAL has identified opportunities in the value added space to improve the issue and trend of transparency. Supply chain transformation has a value added potential of $31 billion by 2030 with an average growth of 4 per cent per year (FIAL, 2020). In addition, opportunities that address food fraud and safety has a value added potential of A$6 billion in 2030. This macro trend in food and beverage also resonates with industry stakeholders. For instance, when asked about some of the value adding components in the food and beverage industry, industry stakeholders indicated that traceability and provenance of goods will be a key component that consumers will be looking for in the future.

## Safety

Consumers' definition of safety has expanded from the focus of near-term risks (free from harmful elements) to more holistic, longer-term concerns and attributes. Safety attributes that consumers include are "clear labelling", "clear information related to ingredients and sourcing", "limited processing and artificial ingredients", and "nutritional content", which are also associated with the health and wellness and transparency value drivers. Despite the emphasis on the long-term measures of safety, consumers have not rejected the common, near-term safety issues but rely on retailers to assume a greater role in managing food safety. Companies should broaden their definition of "safety" in order to satisfy consumer expectations (Deloitte Consulting LLP, 2016).

## Social impacts

Consumers are more interested in companies that operate in a "responsible" way. Deloitte's Consumer Food Value Equation Survey found that 23 per cent of the consumers will choose one or more of their shopping destinations based on social impact attributes. The attributes include commitment to food safety, fair treatment of workers, local sourcing of products, overall mission and values, environmental responsibility, and role in the community. Although only 5 per cent of the surveyed consumers prioritise the social impact driver for their purchase decision, they represent a loud and influential group, growing in size. Those who are



millennials, high-earners, or parents were more likely to consider social impact when making a purchase decision. To satisfy these consumers' value driver, companies must identify which issues have the most opportunity or represent the greater risk, and when to lead or follow (Deloitte Consulting LLP, 2016).

### Sustainability of products

Sustainability is the ability to meet the need of the present without endangering those in the future. It is based on three pillars: environment, society and economy (Sánchez-Bravo et al., 2021). Sustainable consumption in the food and beverage industry refers to the consumption of food and beverages that have minimal impact on the environment, the economy, as well as the society. Research has shown that 65 per cent of consumers look for products that help them live a sustainable life, and 60 per cent buy products from companies that are socially or environmentally responsible (Fromm, 2020). Consumers are becoming more educated on the negative impacts that food production can have on the planet, such as climate change, excessive water use and deteriorating quality, food insecurity, food waste, and packaging waste leading to landfill crisis. In addition to that, biodiversity loss and ecosystem collapse is one of the top threats from the global food system for the next 10 years as about 75 per cent of the world's food comes from just 12 plants and 5 animal species (Lee, 2019).

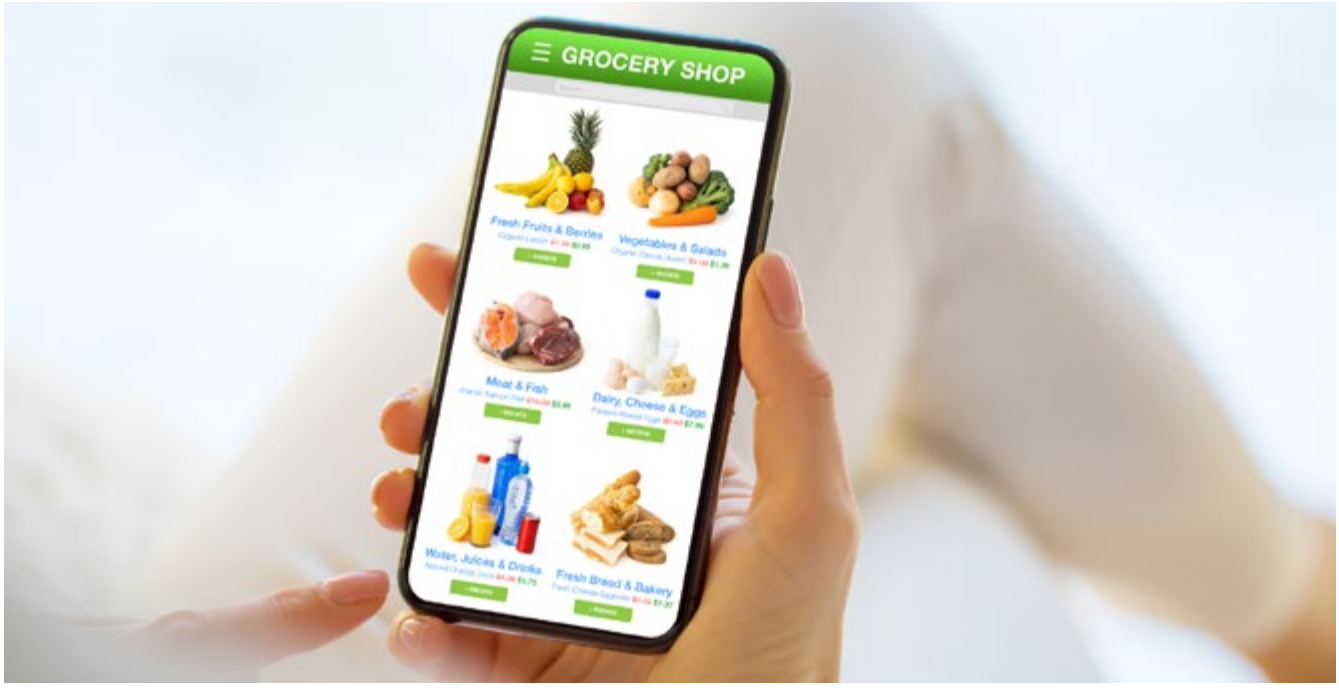
In terms of value adding foods and beverages, sustainability involves the adoption of plant-based and alternative proteins, environmentally friendly inputs such as bio-pesticides and organic fertilisers, and utilising environmentally sustainable farming practices. This includes but is not limited to, efficient water and energy usage, and also repurposing and reusing food wastes. FIAL (2020) has identified a few value adding opportunities for the Australian food and agribusiness sector that relate to sustainability.

Industry stakeholders have indicated that there is a clear demand for sustainably produced food and beverage, and this directly relates to where a collaborative precinct should be situated. One of the key considerations highlighted by industry stakeholders was ensuring that food and beverage goods can be transported in the shortest and most carbon neutral way in order to reduce environmental impact.

### Convenience

Convenience is a trend that is here to stay. As consumers are earning more and have busier lives, they demand time-saving products that are convenient. There has also been an increase in online grocery shopping as consumers began shopping differently since the start of the pandemic. Consumers are becoming increasingly reliant on deliveries and pickups. Many companies have implemented a 'non-contact' delivery and pickup system to facilitate social distancing rules, making shopping more convenient. The value added potential for direct to consumer model is A$21 billion in 2030, with an average growth of 7 per cent per year (FIAL, 2020). The direct to consumer model includes the rise of online grocery shopping as well as the trend of direct farm sales.

The rise of omnichannel eating is a response to consumers' demand for convenience; and includes food delivery services



such as UberEATS and Door Dash, restaurant branded products to bring the restaurant experience/taste back home, and meal kits/starters such as Hello Fresh and Dinnerly (Berry, 2021). This allows consumers to eat what they want, when and where they want. This trend is also reflected in industry stakeholder sentiments, which indicated that convenient food products such as frozen ready-made meals are becoming increasingly popular.

### Experiences

For consumers, experience encompasses how they feel and interact with the company/brand along each stage of the purchase journey. This ranges from the information search to consumption and to customer service interactions. Given this, brand owners have the opportunity to be part of the journey. Contrary to the one-way marketing messages that brands/companies historically utilised, consumers are now desiring and expecting a one-on-one, personalised engagement and conversation. Consumers are also now turning to their peers and various media channels for information (e.g. social media and blogs) as they become increasingly distrustful towards bigger companies.

For businesses, experience is one of the most difficult value drivers to deliver on as it is less tangible and measurable compared to other value drivers. However, if retailers/manufacturer can use the shopping experience to differentiate themselves, for example, authentically engage with consumers, they can create a sustainable advantage (Deloitte Consulting LLP, 2016).

## Micro consumer trend in value adding of food and beverage

### Plant-based foods

Plant-based eating refers to the consumption of foods that are from plant sources, such as fruits, vegetables, whole grains, seeds, nuts, legumes, beans, oils, and alternative meats and dairy (McManus, 2021). Food products include plant-based meat patties and burgers, vegan salad dressings, dairy-free desserts, milk alternatives such as oat, almond and soy, and plant-based ready meals. Key examples of major plant-based brands include:

- Beyond Meat, a Los Angeles-based meat substitute producer offering products such as plant-based burgers, ground meat, sausages, meatballs, and chicken.
- Oatly, a Swedish-based producer of dairy alternatives from oats. Products they offer include oat milk, frozen desserts and non-dairy cooking cream.
- OmniFoods is a Hong Kong-based food tech company with a team of food scientists in Canada that innovates foods based on Asian eating cultures and cooking habits. Their OmniMeat is a plant-based pork alternative made from plant-based proteins from peas, non-GMO soy, shiitake mushroom and rice.
- Veef, an Australian developed plant-based meat alternative with products such as plant-based burger patties, meatballs and mince.
- Quorn, a UK-based meat alternative with products such as plant-based mince, nuggets, fillets, and burgers.
- JUST Egg, a US-based brand that produces plant-based eggs using mung beans.
- Fancy Plants, an Australian-based brand that produces plant-based snacks such as puddings and dessert snacks. The products they offer are Chia Pod, Silky Pot, and Rice Pud.

According to Bloomberg Intelligence (2021), the global plant-based food market was valued at $29.4 USD billion in 2020 and is set to reach $162 USD billion by 2030. In 2019, the plant-based meat sector generated $150 million in Australian retail sales and was estimated to increase to $3 billion by 2030 (Food Frontier, 2021). The two largest sub-categories of plant-based alternatives are milk/dairy and meats, and they are set to continue leading the segment (Browne, 2021). The '2020 State of Industry' report shows that from 2019 to 2020, Australia's plant-based meat industry grew exponentially and doubled its manufacturing revenue and jobs (Food Frontier, 2021). Furthermore, the number of new products on supermarket shelves from the food category has also doubled, with a 46 per cent growth in retail sales; and more than half made by Australian companies (Food Frontier, 2021). Another report by Food Frontier (2019), stated that one in three Australians are consciously limiting their meat consumption, and additionally, 10 per cent are entirely meat-free. The growth of the market can be attributed to factors such as an increase in the vegan population, increasing intolerances to animal protein or lactose, health considerations, environmentally friendly practices, and animal welfare issues (Berry, 2021; FinancialNewsMedia, 2021).

A report by Pivotal Point Strategic Directions (2019) analysed and identified the advantages of producing plant-based proteins in WA. They showed that WA has:

- Pulse production of the scale to support sizable alternative protein ingredient supply. The current volume of pea production in WA would provide enough protein for half a billion Beyond Meat burgers;
- Leadership in lupin which has emerging potential as a functional protein in Europe;
- A unique focus on the Asian market, whereas the current alternative protein manufacturers concentrate on domestic markets and Western tastes;
- A good reputation for healthy and high-quality foods, which is in line with having a successful plant-based product brand.

The plant-based proteins produced in WA include canola meal, cereals (wheat, oat and barley), chickpeas, faba beans, field peas, lentils and lupin; and limited amounts of almonds, chia, hemp seed, mung beans and quinoa (Pivotal Point Strategic Directions, 2019). The product category is desirable in WA; however, the food processing capability is currently limited. Table 13 shows plant-based food businesses in WA, including food manufacturers, distributors, cafes and restaurants, and meal delivery services.

TABLE 13: Plant-based food businesses based in Western Australia

| Business Name | Location in WA | Products |
|---|---|---|
| The Lupin Co. | Fremantle | e.g., Lupin flour, lupin flakes, lupin cookie mix |
| Wide Open Agriculture | Williams | Oat milk |
| Oat up (Project: Lupin protein development) | Kewdale | Oat milk |
| Chris' Kitchen | O'Connor (production kitchen)<br>Carlisle (café) | Vegan desserts |
| Crunch Box | Malaga | Plant-based desserts |
| Honest Goods Co. | Osborne Park | Gluten-free loaves, vegan brownies, activated almonds |
| Plant Made Crew | Midland | Ready plant-based meals (delivery) |
| Wholistically Healthy | West Leederville | Ready plant-based meals (delivery) |
| Future Farm Co* | Kewdale | Distributor of popular plant-based and vegan foods to AU and NZ. Including brands such as Beyond Meat, gardein, Nature & Moi cheese and Sophie's Kitchen |
| Roho Bure Vegan Ice Cream | Leederville | Plant-based desserts |
| Ten Acre Block Vegan Restaurant | Perth (located in Pan Pacific Hotel) | High-end plant-based restaurant |
| Mother | Fremantle | Plant-based restaurant |
| Little Bird Cafe | Northbridge | Vegan and vegetarian breakfast and brunch food, with gluten-free, dairy-free and paleo options |
| Flora & Fauna | Northbridge | Vegan and vegetarian brunch food |

## Ready-to-eat meals

Ready-to-eat meals or ready meals are products that require little effort for consumers to prepare (e.g., foods that only require heating up). It encompasses ready-to-eat meals based on meat, fish or vegetables, frozen pizzas and filled pasta (Statista, 2021). Ready-to-eat meals meet consumers demand for convenience and accessibility. Usually, the meal comes frozen and requires a short time in the microwave or oven before serving. For example, *Coles Kitchen Butter Chicken with Rice* needs 18-20 minutes in an oven before it can be served. But for those who are time poor, the meal just needs 3 minutes in the microwave and 1 minute cooling time before it can be served. The demand for ready-to-eat meals has been driven by rapid urbanisation, a higher employment rate, and a shift to busier lifestyles, hence the demand for convenient and time-saving options (Berry, 2020).

Like most convenient food trends, the COVID-19 pandemic accelerated the adoption of ready-to-eat meals as people reduced the number of visits to the shops and wanted good quality, safe and convenient foods on hand (Speciality Food Magazine, 2021). Coles found from customer research that one in three do not have the time to cook from start to finish, and 52 per cent are not interested in cooking at home (Hutchinson, 2021). Furthermore, among consumers from the Asia Pacific, it was shown that 61 per cent prefer products that were 'easy-to-consume', while 63 per cent actively purchase 'time and effort-saving' products (FoodProcessing, 2020). This signifies that consumers prefer products that are more convenient, hence the potential for this market to grow. In Australia, the value of the ready-to-eat meals market was estimated to be $853.61 million in 2013, and this figure had grown to $1.14 billion in 2019, with an estimated market value worth $1.58 billion by 2024 (Berry, 2020). The continuous growth can be supported by reasons suggested by OSF Digital (n.d.).

Historically, ready-to-eat meals had the perception of being cheap and being of poor quality. Still, brands have been working hard to educate consumers about the quality and nutritional value of these meals. Millennials are starting to have a less negative view of ready-to-eat meals, which allows businesses and retailers to market and target younger consumers more successfully (Speciality Food Magazine, 2021). The Australian market is dominated by McCain, followed by private labels Woolworths and Coles, and then by brands such as Kraft Heinz Co. and Patties Foods (Berry, 2020). In early 2020, Coles Group's subsidiary Chef Fresh Pty Ltd acquired one of Australia's major suppliers of chilled ready meals, Jewel Fine Foods (Coles, 2020). Since then, more than 100 meals and side dishes have been added to their ready meal brand, *Coles Kitchen* (Berry, 2020).

**TABLE 14: Ready-to-eat Businesses from Western Australia**

| Business Name | Location in WA | Ingredients Sourced |
|---|---|---|
| Feed Me | Bayswater | Mentions that they use local and Australian producers and suppliers wherever possible. |
| Keto Ready to Go | Kenwick | All ingredients are 100% grown in Australia. |
| B/Nourished | Canning Vale | No information |
| C Si Bon | Cottesloe | Most ingredients are sourced locally, but they sometimes use imported ingredients to ensure their finest quality. |
| Vesco Foods<br>On the Menu<br>Super Nature<br>Lean Cuisine<br>Annabel Karmel<br>7 Star Food Service<br>Clever Cuisine<br>Enrico's<br>Jarraballi | Osborne Park | Meat and dairy are sourced locally from Australia.<br>Imported ingredients are used sometimes due to volume requirements and seasonal availability.<br>Origins of all ingredients are confidential. |
| Poppet's Pantry | North Fremantle | Ingredients are sourced predominately from Western Australia.<br>Ryan's Meat (Jandakot) supply them beef from the Stirling Ranges, lamb from Amelia Park and free-range chicken.<br>Fresh produce is from Canning Vale markets and milk from Western Australia. |
| Canon Foods | Jandakot | No information |
| Home Chef WA | Bassendean | No information |

Even though the ready-to-eat meal industry seems to be going strong nationally, WA still has room to improve (Table 14). Major Australian supermarkets, such as Coles and Woolworths, stock around 40 brands, and five were identified to be based in Western Australia - *On the Menu, Super Nature, Lean Cuisine*, and *Annabel Karmel* from Vesco Foods, and *Get Vegged* from Canon Foods. Vesco Foods is based in Osborne Park, whereas Canon Foods is located in Jandakot. In 2021, Canon Foods and Vesco Foods were awarded funds to boost product manufacturing (via factory expansion) by the McGowan Government (Department of Primary Industries and Regional Development, 2021). From this, we can see that Western Australia has the potential to further expand in this market. Furthermore, Western Australia provides a consistent supply of fresh produce all year round that is used to manufacture ready-to-eat meals. In order to operate ready-to-eat meal businesses, there are many considerations such as freshness of the meals and packaging waste. These businesses mitigate these by freezing the meal and using fresh local produce, and in terms of packaging, using biodegradable or recyclable containers.

## Meal kit subscription services

Meal kits are subscription services that send pre-measured ingredients and easy-to-follow recipes to customers, allowing them to cook tasty meals in their own kitchens. They are different to ready-to-eat meals as there is the added component of customers preparing and cooking the food themselves. Prior to the COVID-19 pandemic, the meal kits industry was slowly losing traction. However, these services quickly increased in popularity/demand in 2020 during the pandemic, when consumers were forced to stay home (Kats, 2020).

The growth of this value add food trend is driven by consumers' demand of convenient, healthy, and affordable meals (MarketLine, 2021). During the pandemic, shopping and cooking habits had to be adapted as consumers ate more meals at home, could make limited grocery shopping trips, and spent more time at home with family. Meal kits services provide consumers with convenience in meal planning and the freedom to customise or personalise meals based on dietary requirements or preferences. Furthermore, meal kit services do not require customers to visit grocery stores and they can spend less time worrying about meal planning and prepping (e.g., for a working-from-home schedule or school kids). Meal kits provide consumers with a service that fulfils the demands for convenience, health, and affordability and delivers overall ease in meal preparation and cooking.

The global meal kit delivery service market is estimated to reach USD 27.33 billion by 2028, with a compound annual growth rate (CAGR) of 13 per cent from 2021 to 2028 (Yahoo, 2021). The largest meal kit company worldwide, *Hello Fresh*, reported to have sold 254 million meals worldwide; and in the three months leading to June 30, 2021, they had an 84 per cent increase in active customers (Power, 2021). Furthermore, their revenue at the end of Q1 2021 reached €1.44 billion (around AUD2.24 billion), a 116.1 per cent growth compared to the year before (Minchin, 2021). *Blue Apron*, a meal kit company based in the US, reported a 10 per cent net revenue growth from Q2 2020 to Q3 2020, in addition to a 29 per cent growth over the previous quarter (Stampe, 2020). It is evident that the meal kit market is growing worldwide, and for Australia, there are no exceptions. In 2020, the Australian meal kit market was estimated to be worth over AUD 300 million, with a growth rate of 40 per cent compared to 2018 (B&T Magazine, 2020). Many reports support the continuous growth of this industry beyond the pandemic.

Looking forward, WA's agricultural landscape and infrastructure provide the industry with an abundance of in-season fruits and vegetables all year round. This allows businesses to source fresh ingredients locally, which is especially important for meal kit businesses. In Western Australia, there are a few locally established meal kit businesses, such as *Dinner Twist, My Foodie Box, You Plate It*, and *Feed Me* (Hayes, 2021). In total, ten businesses were identified to be operating in WA: nine in the metropolitan Perth area and one from the regional WA area. Their suppliers that have been made public are mentioned in the table below. It is important to note that some of these businesses also offer a 'marketplace' where food products can be purchased individually from the meal kits. Hence, some suppliers provide food products other than those in the ingredient list of the meal kit (refer to Table 15). As seen from the table, WA established businesses (i.e., Dinner Twist, You Plate It, This Little Pig Went to Market, and My Foodie Box) source their ingredients from local businesses and producers in both metro and rural areas of WA. Meal kit businesses established abroad tend to source their ingredients from outside WA or are sourcing from larger producers/businesses that have farms and facilities in WA. To operate these businesses, there are logistics in transporting the resources (whether it be the ingredients or packaging) and delivering the boxes to customers. Businesses may face a challenge to keep the freshness and quality of the ingredients in the packaging as the box is delivered to the customer's doorstep. Most businesses use insulated boxes and use icepacks to ensure the freshness of the food.

TABLE 15: Meal Kit Services Operating in Western Australia

| | | Suppliers | |
|---|---|---|---|
| Business Name | Location in WA | Name and type of food/produce | Location |
| HelloFresh (origin: Berlin) | Canning Vale | Rose's Gourmet – gourmet sauces and dips<br>Moo Premium Foods – yoghurts<br>Meredith Dairy – cheese and yoghurts | Brisbane, QLD<br>South Australia<br>Victoria |
| Dinner Twist | Canning Vale | Canning Vale Markets – doesn't say what exactly, but 'farm-fresh produce.'<br>Bannister Downs – milk and cream<br>So Freo – vegetable paté<br>Raw by Chris/ Chris' Kitchen – vegan raw snacks<br>Coastal Crunch – lupin granola and high-protein snacks<br>Michael Brothers – cold-pressed juice<br>Plantmade WA – granolas<br>Abhi's Bread – bread<br>Catalano's Seafood – seafood<br>Dirty Clean Food – meat, oats, granola and oat milk.<br>CharCol Springs – eggs<br>GH Produce – granolas, bread & cake mixes, baked goods and nuts<br>Turban Chopsticks – pre-made curry pastes, chutney, sauces, meal boxes and spice mixes.<br>Kommunity Brew – kombucha, sparkling probiotic water and health shots.<br>Honest Good Co. – gluten-free bread loaf<br>The Farm House – meat (ham and bacon)<br>Knutsford Gourmet – artisan crackers and biscuits<br>The Holy Bagel – bagels<br>Crema – coffee beans<br>CoCoMe – coconut yoghurt and custards<br>Cape Farm Shop – balsamic glaze<br>Beerenberg Family Farm – jams, chutney, relishes and sauce | Canning Vale, WA<br>Northcliffe, WA<br>Fremantle, WA<br>O'Connor and Carlisle in WA<br>Mount Hawthorn, WA<br>Caversham, WA<br>East Fremantle, WA<br>South Fremantle, WA<br>Bassendean, WA<br>Kewdale, WA<br>Yanmah, WA<br>Ardross, WA<br>Burswood, WA<br>Canning Vale, WA<br>Osbourne Park, WA<br>Margaret River, WA<br>Balcatta, WA<br>Canning Vale, WA<br>Canning Vale, WA<br>Booragoon, WA<br>Margaret River, WA<br>Hahndorf, SA |
| You Plate It | Manjimup | Patane Produce – potatoes, onions and carrots<br>Marinovich – fresh herbs<br>Brad Ipsen – broccoli and lamb<br>Trandos – corn<br>Homestead – meat (pork, beef and lamb)<br>Kailis bros – seafood | Myalup, WA<br>Wanneroo, WA<br>Manjimup, WA<br>Broome and Gingin in WA<br>Wangara, WA<br>Leederville, WA |
| Marley's Spoon (origin:Berlin) | Bibra Lake | Lilydale Free-Range Chicken – chicken<br>Tassal Tasmanian Salmon – salmon<br>Perfection Fresh Australia – vegetables (eg: tomatoes, broccoli, broccoloni)<br>Ashgrover Cheese (Tasmania) – dairy | Lilydale farms are in Yarra Valley in VIC (origin), SA, WA, and NSW.<br>Tasmania<br>Farms in:<br>Two Wells, SA<br>Riana, TAS<br>Caboolture, QLD<br>Bundaberg, QLD<br>Tasmania (six farms and four dairies) |
| Dinnerly (Origin: Berlin) | Bibra Lake | Does not enclose specific locations and businesses but mentions that all ingredients are sources from Australia, but fresh vegetables, poultry and meat are grown and farmed in Western Australia. | |
| This Little Pig Went to Market | Bayswater | La Delizia – cheese<br>Brika – fresh hummus<br>The Mushroom Guys – mushrooms<br>General Public Food Co – bread<br>Warren Grange – heirloom vegetables<br>Little Creek Pastured Eggs – eggs<br>Frank Torres Butchers – meat<br>Vesuvio Pasta – fresh pasta<br>Fresh fruit and vegetables from the market | Victoria Park, WA<br>Perth, WA<br>Kardinya, WA<br>Inglewood or Scarborough in WA<br>Manjimup, WA<br>Dewars Pool, WA<br>Northbridge, WA<br>Malaga, WA |
| My Foodie Box | Maylands | No specific business is mentioned but they work directly with ethically responsible local farmers and suppliers. All fresh produce (vegetables and herbs) are from Margaret River and Carnarvon. | |
| Home Chef (origin: Chicago) | Bassendean | No information | |
| Lite & Easy (Northgate, QLD) | Canning Vale | No information | |

## Functional food products

A 'functional food' is generally any food or food component that provides health benefits beyond basic nutritional functions. Examples include juice, bread and pasta fortified with vitamins and minerals, margarine containing plant sterols, and yogurt with bacterial strains (Wheelahan and Burns, 2014). The industry ranges from foods for infant and child development to nutritious meals targeting digestive and cardiovascular health for the elderly (Wynn and Sebastian, 2019). In recent years, functional products have gained interest and popularity due to increased awareness, with health-conscious consumers believing that healthy eating is a better way to manage wellbeing and illnesses compared to medication (Tapsell et al., 2005). In addition to that, rising obesity rates, an aging population and an increase in sedentary lifestyle are reasons attributing to the increasing popularity and awareness (Frost and Sullivan, 2015). Consumers are selecting foods that they perceive will target and manage their individual health conditions such as heart health, allergies, arthritis and general wellbeing.

**TABLE 16: Functional food and beverage product businesses based in WA**

| Business Name | Location in WA | Ingredients Sourced |
|---|---|---|
| Rok Kombucha | Margaret River | Kombucha<br>Probiotics for improved gut function |
| Pressed Earth | Claremont | Cold-pressed juice<br>Each juice is targeted to areas of concern.<br>Eg: *Vitamin See* contains orange, lemon, carrot and ginger – best for vision, digestion and immunity.<br>Eg: *Alphabet* contains apple, carrot, beetroot, lemon and ginger – best for circulation, vision and energy. |
| Inner Ego | Osborne Park | Juices and juice shots.<br>Juice shots contain cold-pressed juice, essential oils, herbs and spices.<br>Eg: *Immune Juice Shot* contains orange juice, lemon juice, oregano oil, turmeric and fresh ginger - claims to boost the immune system |
| Juice Station | Perth | Juices and health shots.<br>Eg: *Antioxidant* contains red apple, beetroot, mint leaves and watermelon.<br>Helps prevent or stop cell damage caused by oxidants<br>Provides added protection for the body against heart problems, Memory problems and Mood disorders.<br>(From Juice Station website)<br>Ginger shot claims to support healthy digestion and immunity |
| Kommunity Brew | Canning Vale | Kombucha, sparkling probiotic water and probiotic health shots.<br>Kombucha contains probiotics for healthy gut health.<br>Sparkling Probiotic Water contains probiotics from Water Kefir for healthy gut health. |
| Green St Kitchen | Wangara | Fermented food products: kimchi, living coconut, botanical tonic and tsukemono<br>Supporting gut health and the digestion system |
| Denada | Scarborough | Low carbohydrate, low lactose and gluten-free ice cream.<br>Claims to be the ice cream for every dietary requirement – diabetic, keto, dairy intolerant, low carb, gluten-free, vegan, halal, etc.<br>They mentioned that the sweetener, Xylitol, contains vitamins, minerals and antioxidants. |
| Bodhi's Bakehouse | Fremantle | Gluten-free & and healthier bread<br>Eg: the *Lupin Choc Chip Slimmers Choice Cookies* contains lupin, and is high in fibre and protein, and is low in fat and sugar.<br>Claims to support weight loss. |

In 2020, the global functional food and beverage market size was $258.8 USD billion and projected to reach $529.66 USD billion by 2028 (Fortune Business Insights, 2021). According to CSIRO, the demand for fortified and functional foods in Australia is expected to reach $9.7 billion by 2030, with a growth rate of 3 per cent per annum (Wynn and Sebastian, 2019). This figure includes both domestic and export opportunities, with $5.5 billion and $4.2 billion by 2030, respectively (Wynn and Sebastian, 2019). Evidently, the COVID-19 pandemic accelerated the popularity of functional food products as people were becoming more concerned about boosting their immunity (Fortune Business Insights, 2021). People started questioning their vulnerability against the virus and focused on the intake of vitamins, supplements and other food products (Askew, 2021). As many consumers are focused on this area, many immune boosting products have been released into the market. Hence, in 2020, the global immunity boosting food products market was valued at USD $843.81 billion and is expected to grow to $1217.24 USD billion at a CAGR of 8 per cent (PRNewswire, 2021).

Western Australia is an ideal location to source high-quality horticultural products used in functional food products due to massive land size, available and clean water sources and expertise (Australian Trade and Investment Commission, n.d.). Primary products such as grains, dairy, fruit, vegetables, meat and fish have the potential to be capitalised on their nutritional value (Australian Trade and Investment Commission, n.d.). Furthermore, an abundance of agricultural waste streams is largely untapped, which gives the potential for nutritional and bioactive extraction. In WA, businesses are primarily involved in functional beverages instead of functional food products. Functional beverages meet consumers' demand for convenience since drinks are easier and quicker to consume. Table 16 includes a few WA businesses producing functional products, mainly juices and kombucha. To our knowledge, there are no existing companies in WA that are focusing on functional foods. It is important to note that businesses in the table were only included if their products claimed to have health benefits.

### Value adding through food waste

A food trend becoming increasingly paramount are foods that help reduce waste. They can include repurposing or repackaging misshapen fruits and vegetables that would have otherwise gone into landfills or upcycling by-products or food wastes into another food product (Wiley, 2020). Defined by Upcycle Food Association (n.d.), upcycled foods are those that *"use ingredients that otherwise would not have gone to human consumption, are procured and produced using verifiable supply chains, and have a positive impact on the environment"*. These can often be added to foods to boost nutritional content or substitute for an ingredient. For example, fruit pomace (the fibrous parts left after fruit juice production) is added to snack foods to enhance flavour and nutrient content and whey protein from cheese production is added to health bars and protein shakes to increase protein content (Holcomb and Bellmer, 2021).


There is a prevalence of brands in the upcycled food industry but they are mainly operating outside of Australia. For example:

- **WTRMLN WTR** (Colorado, US): cold-pressed juice made from imperfect watermelon.
- **Barnana** (California, US): banana-based snacks made from imperfect bananas.
- **The Wonky Food Company** (Oxfordshire, UK): a range of relishes made from imperfect and surplus fruit and vegetables sourced from local farmers.
- **Outcast Foods** (Nova Scotia, Canada): using surplus fruits and vegetables into nutritionally dense plant powers.
- **Renewal Mill** (California, US): upcycled flour made from the pulp by-products of soybean and almond milk production.
- **Citizen Collective NZ** (Auckland, NZ): craft beer made from surplus unsold bread.
- **Sir Kensington's** (New York, US): vegan mayo replaces eggs with aquafaba - the liquid made from cooking chickpeas, which would have been thrown out by hummus manufacturers.
- **Kromkommer** (Utrecht, Netherlands): soup made from imperfect vegetables.
- **Rubies In the Rubble** (London, UK): produces condiments from surplus food.

Food waste is a significant problem globally, as one-third of the world's food is wasted (FIAL, 2021). It causes significant economic and environmental impacts, and in fact, food waste produces 8 per cent of global greenhouse gas emissions (Department of Agriculture, Water and the Environment, 2021). In 2019, the upcycled food waste industry was worth $46.7 UDS billion, with an estimated CAGR of 5 per cent for the next ten years (Devenyns, 2019). The reason for this growth is that consumers are becoming more aware of environmental impacts and are concerned about sustainability. People are becoming more conscious of the way they consume products and are spending money on environmentally responsible businesses (Peters, 2019). Furthermore, a 2017 study suggested that consumers may pay more for foods with upcycled ingredients (Peters, 2019). When these products are marketed to prevent food waste, consumers become aware of the problem resulting in a motivation to cut waste at home or even adopt a zero-waste lifestyle.

Each year, Australia throws away around 7.6 million tonnes of food, 70 per cent of which is edible (FIAL, 2021). Up to 25 per cent of all vegetables produced never leave the farm, with potatoes and bananas being the most discarded produce (Foodbank, n.d.). Of all the food wasted in Australia, households contribute to 34 per cent, whereas primary production and manufacturing contribute to 31 per cent and 24 per cent, respectively. In terms of environmental impacts, food waste is responsible for approximately 3 per cent of Australia's greenhouse gas emissions each year (FIAL, 2021). In response, the Australian government has set a goal to halve its food waste by 2030, aligning with the UN's Sustainable Development Goals 12.3 (Department of Agriculture, Water and the Environment, 2021). The pandemic has uncovered a dependency on food rescue and repurposing organisations such as *OzHarvest, Foodbank, Second Bite*, and WA-based *Food Rescue* that redistribute food to those in need (Future Food, 2021). Major supermarkets are also implementing initiatives to repurpose or repackage misshapen fruits and vegetables. For example, Woolworths' *The Odd Bunch*, Coles' *I'm Perfect*, and *Harris Farm Markets'* Imperfect Picks. A smaller but emerging company, Good & Fugly is an Australian grocery delivery service that rescues misshaped fruits and vegetables and curates them into seasonal boxes delivered to customers (Cooper, 2021). In Caversham, WA, *The People's Market Perth* sells seasonal boxes of imperfect and misshaped fruits and vegetables (categorised as the "funky bunch").

In terms of food products, Australia has an upcycled food industry that is slowly developing. The Sydney-based company, *The Husk Mill*, produces cacao tea from husks, a by-product of chocolate production. *Nutri V*, a food manufacturing company developed by CSIRO and Fresh Select, turns surplus vegetables, including the stems and leaves, into powders and purees. *Aqua Botanical*, an Australian beverage brand, uses an innovative process to save the aqueous liquid created by the juice industry, resulting in clean, drinkable water (Smith, 2019). Harris Farm Market launched an upcycled food range, *Re-purposeful Picks*, to combat the food waste problem in Australia. The upcycled food range involves repurposing would be foods wastes into premium quality products with longer shelf life and includes smoothies from upcycled fruits, breadcrumbs from unsold bread, kale chips from unsold kale and pizza with upcycled vegetables (Graham, 2021).

The upcycled food industry in WA is untapped but full of potential due to the abundance of food waste from producers, manufacturers, supermarkets, restaurants and cafes. Fresh fruits and vegetable producers are faced with significant amounts of food waste due to misshapen and unattractive produce, and manufacturers are left with by-products from food production processes. Supermarkets are inundated with food waste when products are not being sold before the expiry date, and restaurants and cafes produce wastes when preparing meals and beverages. There are opportunities that the food and beverage industry in WA can leverage from, for example, *Honest Goods Co.*, partnered with a local almond milk manufacturer to upcycle almond pulp, a by-product from production, into a range of vegan banana bread.

## Consumer research and insights capability

Besides infrastructure and logistical needs, many stakeholders have identified the immediate and important need for market research and insights ability to better inform high value decisions. This includes the selection of brands and products for partnerships, the marketing communication of certain products, the consumer demand and acceptance of certain product attributes, the market segmentations of potential customers, and the marketing success factors of products and brands.

There is a consensus amongst the stakeholders that there are many macro-market reports such as trends, forecasts, and market overview. However, many stakeholders require specific capability and capacity to interpret these reports and devise actionable recommendations, with some industry stakeholders expressing some difficulty in understanding technical aspects of reports and trends. Industry stakeholders also expressed concerns around the need for reliable market research, indicating that some data presented can be from unreliable sources or have a small sample size.

### Marketing capability

Many stakeholders have also identified that the new food and beverage precinct should provide and enhance the marketing capability of the industry as many food and beverage brands focus on the operation of their business.

Optimisation of marketing communication and consumer education has also been raised as a capability that constantly needs to be addressed across different food and beverage categories. Industry stakeholders indicated that marketing is critical to changing consumers' perceptions of food and beverage goods and additionally highlighted that marketing is a long-term process that requires consistent effort over a period of time.

## Stocktake from stakeholders related to the Canning Vale industrial precinct

As part of this project, there has been an extensive consultation with the stakeholders in order to better understand the limitations and obstacles that prevent the expansion and development of food value added businesses. The list of stakeholders consulted for this project can be found in the appendix of this document.

A wide range of stakeholders have been interviewed across public, private and not-for profit sectors. Businesses of different sizes related to the food value add industry were of particular interest since they provide powerful insights on the Canning Vale industrial precinct. Some of them already have facilities in the Canning Vale industrial precinct while others are located in other suburbs of the metropolitan area or in regional WA.

These conversations are key to this project as they not only provide a broad understanding of the food value add industry in WA but they are also crucial in identifying the needs of the Canning Vale food value add precinct. Therefore, they have been fundamental in shaping some of the recommendations of this report to the City of Canning.

In this section we would discuss the main obstacles for food value add business to develop (or settle) the Canning Vale industrial area.

### Access to information

Access to information can make or break a company. This is especially true for small start-ups that need help setting up and navigating the various regulatory requirements. Small entrepreneurs are time poor and they cannot spend hours looking for information, which means the more accessible the information, the higher the efficiency and time gains. As with many things, it comes down to cost; efficiencies decrease costs associated with disinformation.

One can think of a company looking for a sustainable packaging solution for its products that is unaware of a neighbouring business doing just that. As a consequence, the company would procure the packaging from a business located on the eastern states that has better visibility on the internet. The price of transportation due to shipping would increase the cost of production for the company and therefore decrease business turnover.

### Need for scale and centralisation of products

One of the main concerns for a large number of stakeholders resides in the need for scale, especially for small businesses and the public sector players. As explained in earlier sections, creating economies of scales is essential to decrease the cost of production and distribution as well as to make some projects become feasible.

For instance, during discussions with industry stakeholders, the infeasibility of exports for some products was a prominent concern due to insufficient produce from each individual business that would make exports profitable. The cost of sending one container that is not full is too high for a small company to bear. However, if there was enough centralisation of this commodity to be able to fill in a container, then export would be an option for multiple producers.

The size of the business and the lack of centralisation of products prevent companies from exporting to other markets. Furthermore, the development of other food value add products that require a significant amount of fresh produce can be prohibitive for some business if they are unable to find enough quantity of that produce.

The need to centralise products to create economies of scales is paramount for the profitability of companies and projects.

### Need to develop networks and cooperation

Throughout the interviews with stakeholders one issue that kept arising was the need to develop networks. It seems that the food industry is quite scattered, with little awareness about the different companies present in the sector and a lack of knowledge of what they have to offer. As a consequence, there are substantial losses in efficiency as companies miss out on opportunities and partnerships beneficial to their operation.

A company that would like to upscale their products and requires other commodities of equal quality to do so, could take major advantage of a strong network. The larger the network, the higher the number of companies that can partner and the larger the number of goods that could be developed for commercialisation. Having access to networks creates positive externalities in the industry but also in the economy as a whole; products become more complex and so does the economy.

## Need for coordination

Along with difficult access to information, there is a lack of coordination between the different players of the food value add industry. The logistics of the distribution channel has been pointed out as a major concern by companies. Businesses can take care of the production side but the coordination of bringing the inputs to the factory and the distribution to the customers could be smoother. The absence of coordination between companies brings frictions to the supply chain. As a result, it increases costs, limits the access to new markets and constrains the operational side of companies.

If we use once again the example of a commodity export where single producers are unable to export to international markets alone, and instead, need to cooperate with others to fill a container; the coordination of this operation is the key to its success. This operation would fail unless all the companies are logistically coordinated and able to bring the products at the same time to a centralised location before shipment. Therefore, their decisions of production and distribution such as when to harvest the produce, where to store it and when to transport it require strong coordination and planning.

Hence, detailed information related to the logistic environment to the Canning Vale precinct such as trucks movements and transportation coordination can be extremely valuable to companies.

## Access to labour supply

Throughout 2021, WA has experienced an unprecedented wave of skill shortages and scarcity of labour force supply. Even though this is a new phenomenon in some industries, for others this is a regular occurrence. In fact, for some industry stakeholders, this is the single most important consideration in the production process. This also explains why a number of companies decide to base their operation in cities like Perth rather than in regional areas where the rentals of facilities is cheaper but labour is scare.

Indeed, labour supply is becoming a bigger issue for more companies, one that Canning Vale would need to address. This is especially true since Canning Vale is a net employer in the metropolitan area which means that more people work than live in Canning Vale. It is therefore imperative for Canning Vale to be able to attract workers and high skill personnel.

## Need for better infrastructure

### Connectivity and roads

Multiple stakeholders have indicated that there is a need to improve transport infrastructure in the Canning Vale industrial precinct, pointing out the significant traffic jams that occur in the morning when people and trucks converge to the area. They remarked that if the precinct was looking to attract more people there is a need to invest in road infrastructure and transportation more broadly.

Connectivity is another key priority for industry stakeholders, especially when deciding on the location of facilities. It is worth noting that big companies have shown a keen interest in the intermodal transportation hub, especially since they move a significant number of trucks. Furthermore, the logistic aspect of the intermodal transportation terminal is also very appealing to big companies that cannot afford losing time while waiting to unload and reload merchandise.

### Sustainable infrastructure

Another interesting aspect that was discussed is the issue of sustainable infrastructure. The recently built food innovation precinct in the Peel has access to solar energy and a microgrid. This attracts companies that are interested in environmental credentials for their products. The move towards more environmentally friendly goods can have repercussions in the long run if nothing is done to improve the current infrastructure and improve its green credentials. As times passes, more and more businesses will be interested in having carbon neutral products meaning they will favour locations where energy comes from renewable sources and waste treatment is optimised to minimise landfill waste.

## Find the market and consumers for products

The last significant aspect that arose from the stakeholder conversations is the access to markets and appetite for new products that are not usually consumed by households. For instance, some industry stakeholders remarked that there were some products that could decrease food waste by using secondary inputs. For instance, to reduce waste from avocado it is possible to cold press the avocado seed to manufacture avocado oil. Even though this seems like an interesting idea, the only way for it to work is for households to start consuming avocado oil. However, as this is a relatively new product to the market, it is unlikely that people would change their habits and start buying this oil. To improve consumer intake of this product, marketing campaigns are necessary to open the appetite for these sorts of commodities.

Furthermore, the access to markets could target domestic consumers but also international markets. The centralisation of product, the increase in scale and the coordination of exports could help some companies reach international markets that would otherwise have been closed to them. Nevertheless, in places where Australian products are not well-known or appreciated, similar marketing or awareness campaigns would be needed to reach overseas customers and markets.


# SUSTAINABLE FOOD VALUE ADD PRECINCT

## Waste management in food manufacturing

Waste is a natural output of any transformation process but food processing is amongst the most wasteful of all global manufacturing industries. This is particularly the case when it comes to plastics. McCarthy (2020) listed eight of the world's worst offenders for plastic pollution and five of these are food and beverage manufacturers. Bio-waste from food manufacturing has traditionally been used as animal feed but tight regulations on swill feeding, demand for controlled livestock diets and distance to markets has given rise to bio-waste innovations like anaerobic digestion, composting, incineration, land-spreading and, unfortunately, landfilling (Garcia-Garcia et al, 2019). Garcia-Garcia, Woolley and Rahimifard (2017) provide a helpful summary of parameters, variables, factors and indicators to model food-waste management alternatives (Table 17).

**TABLE 17: Examples of parameters, variables, factors and indicators to model food-waste management alternatives**

| | Food waste management alternatives | Example of parameter, variable, factor or indicator | Example of value or unit |
|---|---|---|---|
| Qualitative parameters | R | Edibility | Edible/inedible |
| Quantitative/primary parameters | R, AF, AD, C, TT | Flow rate | (kg of $m^3$ )/day |
| Quantitative/secondary parameters | AD, C, TT | Volatile solids | % of total solids |
| Process variables | AD, C, TT | Temperature | °C |
| Company variables | C | Pile size available | cm high, m wide |
| Performance factors | AD | Methane yield | L/(g VS) |
| Environmental factors | R, AF, AD, C, TT | Greenhouse gas emissions | (kg $CO_2$ eq)/day |
| Economic indicators | R, AF, AD, C, TT | Economic incomes | £/month |
| Social indicators | R | Feasibility to redistribute | Yes/No |

Note: R - redistribution for human consumption; AF - animal feeding; AD - anaerobic digestion; C - composting; and TT - thermal treatment with energy recovery (Adapted from Garcia-Garcia, Woolley and Rahimifard (2017).

While Garcia-Garcia et al. (2017) work provides a good insight into avenues for food-waste management alternatives, it is principally focused on waste and does not take into account value adding of low quality food. Later work by Garcia-Garcia, Stone and Rahimifard (2019) suggests that there are two approaches to implementing a circular economy in food manufacturing: 1) minimising waste and 2) waste valorisation.

Against this background, two case studies are provided to show how waste – in its various definitions – can be value added through initiatives like the Canning Vale precinct. The first case study on lamb bacon is about minimising waste through adding value to a food product that is either discarded or used for pet food. The second case study focuses on the Carnarvon horticultural industry's waste valorisation by way of creating new food products from food waste.

### Case study: Value adding – making something out of nothing (edibility)

Value creation in a sustainable manner is an important remit of Meat and Livestock Australia (MLA). The Australian red meat sector has committed to achieving carbon neutrality by 2030 through development, release and implementation of its CN30 strategy but it is also committed to the sustainable development of Australia's red meat sector. One of MLA's key initiatives has been to target the food services sector to ensure that red meat is a priority for decision makers and buyers in this sector. Australia's corporate catering sector alone is worth $4 billion of revenue (Oo, 2021). An example of MLA's commitment to the food services sector is the Rare Medium Academy. Its website says that it "is here to educate and inspire foodservice chefs from quick and fast service restaurants, aged care, commercial catering, transport, pubs and clubs to have success with Australian red meat in commercial kitchens and on menus. Our goal is to take you on an educational journey so you can be inspired to create dishes using Australian red meat." Further to this, the website mentions cost ("The [Rare Medium Academy] videos will promote tips, tricks and hacks to mentor you, as a foodservice professional, to up-level your menu while maintaining costs, achieving a balanced meal and a delicious dish for your customers.") with many of the recommended recipes featuring cuts of meat that have traditionally been viewed as low-quality (e.g. ox tail, oyster blade, short rib and chuck steak).

Alongside this, Barton Small Goods is an example of an innovative food business that has similarly recognised the benefits of value adding to transform a low value cut of meat to a near luxury product. The business has been in operation since 2016 and currently retails its lamb bacon product for about $175/kg while traditional high quality bacon retails at between $7/kg to $16/kg; it is suitable too for consumers


whose cultural values prohibit pork or beef products. Barton Small Goods processes low quality rib and belly sheep meat into bacon. These cuts are ordinarily used for pet food or discarded due to their low value.

This case study constitutes a prime example of "making something out of nothing" by innovative value adding of a low quality, edible product through product innovation and widespread industry training.

Messages for the Canning Vale Precinct:

- Create value by identifying low value food products and value adding in the Precinct.

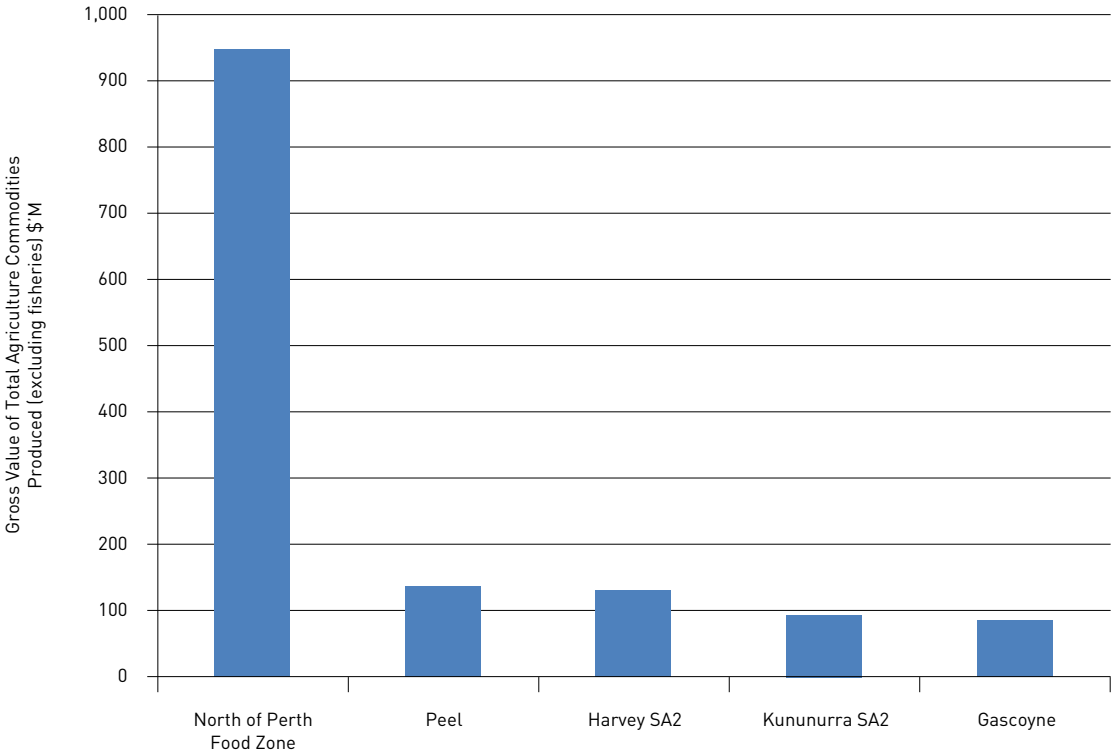
### Case study: Value adding - Carnarvon Horticultural Produce

Notwithstanding the quantity of food produced north of Perth (Figure 29), the Gascoyne Development Commission (GDC) identified state and federal government funding initiatives to support:

- reduction of waste,
- food innovation and regional innovation, growth and new industries,
- employment creation,
- new food labelling laws around biosecurity and food safety.

The GDC undertook significant research to identify two "investment ready" value added products from horticultural waste and developed a platform to fund further value added products. The investigation delivered six investment ready products (tomato, mango, capsicum, honeydew, zucchini and banana), design of food value adding facilities and a framework for future investment into value adding of horticultural waste. This is a case study of waste valorisation.

FIGURE 29: Western Australian agricultural production by region




Source: Howieson, n.d.

Major barriers to the success of developing a waste valorisation facility were found to be:

- Even volumes of input to achieve consistency in production and output. The input products (i.e. fruit and vegetable waste) are not only seasonal but waste products of a supply chain can often be indeterminate.
- The quality imperative of export-grade food so the use of waste products may not be suitable for export markets that demand high quality, low volume niche products.
- Tensions between growers needed to be overcome and the risks of a new enterprise needed to be accepted.

While further work is required to provide a more in-depth business case, initial results suggest that valorisation of food waste is possible in the Carnarvon horticultural industry. The long term case scenario for the food waste processing plant was not as promising as the pilot base case scenario but investors and future users of the system should consider their objectives of a food waste valorisation facility. Clearly the objective of massive profitability is not the same as the previous case study on lamb bacon, rather the objective here is to support the region by making use of food waste, creating employment and even minimising biosecurity burdens of having waste produce lying on the ground in plantations.

Messages for the Canning Vale Precinct:

- Valorisation of food waste may not be a hugely profitable avenue to pursue but may achieve objectives around ethical business practices and indicators about waste reduction and the circular nature of the Precinct.

## Low carbon footprint and precinct circular economy

"Circular economy is an industrial economy that is restorative by design and mirrors nature in actively enhancing and optimizing the systems... [it] means reuse, repair, refurbishing, and recycling of the existing materials and products; what was earlier considered to be waste becomes a resource." (Jurgilevich et al., 2016:70). It is suggested that, in a circular economy, measures for both producers and consumers are implemented to determine success.

Vilariño, Franco and Quarrington (2017) suggest that there are both environmental and socioeconomic impacts of food loss and waste – both should be given equal attention when designed metrics are used to measure and achieve success of a food circular economy. The authors also state that solutions can be grouped into three broad categories:

- **Technical solutions** – using technology to preserve food safety e.g. establishment of logistics cold chains
- **Cultural and behavioural solutions** – changing consumer attitudes towards food waste through food labelling strategies, portion control and waste generating sales campaigns (e.g. buy-one-get-one-free)
- **Policy solutions** – government interventions to influence behaviours throughout the supply chain e.g. taxes, subsidies, research investment, institutional arrangements and community education programs.

Esposito et al. (2020) take a different approach and describes the ambitions to define a circular economy model for an agrifood system as utopian. The authors argue that the complexity of agrifood systems is such that a collaborative approach amongst industry stakeholders (i.e. producers, government and other types of institutions) is necessary to deal with integrating the disparate processes and relationships that exist. Venovese et al. (2017) take a similar view and suggest that a systems approach is required to ensure all stakeholders of a circular supply chain have buy-ins; this will strengthening the overall agenda.

Packaging not only provides an opportunity for product labelling and marketing, it is also essential to product transport. For example, packaging keeps food products free from contamination or adulteration while also preserving quality and safety (Guillard et al., 2018, Dani, 2015). The longer a product's freight journey, the more robust the packaging needs to be. There is a trade-off between the robustness of packaging and its contribution to the overall cost of goods sold: the stronger and more detailed the packaging, the more expensive it is to produce and to ship.

There is also a problem with the disposal of food packaging. Australians dispose around 1.9 million tonnes of food packaging every year (Sustainability Victoria, 2021) and more than 80 per cent of food products are packaged in materials that are not recyclable (WWF Australia, 2021). There is a great deal of advice on the importance of packaging when it comes to agrifood supply chains, particularly in regards to

sustainability and a low carbon footprint (Licciardello and Piergiovanni, 2020; Guillard et al., 2018; Vilariño, Franco and Quarrington, 2017). Aguilar et al. (2019) argue for the widespread adoption of bio-active packaging in the food industry while Ncube et al. (2020) argue for the further development of biopolymers to replace conventional plastics for food packaging. Overall, it is Guillard et al. (2018) who provide the most helpful guidance for selecting sustainable packaging for a circular economy. These authors insist that any new innovations must align with the fundamentals of the circular economy through activities such as using food waste to create bioplastics for packaging, creating packaging that reduces food waste and loss, and supporting food manufacturers with clear guidelines to select packaging innovations.

An example of the latter is the Australian Packaging Covenant Organisation (https://apco.org.au/about-apco) which is a not-for-profit organisation that aims for a packaging value chain based on the principles of a circular economy. It is envisioned that collaboration will keep packaging materials out of landfill and retain the maximum value of resources, energy and labour within the local economy.

Despite the enthusiasm for the implementation of low carbon for systems that operate on the principles of a circular economy, some cautionary tales and criticisms are discussed in the literature. For instance, Venovese et al. (2017) alert us to the lack of economic viability of circular supply chains. In terms of calculating carbon emissions from a circular supply chain, Campos et al. (2020) caution that products added from outside the chain (e.g. waste derived from imported products) need to be treated differently than waste produced from locally sourced goods because they have a different carbon profile.

Another word of warning is issued by Kiss, Ruszkai and Takács-György (2019) who researched short supply chains and concluded that it is important not to confuse "local food" and "sustainable food" in supply chain design. This is because short agrifood supply chains are often higher emitters of carbon than long, large scale supply chains so careful calculations of carbon emissions need to be considered when marketing local food that also claims to be sustainable.

Messages for the Canning Vale Precinct:

- Principles of a circular economy are widely recognised as solutions for ethical business in the food manufacturing industry and supply chains.
- Food manufacturing is not an isolated consideration in the development of the Canning Vale precinct, responsible packaging of food for preservation of product quality and safety whilst minimising contamination or adulteration is essential.
- While local food might be an attractive marketing proposition, short supply chains can be detrimental to carbon footprints so a careful distinction between "local food" and "sustainable food" must be acknowledged and understood. Similarly, the ethics of adding imported food (with a different carbon footprint) must be recognised in carbon footprint calculations.

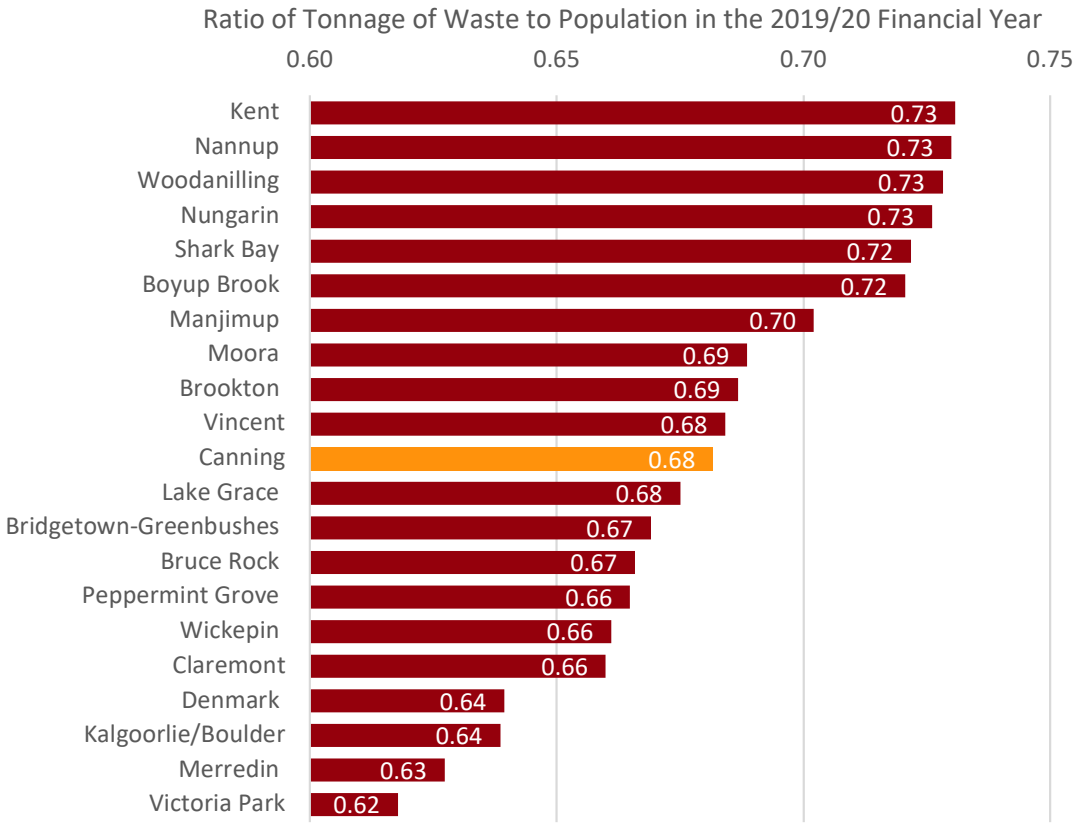
## Sustainability in the Canning Vale area

Sustainability is an important factor to consider when evaluating the potential value of a food value precinct in the Canning Vale industrial area. All four of the reviewed food value add precincts case study of previous sections had a significant focus on the implementation of sustainable practices alongside profitable outcomes. Factors such as waste, energy consumption, and water usage can result in significant costs for food value add manufacturers in particular.

### Waste

Inclusive of the proposed value add precinct, Canning Vale's waste output is the 11th highest out of WA's local council areas; at 37,414 tonnes of waste in the 2019/20 financial year. However, on a per capita basis, Canning produces 0.88 tonnes per capita; the 88th highest, compared to heavy waste producers such as Armadale (2.19 tonnes per capita) or food value areas like Mandurah (1.98 tonnes per capita).

FIGURE 30: WA Tonnage of Wastage over Population by select Local Council Areas, 2019/20 Financial Year



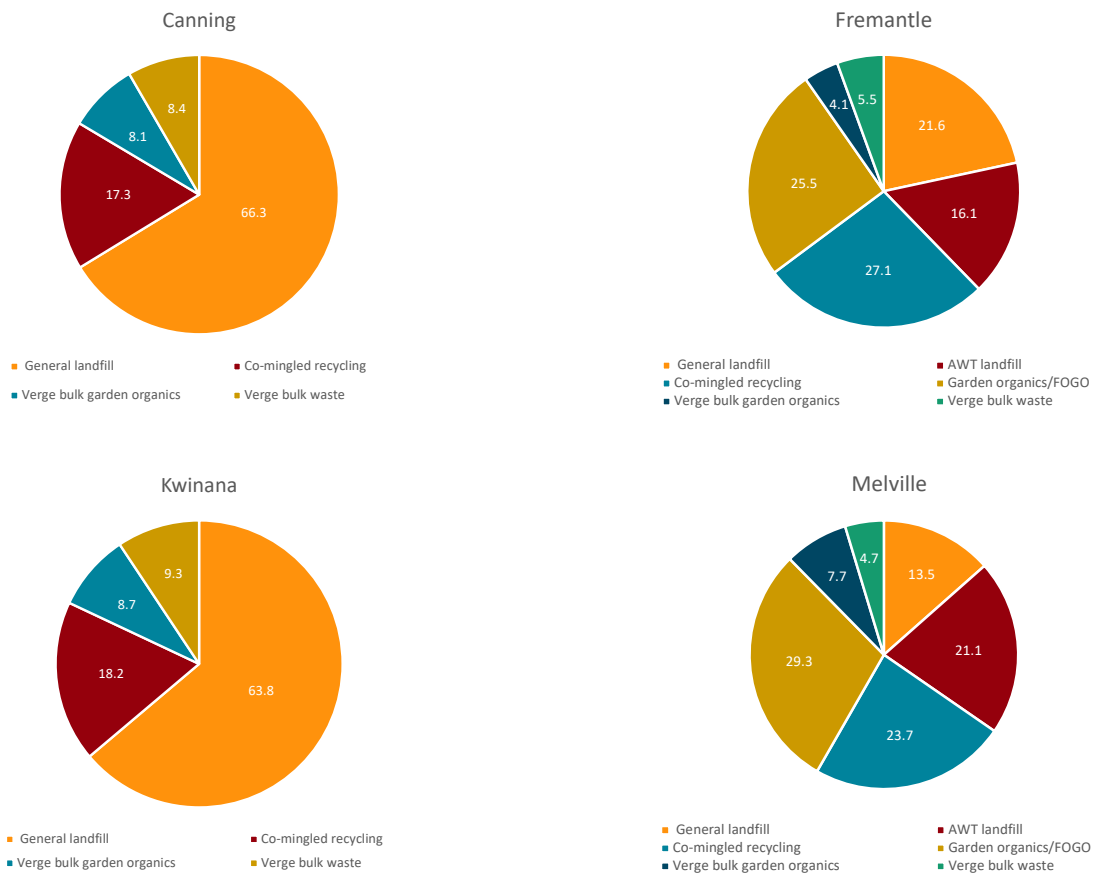

Source: Bankwest Curtin Economics Centre | BCEC analysis using Department of Local Government, Sport, and Cultural Industries data.

Waste management is an important element of sustainable practices in agricultural and food value based industries. Waste management through circular agricultural systems is an integral part of the Food Valley hub in the Netherlands; using the residuals from the production process to support other value add processes. One example the Food Valley cites is the usage of insects to convert food waste into proteins for consumption, or converting the spent grain from beverage brewing into fibres for other products.[44]

Despite one of the lowest amount of per capita waste, Canning Vale is one of the poorest performers in the treatment of waste. Indeed, over 66 per cent of the total waste goes into landfill while 17 per cent is recycled. This compares to similar figures for the City of Kwinana, an analogous industrial zone. Furthermore, only 8 per cent of organic waste is recovered compared to 30 per cent in Melville, also a strong industrial area.

Since one of the main focus of the food value add precinct is the aim for circular economy, Canning Vale could develop a hybrid system where both household and industrial organic waste could be collected through FOGO for households and a similar system for businesses. This would enable waste to be transformed into compost and fertiliser than can in turn be used as agricultural input. Planning the treatment of organic waste should be one of the main objectives for the City of Canning, especially when trying to attract new food related companies to the area.

FIGURE 31: Waste treatment by selected local councils, 2019-20



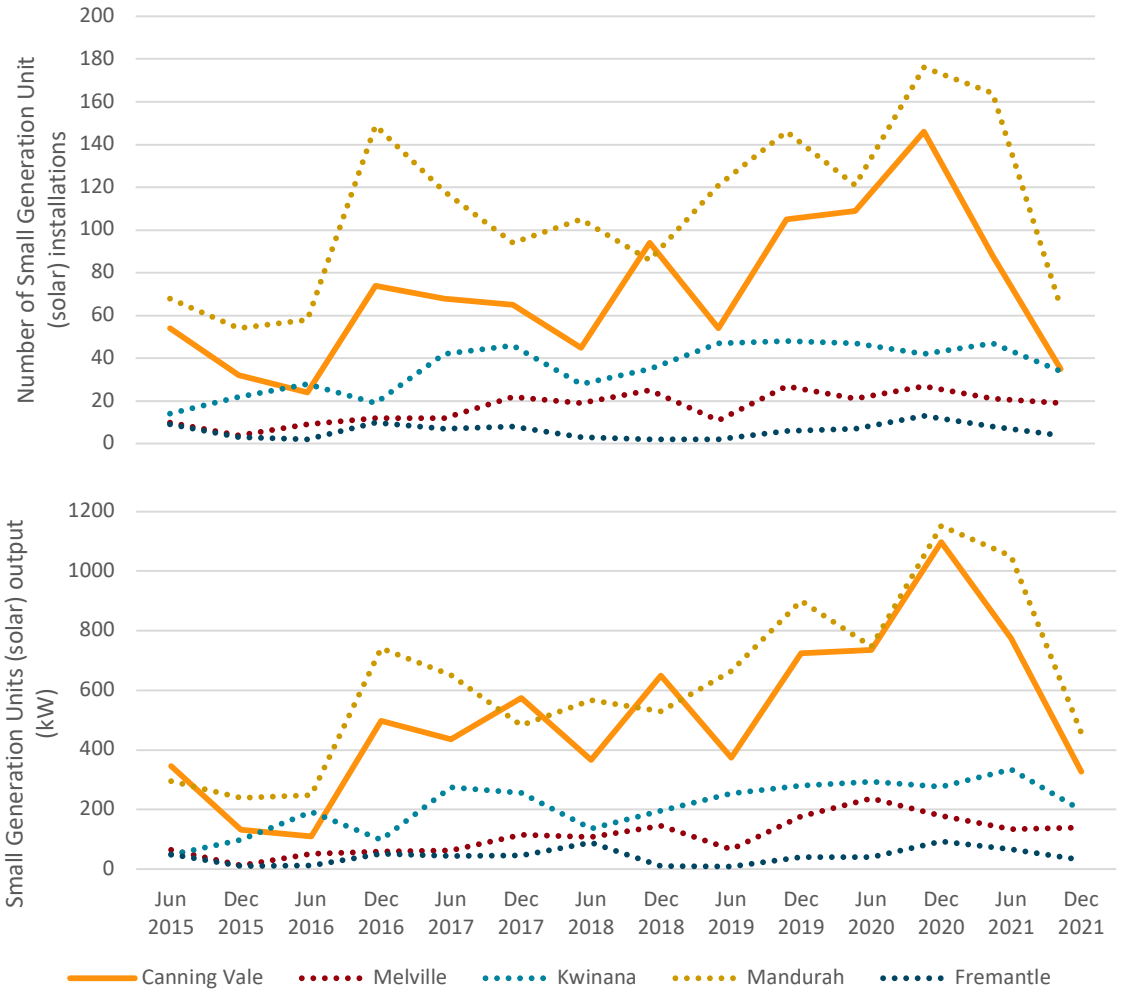

Source: Department of Local Government, Sports and Cultural industries, 2019-20.

44 Foodvalley (2021), Circular Agrifood, Foodvalley, https://www.foodvalley.nl/innovation-fields/circular-agrifood/.

## Renewable energy

Alongside waste management, energy usage is an important factor in sustainable practices, especially when considering carbon emissions and the resulting carbon footprint from operating energy-intensive production processes. In terms of clean energy, the Canning Vale postal area constitutes roughly 3 per cent of the state's total solar power supply; making it the 4th largest postal area in terms of small generation unit (SGU) output in WA. Therefore, Canning Vale is one of the leading councils in terms of solar panel installation in the state and a powerful drawcard for businesses looking to achieve greener credentials.

FIGURE 32: KW of Solar Energy generated in Canning Vale POA and other top generators over time, and number of SGU installations over time




Source: Bankwest Curtin Economics Centre | BCEC analysis using Australia Government Clean Energy Regulator data.

Nevertheless, given the number of warehouses in the Canning Vale area there is a significant opportunity to further develop solar energy. The extensive roof surface in the area provides an advantage for this technology. The idea of a microgrid for the Canning Vale industrial precinct could be a path worth pursuing, especially since most activities in the area occurs during daytime, reducing the need for energy storage. Nevertheless, energy storage from solar panels should also be taken into account in the long run to provide better opportunities for the development of solar energy. A microgrid would allow companies to access clean energy at costs than those from the Perth electricity network. On top of that, with increasing demand from consumers towards environmentally friendly products, particularly in the food sector, a microgrid would provide an advantage to producers and allow them to capture a larger share of the market. This would put businesses in the Canning Vale industrial precinct in a head start position to compete with other emerging companies in the sector.

However, for this initiative to be possible, cooperation and willingness from the City of Canning is paramount.

Other food value add precincts have also touched upon the topic of renewable energy as a concern for their ongoing operations. Factors such as increasing energy efficiency and increasing the share of clean and renewable energy are key targets for New Zealand's Ministry of Business, Innovation, and Employment. However, the makeup of said generation is primarily reliant on hydro power which constitutes a more reliable source of renewable energy as opposed to solar or wind.[45] In this case, the energy mix and connection to an overall network is more important that in the case of hydro alone.

One final point to consider is what roles and responsibilities agribusiness has in the environmental impacts and emissions that arise from agricultural expansion. Whether it be the removal of carbon-capture mechanisms due to agricultural deforestation or the emissions that can be attributed to the biological waste from livestock, such as methane emissions from cows. Innovative solutions to this issue such as moving livestock over to a seaweed-based diet to reduce methane emissions have been found thus increasing the environmental credentials of these products. Although innovation in this area is important, the repercussions are more likely to affect farmers rather than manufacturers. However, it is important to point out that decreasing the environmental footprint of these product would also increase the public appetite for these goods.

45 Ministry of Business, Innovation & Employment (2020), Energy in New Zealand 21, New Zealand Government, https://www.mbie.govt.nz/dmsdocument/16820-energy-in-new-zealand-2021.

# STATE AND FEDERAL GOVERNMENT POLICIES SUPPORTING THE DEVELOPMENT OF A FOOD VALUE ADD PRECINCT

# STATE AND FEDERAL GOVERNMENT POLICIES SUPPORTING THE DEVELOPMENT OF A FOOD VALUE ADD PRECINCT

## Western Australia

The Government of Western Australia has made diversification a priority when it released the Diversify WA economic development framework in July 2019.[46] The framework identifies six priority sectors:

- Energy;
- Tourism, events and creative industries;
- International education;
- Mining and mining engineering and technical services;
- Technology and advanced manufacturing; and
- Primary industries.

The Diversify WA policy is likely to be revised to support recovery from the COVID-19 pandemic. The synergies between the proposed precinct and Diversify WA framework are increasingly important for economic recovery in regional WA.

Elements of the 2020 WA Recovery Plan were directed towards empowering the food sector and value add industries. $16.7 million dollars were invested directly into agrifood businesses as a part of the Food and Beverage fund; and $6.5 million was invested as a part of the Value Add Investment Grants,[47] targeting value add business with high growth potential in Western Australia. An additional stimulus scheme directed towards private firms for food value add businesses is the International Competitiveness Co-Investment Fund which provides grants for agrifood businesses targeting Asian export markets with the aim of improving both external and internal competitiveness.[48] One round of funding has already awarded with two more rounds of grants planned by the State Government as at the time of writing.[49]

Furthermore, in recent media statements the WA government announced a $100 million investment attraction fund to help drive the WA diversification strategy.[50] Of particular focus is the investments in new sectors and markets that "builds on WA's existing strengths and industry knowledge, prioritising projects and sectors that are identified in the State's economic development framework, Diversify WA". The food value add precinct could be a central focus of this program, since, as demonstrated in the previous chapters, Canning Vale has significant advantages in food related industries.

The Transform Peel program, headed by the Peel Development Commission, is a program aimed at developing a food value innovation precinct in Nambeelup, just west of Mandurah, with the end goal of creating new food value add businesses with support for the WA economy. The project has had extensive support from the State and Federal Government; $45.2 million in direct funding through state programs[51] such as WA Open for Business[52], a part of the Seizing the Opportunity Agriculture initiative, which is ultimately funded through the Royalties for Regions program.[53]

One program that the Peel region has seen some significant funding through is the Regional Economic Development grants (RED grants), delivering payments to several key agribusinesses in the Peel area, such as $150,000 in funding for the Spinifex brewery or a $170,000 grant for the development for a vertical farm in the business park.[54] However, the RED grants are funded primarily through Royalties for Regions; and therefore it is unlikely that the City of Canning would be able to qualify for this funding.[55]

Furthermore, the Agri-Innovation Precinct initiative is a program led by the state in cooperation with the Peel Development Commission with the aim of developing new exports to key Asia-Pacific trading partners such as Singapore, which has provided funding to businesses in the business park as well. Key export facilitators such as GrowHub, a Singaporean funded firm, have also provided support to new businesses for exports. Hence, it may be in the interest of the Canning Vale value add precinct to

46 WA Department of Premier and Cabinet (2019) Diversify WA Economic Development Framework, Government of Western Australia, https://www.wa.gov.au/organisation/department-of-the-premier-and-cabinet/diversify-wa-economic-development-framework.

47 WA Department of Premier and Cabinet (2020) Food industry plan to support WA recovery efforts, Government of Western Australia, https://www.wa.gov.au/government/announcements/food-industry-plan-support-wa-recovery-efforts.

48 WA Department of Primary Industries and Regional Development (2021) Funding support for Western Australian agribusinesses, Government of Western Australia, https://www.agric.wa.gov.au/agribusinessfunds.

49 WA Department of Primary Industries and Regional Development (2021) International Competitiveness Co-Investment Fund, Government of Western Australia, https://www.agric.wa.gov.au/ICCF.

50 WA Government media statements, March 9th 2022. https://www.mediastatements.wa.gov.au/Pages/Default.aspx.

51 Peel Development Commission (2021) A Food Innovation Precinct, Government of Western Australia, https://www.peel.wa.gov.au/transformpeel/western-australian-food-innovation-precinct/.

52 Peel Development Commission (2021) Investing in Transform Peel, Government of Western Australia, https://www.peel.wa.gov.au/transformpeel/investment-planning-resources/.

53 Department of Primary Industries and Regional Development (2021) Seizing the Opportunity Agriculture, Government of Western Australia, http://www.drd.wa.gov.au/projects/Agriculture/Pages/Seizing-the-Opportunity-Agriculture.aspx.

54 MacTiernan, Alannah (2021) Peel RED Grants diversifying regional economies, Government of Western Australia, https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/12/Peel-RED-Grants-diversifying-regional-economies.aspx.

55 Department of Primary Industries and Regional Development (2022), Regional Economic Development (RED) Grants, Government of Western Australia, http://www.drd.wa.gov.au/rfr/REDG/Pages/default.aspx.

reach out to the Agri-Innovation Precinct initiative and see if support could be received for key agribusinesses operating in the precinct.[56]

Nevertheless, contrary to what Canning Vale is trying to achieve, the Food Innovation precinct relies on significant collaboration with Murdoch University to create innovative food value add products and procedures. This precinct focuses more in research, even though there are some facilities that are being rented to food value add companies that are notably interested in the use of the microgrid. This project has important synergies with the proposed food value add precinct in Canning Vale and instead of being a direct competition, it actually complements it well.

However, the food value add precinct in Canning Vale has different objectives and it would fill in another facet of the demand. Notably, the Canning Vale food value add precinct would concentrate on growing the industry, the diversification of products, the scalability of production and the expansion of the distribution channel. Canning Vale would basically be in charge of the mature aspect of the food value add industry while the Food Innovation precinct would focus in the emergence and creation of new products and processes.

## Commonwealth of Australia

The Federal Government of Australia has identified six industry growth centres:[57]

- Advanced manufacturing;
- Cyber security;
- Food and agribusiness;
- Medical technologies and pharmaceuticals;
- Mining equipment, technology and services; and
- Oil, gas and energy resources.

Each growth centre has its own competitiveness plan describing a 10-year strategy for the sector.

The sector competitiveness plan for the food and agribusiness growth centre was updated in February 2020.[58] In particular the strategy notes the importance of clustering for accelerating innovation and growth. Facilities such as the food value add precinct provide a focal point for clustering and collaboration across related industries that share challenges and opportunities. The strategy notes four research and development priorities including enhanced production and value addition.

The mining equipment, technology and services growth centre notes the importance of professional and technical services; technical equipment manufacturing and informational and operational technology.[59] The focus on technology is part of a diversification strategy to shift away from mining activity per se, towards higher value activities that use mining expertise and capabilities. The Canning Vale local area is also well positioned in these activities and the food value add precinct could be expected to support their continued development.

56 MacTiernan, Alannah (2021) New export opportunities open for Peel and WA producers, Government of Western Australia, https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/12/New-export-opportunities-open-for-Peel-and-WA-producers.aspx.

57 Department of Industry, Science, Energy and Resources (2018) Industry Growth Centres Initiative, Australian Government, https://www.industry.gov.au/policies-and-initiatives/industry-growth-centres.

58 Food Innovation Australia Limited (2020) Sector Competitiveness Plan Food and Agribusiness Growth Centre, available at https://www.fial.com.au/about/Sector-Competitiveness-Plan-2020.

59 METS Ignited (2021) METS in Australia, available at https://metsignited.org/australian-mets-sector/.


In October 2020 the Federal Government also announced a $1.5b Modern Manufacturing Strategy.[60] The strategy highlights six manufacturing priorities as areas of advantage: Resources technology, and critical minerals processing; food and beverage, medical products, recycling and clean energy, defence and Space. The proposed food value add precinct could support the digital transformation of manufacturing in the Canning Vale local area as part of this federal strategy.

The Food and Agribusiness Growth Centre (FIAL), established by the Commonwealth Government in 2018, also offered a cluster grant program to emerging food value add clusters in Australia, supplying $3 million in funding in 2018 and an additional $600,000 of funding to four food value add clusters in New South Wales, Tasmania, Queensland, and Victoria.[61] However, funding from the FIAL now seems to be closed until further notice; hence they are unlikely to be a viable funding pathway for the precinct.[62]

For individual start-ups looking to get started in the Canning Vale precinct, the CSIRO offers up to $50,000 in funding for start-ups and small businesses focused on researching new products and innovations, which could help attract innovative food producers to precincts that provide access to technologies that enable rapid prototyping and research into new food goods such as the proposed Canning Vale precinct.[63] The Australian government also offers a funding stream through the Advanced Manufacturing Growth Centre (AMGC); the Commercialisation Fund, which offers funding for those looking to manufacture new and innovative products with the potential for global competition; an apt description for businesses that could potentially find a home in Canning Vale's value add precinct.[64]

It will be important for the Canning Vale food value add precinct to stay abreast of federal, state and local government strategies. The food value add precinct would be a long-term investment that is supported by and contributes to achieving state and national priorities over a long period.

60 Australian Government Department of Industry, Science, Energy and Resources (2020) Make it Happen: The Australian Government's Modern Manufacturing Strategy, available at https://www.industry.gov.au/data-and-publications/make-it-happen-the-australian-governments-modern-manufacturing-strategy.

61 FIAL (2021), Clusters, Commonwealth of Australia, https://www.fial.com.au/building-capability/clusters.

62 FIAL (2021), Funding, Commonwealth of Australia, https://www.fial.com.au/creating-connections/funding.

63 Commonwealth Scientific and Industrial Research Organisation (2021), Matched funding for start-ups and small business to access CSIRO support, Commonwealth of Australia, https://business.gov.au/grants-and-programs/CSIRO-KickStart.

64 Advanced Manufacturing Growth Centre LTD (2021), Projects, Commonwealth of Australia, https://www.amgc.org.au/projects/.


# SUMMARY AND RECOMMENDATIONS

# SUMMARY AND RECOMMENDATIONS

This report examines the economic feasibility and financial impact of the creation of a food value add precinct in the Canning Vale industrial area. This reports clearly shows the advantages that Canning Vale already has in the food value industry, with a very significant number of businesses already focusing on this area.

As we explain throughout the report, it is extremely hard for local government to foster new industries in which the LGA has no relative comparative advantage or related industries already implanted in the area. The investment required to jump start this sort of industry would be consequential. Nevertheless, this is not the case for Canning Vale which possesses a significant advantage in food value add products not only across WA but also nationally. Developing a food value add precinct in this area makes sense since the network of companies necessary to expand and create new food value add businesses is already there.

The advantage of the Canning Vale industrial area puts it in a unique position to enhance the industry networks between companies and allow for efficiency gains while minimising costs.

The recently constructed food innovation hub in the Peel is an example of what a food value add precinct would look like in WA. Overall, the precinct has multiple purposes: innovate food value added products and proceeds, provide common use spaces to allow small start-ups to utilise the space at low prices and offer rental of facilities to companies that would be willing to settle in the precinct.

Because it would be counterproductive to build a second food value add precinct similar the one already in the Peel, the recommendations of this report differ from a physical re-creation of such a precinct in Canning Vale. Nevertheless, it provides some leads of a complementary approach that would foster food value add businesses in the Canning Vale industrial area without the need to build a physical facility.

We put forward twelve main recommendations that draw on the analysis in this report.

## The creation of a logistics hub

Some of the main lessons from the conversation with the stakeholders are: the need to increase operational scale by centralising products, the need for accessible and easy to access information, the need for coordination and creation and fostering of company networks.

The best way to achieve this is through the creation of a logistics hub in the heart of the Canning Vale industrial area

that would centralise all information and help businesses develop further. This hub would serve multiple purposes:

- Create a directory of companies in the area and facilitate the exchange between them by organising events and meet-ups. These events would allow for the exchange of information between companies as well as provide a support group for entrepreneurs.
- Energise the network of companies and find synergies between them. It would be possible to organise meeting by topics for instance between companies producing high-end commodities. Also, the possibility of creating a mentorship program between entrepreneurs so they can help and support each other at different stages of their business development.
- Coordinate logistics needs between companies such as: partnership for exports, domestic transportation, storage and sharing of machinery. This will help to create the scale necessary for companies to grow, making Canning Vale the centralised point of food value add goods.
- Guide businesses in the procedures to start and develop a company with personalised advice, templates that companies can use for administrative purposes, guidance with overall administrative steps and help to draw up business plans for example.

The main role of the local government would be to facilitate the exchange of information but also to serve as a "broker" between companies.

### Recommendations:

1. **Create a logistics hub that would: coordinate partnerships between companies to foster product development, organise transportation operation and guide start-up businesses in different administrative procedures.**
2. **The logistics hub should create a directory of companies in the area to compensate for the lack of information.**
3. **The logistics hub should also organise meet-ups between company owners and managers to foster cooperation and networks.**

## The creation of an export hub

Thanks to the proximity of the Canning Vale industrial precinct to the Perth airport and the direct access to the port, in the medium term, it would be beneficial and entirely feasible for Canning Vale to develop an export hub. The role of this hub would be to:

- Connect companies with one other to increase the mass and volume of exports, ultimately increasing the economies of scale.
- Coordinate and centralise the products for export from different companies. This would provide access to exporting for small and medium companies with significant fixed cost savings.
- Actively search for direct foreign investment opportunities between foreign companies and the Canning Vale industrial precinct to foster investment in the area.
- Provide international contacts for exports, creating an export hub that would link producers and overseas companies for the import and export of food value added items.
- In the long-run the export hub could provide cold storage and other storage facilities often necessary for the export of fresh produce.

Initially, some of the functions of the export hub can be provided by the logistics hub and if there is appetite to develop the export hub, it can done at a later date. The idea would be to adopt a staged 'test-and-learn' approach to investment in export facilities. This provides an opportunity to evaluate the return on investment at different phases of development, and assess the feasibility and added value of future investments.

### Recommendations:

4. **Create an export hub to assist companies to connect with each other in the coordination of exports, to provide contacts to overseas companies, and to explore opportunities for foreign direct investment.**
5. **In the longer term, an export storage and freezing facility should be considered to better centralise products for export.**

## Creation of a Canning Vale precinct brand

The creation of a Canning Vale brand can bring visibility to the commercial precinct. The main objective would be to attract new companies and create a stamp of what Canning Vale has to offer. For this brand, Canning Vale can rely on the new offers and services for companies as laid down in these recommendations as well as a forward looking vision of what the precinct would become. Some of the branding can lean on:

- A local government provides moral support and facilitates networks for entrepreneurs.
- A local government that provides support to start-ups, helping with administrative procedures and the set-up of companies.
- A local government that creates connections between companies with similar goals.
- A local government that helps with the logistics and barriers of exports.
- A local government that cares about the environmental footprint of the products and helps reduce waste and increases the share of renewable energy.

Evidently other aspects can be put forward in the brand but the overall idea is to create a brand such as Southern Forest "Genuinely" that is a synonym of quality, local produce. It is a brand that resonates and is immediately associated with a positive image.

### Recommendations:

6. **Create a Canning Vale brand that signals the strengths and unique qualities of the precinct, its distinctiveness and value, and that promotes food value add industries within the precinct and more broadly in the state.**

## Infrastructure

A key aspect in the development of food value add industries is the long term plan of infrastructure needs in the Canning Vale industrial precinct. Among them it is worth noting the following:

**Logistics hub (short term):** The logistics hub would not require a significant investment at the starting phase. The goal of the hub is to provide logistics guidance to companies and enhance connections between them (see above).

**Intermodal transportation hub (medium term):** This is perhaps one of the most important and ambitious projects for the City of Canning. The intermodal transportation hub would significantly improve the transportation network of the Canning Vale industrial precinct by increasing and optimising the flow of freight, constructing a rail stop close at the precinct as well as creating a 'inland port' for shipping containers.

**Export storage and freezing facility (long term):** This facility relates to long term investment in the export hub. The idea being to develop infrastructure that would boost exports even further especially for small companies for which access to storage is more complicated.

**Short terms accommodation (long term):** A possible consideration in the long run is the creation of short-term accommodation for overseas investors and domestic travellers looking to visit the precinct or generating business in the area.

### Recommendations:

7. **The development of the intermodal transportation hub is key to meeting the infrastructure needs of the Canning Vale precinct in the future.**
8. **In the longer term, develop short-term accommodation facilities to host overseas and domestic investors visiting the Canning Vale area.**

## Growing the workforce

An important concern that has become even more urgent in the last year is the availability of a skilled workforce. This is a major concern for many companies, and even if Canning Vale benefits from workers located in the broader Perth region, in the medium term the question of attracting skilled workers would remain a concern. Some of the recommendations to attract and build a workforce for the Canning Vale precinct are:

- Creation of job fairs that connects recent graduates with companies
- Creation of an apprenticeship network that links apprentices and businesses
- Creation of a local training centre or TAFE.

### Recommendations:

9. **The logistics hub should organise job fairs and create an apprenticeship network to attract workers to the area and develop the skills base.**
10. **In the longer term, consideration should be given to the creation of a TAFE training centre to meet growing demand for skilled workers and address the skills gap for companies in the Canning Vale area.**

## Sustainability

With consumers paying ever more attention to the environmental footprint of the products they consume, it is imperative that Canning Vale positions itself to increase the environmental credentials of its precinct. To do so, there are two main recommendations that can be made:

- Creation of a micro-grid based on rooftop solar panel renewable energy. The amount of warehousing roof space across the Canning Vale industrial area is extensive, and large enough to create such a grid. Purchasing storage technologies that would allow autonomy even at night could be a long term goal for the precinct, and would increase its environmental credentials even further.
- Improve the treatment of waste in the Canning Vale industrial precinct. Despite low per capita waste, its treatment can be improved by increasing the amount of organic waste collected. Organic waste can be composted into fertiliser and then used in agriculture. A hybrid system that mixes household and industrial waste could be develop similar to the FOGO bins already in place in other councils. This is key to assure the sustainability of a food value add precinct where most of the waste is organic.

### Recommendations:

11. **Creation of a micro-grid based on roof solar panel energy that can benefit environmentally friendly goods to be produced in the precinct.**
12. **Create a hybrid system for the collection of organic waste, including households and businesses' waste.**

## Coherence with other regional councils

Cooperation with other regional council is paramount. If each of the regions independently drafts their own developing blueprints without coordinating with one another, inefficiencies are inevitable. Of particular importance is to cooperate with regional councils in the South West, the Southern region, the Wheatbelt and the Peel and try to find common grounds to coordinate and further develop instead of increasing competition and duplicating effort.

The food innovation precinct located in Peel could complement the Canning Vale precinct. On one hand the Peel precinct is mostly specialised in the innovation of food value add products. The partnership with Murdoch University has developed the research opportunities of the precinct further. There can be this complementarity between Peel and Canning Vale with the former specialised in innovation and the latter in product manufacturing and scale.

## Schedule of proposed initiatives

It is important to emphasise that most of the initiatives described in this report can be implemented gradually. The investment program to build the added value from the Canning Vale precinct should align with a long-term strategy, but can be phased in order that each initiative can prove its effectiveness, and the investment can be deemed justified.

This avoids any unnecessary waste of money by allowing a considered step-by-step approach.

# GLOSSARY AND TECHNICAL NOTES

# GLOSSARY AND TECHNICAL NOTES

## Introduction

The economic contribution of the proposed food value add precinct was assessed on the value added and full-time equivalent employment created through its development and operations, as well as projected growth in industries supported by the precinct. Three main components are addressed:

- direct,
- indirect, and
- induced value added.

Direct value added is equal to revenue less the value of the intermediate goods and services used in production. The remaining share of revenue is the value added by the labour, capital and knowledge inputs to production. The estimates used in this report are based on industry averages of the value added per worker in the relevant activities.

The source of indirect value added is twofold. One source is from the total value of the labour and capital inputs of other organisations in producing the intermediate goods and services that are used in production of final goods and services. The other source comes from its customers purchasing goods and services from other organisations as part of the process of purchasing goods and services.

Finally, the induced economic contribution is the value of the output produced by other organisations' labour and capital inputs in producing the household goods and services purchased by the organisation's employee households.


## Direct value added

Direct value added is calculated based on the following items:

- Labour income is the value of the output generated by employees and is equal to the income paid to the organisation's employees;
- Gross operating surplus (GOS) is the income generated by the capital inputs used in the production process. The gross operating surplus value is equal to income before interest, tax, depreciation, and amortisation (EBITDA);
- Production taxes less subsidies are the taxes less subsidies incurred during the production process. It should be noted that net taxes on products are not included in the value. For research activities, research grants should not be considered subsidies here.

For the food value add precinct these figures cannot entirely be measured as it is not yet in operation. The estimates used in this report are based on industry averages of the value added per worker in the relevant activities. In particular these activities include:

- Food value add manufacturing;
- Related industries to food products; and
- Projected industry growth.

To explain the returns of a food value add precinct, we estimated the potential employment growth of food value add industries if they were to move to the 10$^{th}$, 5$^{th}$ and 2$^{nd}$ percentile above the industries' current RCA. This has been multiplied by a probably of occurrence (10%) times the relatedness density of each industry. This accounts for the feasibility for this industry to develop in the precinct.

Input-output analysis typically assumes a share of direct activity that is induced by the facility. That is, activity that might occur in absence of the facility should not be counted as part of its impact. Rather than assume a percentage share, we identify only the key activities as induced by the facility in the scope of direct value added and remaining activities hosted by the shared-use building, retail outlets, cafes or any other activity are considered outside the direct scope of activity induced by the facility. This provides a more logical scope for the direct activities induced by the facility.

## Indirect value added

The indirect economic contribution of the proposed precinct is through the purchase of intermediate goods and services for use by the direct activities hosted in the precinct. Some of these intermediate activities may also be hosted in the precinct but are still considered an indirect benefit. The indirect value added from the purchase of intermediate goods is modelled based on national averages of the intermediate goods or services purchased by those activities. The value of labour income, gross operating surplus, and production taxes less subsidies for each intermediate good or service purchased were estimated based on data from the ABS's Australian National Accounts: Input-Output Tables. The Input-Output table used in the modelling reports the inputs and outputs by input-output industry groups (IOIG) in the Australian economy.

The values of the labour income, gross operating surplus, and production taxes less subsidies for each intermediate good or service were calculated by mapping each ANZSIC industry to its corresponding IOIG. The mapping of ANZSIC industry to IOIG was conducted using the ABS's input-output industry group to ANZSIC industry concordance data.

One limitation of some reports in estimating value added is that they assume that the factors of production (e.g. labour and capital) are sourced completely within the state or region. In other words, it is usually assumed that there is no leakage of income to other states. To mitigate this limitation, the estimated indirect value added is adjusted using a location quotient. Morrissey (2014) notes that a straightforward and inexpensive way of regionalising a national input-output table is to apply a set of employment based location quotients. The employment location quotients applied in this report were calculated using equation 1:

$$LQ_i = \frac{\left(\frac{Proportion\ of\ State\ Employment\ in\ Industry_i}{Proportion\ of\ National\ Employment\ in\ Industry_i}\right)}{\left(\frac{Total\ National\ Employment}{Total\ State\ Employment}\right)} \qquad (1)$$

where $i$ is equal to industry. The full-time equivalent (FTE) employment created through the purchase of intermediate goods and services is calculated by dividing the estimated labour income by the average annual income for the industry associated with the intermediate good or service.

## Induced value added

The induced economic contribution is linked to the household consumption of employees hosted in the direct and indirect component. It is assumed that the distribution of family types amongst direct employees is similar to that of the Australian population in 2016.

Consumption patterns per household worker was modelled using the ABS's Household Expenditure, Income and Housing data. This dataset was selected because it contains very detailed information on household expenditure items. For example, the broad household expenditure categories include housing costs, domestic fuel and power, food and non-alcoholic beverages, alcoholic beverages, cigarette and tobacco, clothing and footwear, household furnishings and equipment, rental and hiring, household services and operations, medical care and health expenses, transport, communications, education, personal care, and miscellaneous goods and services. Within each broad household expenditure category, there are numerous detailed expenditure items.

The values of the labour income, gross operating surplus, and production taxes less subsidies for each household expenditure item were calculated by mapping each household expenditure item to its relevant input-output industry group (IOIG). As with the indirect modelling, the estimated induced value added was adjusted using an employment based location quotient to control for leakage of income to other states. In addition, the full-time equivalent (FTE) employment created through the household consumption of employees was calculated by dividing the estimated labour income by the average annual income for the industry associated with the household expenditure item.

In conclusion, the above methodology was designed to provide the highest possible degree of accuracy and confidence in the modelling of the indirect and induced economic contribution of the proposed food value add precinct, given the data available to the Bankwest Curtin Economic Centre.

# APPENDIX A: STAKEHOLDER ENGAGEMENT LIST

# APPENDIX A: STAKEHOLDER ENGAGEMENT LIST

The list of stakeholders that were approach for this study is here below:

| Organisation | Type of organisation |
|---|---|
| DPIRD | Government |
| Fremantle Port | Transportation |
| WA Food Innovation Precinct | Research and industry |
| WA Future Food Network | Food network |
| Southern Forrests | Producers agglomeration |
| WA Future Food Network | Food network |
| Auslink Foods | Food Distribuition |
| Natralplas | Organic packaging |
| Perth Markets Limited | Wholesale distribution centre |
| Craig Mostyn Group | Agribusiness |
| Linely Valley Pork | Agribusiness |
| Noumi Limited (Freedom Food) | Breakfast cereal |
| Nork Solutions | Sustainable solutions |


# REFERENCES

# REFERENCES


Advanced Manufacturing Growth Centre LTD. (2021). Projects. Commonwealth of Australia, https://www.amgc.org.au/projects/.

Agro Food Park. (2021). Arla Innovation Centre. LANDBRUG & FØDEVARER F.M.B.A, https://www.agrofoodpark.com/companies/arla-innovation-centre/.

Agro Food Park. (2021). What is Agro Food Park?. LANDBRUG & FØDEVARER F.M.B.A, https://www.agrofoodpark.com/about-agro-food-park/.

Aguilar, C. N., Ruiz, H. A., Rubio Rios, A., Chávez-González, M., Sepúlveda, L., Rodríguez-Jasso, R. M., and Ascacio-Valdes, J. A. (2019). Emerging strategies for the development of food industries. Bioengineered, 10(1), 522-537. https://doi.org/10.1080/21655979.2019.1682109.

Anderson, D. P., and Hanselka, D. (n.d.). Adding Value to Agricultural Products. AgriLife Communications. https://agrilifeextension.tamu.edu/library/marketing-risk-management/adding-value-to-agricultural-products/.

Australasian Railway Association. (2020). Value of Rail 2020. Australasian Railway Association, https://ara.net.au/wp-content/uploads/REPORT-ValueofRail2020-1.pdf.

Australian Food and Grocery Council, and Ernst and Young. (2018). Trade Update: 2017-18. https://www.afgc.org.au/wp-content/uploads/2019/06/AFGC-Trade-Update-2017-18.pdf.

Australian Government Department of Industry, Science, Energy and Resources. (2020). Make it Happen: The Australian Government's Modern Manufacturing Strategy. https://www.industry.gov.au/data-and-publications/make-it-happen-the-australian-governments-modern-manufacturing-strategy.

Australian Government. (2018). Statement of Principles for Australian Innovation Precincts: Place-Based Partnerships Building on Competitive Strengths. Department of Industry, Innovation and Science, Canberra.

Berry, K. (2021). 2021: The trends to watch in food and beverage. Food & Drink Business. https://www.foodanddrinkbusiness.com.au/special-report-trends-report-2021/2021-the-trends-to-watch-in-food-and-beverage.

Bond-Smith, S. Dockery, A.M., Duncan, A., Kiely, D., and Salazar, S. (2019). "Future proofing the WA economy: A roadmap to industrial diversification and regional growth". Bankwest Curtin Economics Centre, Focus on Industry Series, No. 4.

Campos, D. A., Gómez-García, R., Vilas-Boas, A. A., Madureira, A. R., and Pintado, M. M. (2020). Management of fruit industrial by-products—a case study on circular economy approach. Molecules, 25(2), 320-342. https://doi.org/10.3390/molecules25020320.

Carlton United Breweries. (2020). Asahi completes CUB acquisition. CUB, https://cub.com.au/asahi-completes-cub-acquisition/.

CBS. (2021). Agricultural exports staying rooted. Government of the Netherlands, https://www.cbs.nl/en-gb/news/2021/03/agricultural-exports-staying-rooted.

CBS. (2021). Employed labour force; economic activity (SIC 2008). Government of the Netherlands, https://opendata.cbs.nl/statline/portal.html?_la=en&_catalog=CBS&tableId=82807ENG&_theme=1080.

City of Auckland. (2020). Frucor: Preparing for long-term growth. Auckland Unlimited, https://www.aucklandnz.com/invest/success-stories/frucor.

City of Auckland. (2021). Value-add is the future of food exports. Auckland Unlimited, https://www.aucklandnz.com/invest/news/value-add-future-food-exports.

Commonwealth Scientific and Industrial Research Organisation. (2021). Matched funding for start-ups and small business to access CSIRO support. Commonwealth of Australia, https://business.gov.au/grants-and-programs/CSIRO-KickStart.

Coriolis. (2017). Emerging Growth Opportunities in New Zealand Food & Beverage. Ministry for Primary Industries, https://www.mbie.govt.nz/dmsdocument/2209-emerging-growth-opportunities-nz-food-beverage-pdf.

Cucagna, M. E., and Goldsmith, P. D. (2018). Value adding in the agri-food value chain. The international food and agribusiness management review, 21(3), 293-316. https://doi.org/10.22434/IFAMR2017.0051.

Dani, S. (2015). Food Supply Chain Management and Logistics, London:Kogan Page.

Danish Agriculture & Food Council. (2019). Denmark – a Food and Farming Country Facts & Figures. Danish Agriculture & Food Council, https://agricultureandfood.dk/news-and-press/news/2020/facts-and-figures.

Deloitte Consulting LLP. (2016). Capitalizing on the shifting consumer food value equation. https://www2.deloitte.com/content/dam/Deloitte/us/Documents/consumer-business/us-fmi-gma-report.pdf.

Department of Agriculture. (1999). Increasing value-adding to Australia's raw materials. https://www.aph.gov.au/Parliamentary_Business/Committees/House_of_Representatives_committees?url=isr/valadd2/subs/sub34.pdf.

Department of Industry, Science, Energy and Resources. (2018). Industry Growth Centres Initiative. Australian Government, https://www.industry.gov.au/policies-and-initiatives/industry-growth-centres.

Department of Industry. (n.d.). Growth opportunities. https://www.industry.gov.au/data-and-publications/food-and-beverage-national-manufacturing-priority-road-map/growth-opportunities.

Department of Infrastructure, Transport, Regional Development and Communications. (2017). Jobs for Western Sydney - Building Western Sydney airport. Government of Australia, https://www.westernsydneyairport.gov.au/sites/default/files/booklet-jobs_for_western_sydney.pdf.

Department of Infrastructure, Transport, Regional Development and Communications. (2017). Western Sydney Airport. Government of Australia, https://www.westernsydneyairport.gov.au/.

Department of Infrastructure, Transport, Regional Development and Communications. (2021). About the airport. Government of Australia, https://www.westernsydneyairport.gov.au/about.

Department of Infrastructure, Transport, Regional Development and Communications. (2021). Kenwick Intermodal Terminal. Australian Government, https://investment.infrastructure.gov.au/projects/ProjectDetails.aspx?Project_id=110522-20WA-NP.

Department of Planning and Infrastructure. (2021). Planning for Container Handling Facilities in the Cockburn/Kwinana Area. Government of Western Australia, https://www.wa.gov.au/system/files/2021-05/PRJ_-Planning-for-Container-Handling-Facilities-in-the-Cockburn-Kwinana-Area.pdf.

Department of Primary Industries and Regional Development. (2016). Premium Agrifood Market Opportunity. http://www.waopenforbusiness.wa.gov.au/WAOFB/files/a0/a0418447-174d-4cb1-bf57-e673dad540fb.pdf.

Department of Primary Industries and Regional Development. (2021a). Food Industry Innovation. https://www.agric.wa.gov.au/r4r/food-industry-innovation.

Department of Primary Industries and Regional Development. (2021b). Value Add Investment Grants. https://www.agric.wa.gov.au/VAIGrants.

Department of Primary Industries and Regional Development. (n.d.-a). Premium Food & Beverages. http://www.waopenforbusiness.wa.gov.au/Sectors/Premium-Foods-Beverages.

Department of Primary Industries and Regional Development. (n.d.-b). Invest In WA's Agribusiness & Food Industry. http://www.waopenforbusiness.wa.gov.au/WAOFB/files/97/9712c15a-f28f-4729-955d-a504f68380f4.pdf.

DuBois, C. (n.d.). The Rise of Food Transparency. https://www.iriworldwide.com/en-us/insights/blog/the-nbsp;rise-of-food-transparency.

Esposito, B., Sessa, M. R., Sica, D., and Malandrino, O. (2020). Towards circular economy in the Agri-food sector. A systematic literature review. Sustainability, 12(18), 7401-7422. https://doi.org/10.3390/su12187401.

European Commission. (2021). Smart Specialisation Platform, What is Smart Specialisation? https://s3platform.jrc.ec.europa.eu/what-is-smart-specialisation-.

European Commission. (2021). Statistical Factsheet Denmark. European Union, https://ec.europa.eu/info/sites/default/files/food-farming-fisheries/farming/documents/agri-statistical-factsheet-dk_en.pdf.

Export Finance Australia. (2019). Growing Australia's food & beverage exports. https://www.exportfinance.gov.au/media/6424/export-finance-growing-australlias-food-and-beverage-exports_final_nov19_web.pdf.

FIAL. (2020). Capturing the Prize: The A$200 billion opportunity in 2030 for the Australian food and agribusiness sector. https://workdrive.zohopublic.com.au/file/qx5769e1e310483ee4389b5d9f6cc55e768fe.

FIAL. (2021). Clusters. Commonwealth of Australia, https://www.fial.com.au/building-capability/clusters.

FIAL. (2021). Funding. Commonwealth of Australia, https://www.fial.com.au/creating-connections/funding.

Food Innovation Australia Limited. (2020). Sector Competitiveness Plan Food and Agribusiness Growth Centre. https://www.fial.com.au/about/Sector-Competitiveness-Plan-2020.

Foodvalley. (2021). About us. Foodvalley, https://www.foodvalley.nl/about-us/.

Foodvalley. (2021). Circular Agrifood. Foodvalley, https://www.foodvalley.nl/innovation-fields/circular-agrifood/.

Fromm, J. (2020). Sustainable Food Trends Will Become Center Of The Plate With Modern Consumers. https://www.forbes.com/sites/jefffromm/2020/11/10/sustainable-food-trends-will-become-center-of-the-plate-with-modern-consumers/?sh=51e433294fe6.

Garcia-Garcia, G., Stone, J., and Rahimifard, S. (2019). Opportunities for waste valorisation in the food industry–A case study with four UK food manufacturers. Journal of Cleaner Production, 211, 1339-1356. https://doi.org/10.1016/j.jclepro.2018.11.269.

Garcia-Garcia, G., Woolley, E., and Rahimifard, S. (2017). Optimising industrial food waste management. Procedia Manufacturing, 8, 432-439. https://doi.org/10.1016/j.promfg.2017.02.055.

Genovese, A., Acquaye, A. A., Figueroa, A., and Koh, S. L. (2017). Sustainable supply chain management and the transition towards a circular economy: Evidence and some applications. Omega, 66, 344-357. https://doi.org/10.1016/j.omega.2015.05.015.

Gidley, M. (2018). Value-added foods – leveraging Australian attributes. The University of Queensland. https://qaafi.uq.edu.au/article/2018/03/value-added-foods-%E2%80%93-leveraging-australian-attributes.

Google Maps. (2021). 27 Huntingwood Dr, Alphabet Corporation, https://goo.gl/maps/1YFDDv7AHmviK3MF9.

Government of the Netherlands. (2020). Dutch agricultural exports worth €94.5 billion in 2019. Government of the Netherlands, https://www.government.nl/latest/news/2020/01/17/dutch-agricultural-exports-worth-%E2%82%AC94.5-billion-in-2019.

Government of Western Australia. (2021a). Value-add funds to spur WA food manufacturing. https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/01/Value-add-funds-to-spur-WA-food-manufacturing.aspx.

Government of Western Australia. (2021b). Works underway on WA Food Innovation Precinct. https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/05/Works-underway-on-WA-Food-Innovation-Precinct.aspx.

Greenville, J. (2021). Australia's place in global agriculture and food value chains. Department of Agriculture, Water and the Environment. https://www.agriculture.gov.au/abares/products/insights/global-agriculture-and-food-value-chains.

Guillard, V., Gaucel, S., Fornaciari, C., Angellier-Coussy, H., Buche, P., and Gontard, N. (2018). The next generation of sustainable food packaging to preserve our environment in a circular economy context. Frontiers in Nutrition, 5, Article 121. https://doi.org/10.3389/fnut.2018.00121.

Horticulture New Zealand. (2021). About the horticulture industry in New Zealand. Horticulture New Zealand, https://www.hortnz.co.nz/about-us/.

Howieson, J. (n.d.). Collaborative Product Development Research Initiative for Gascoyne Primary Produce By Product: Summary of results. Available: https://www.gdc.wa.gov.au/wp-content/uploads/2018/09/Summary-of-Results-Collaborative-Product-Development-Research-Initiative.pdf.

International Trade Association. (2019). Denmark – Agricultural Sector. Government of the United States of America, https://www.export.gov/apex/article2?id=Denmark-Agricultural-Sector.

Invest in Holland. (2021). Holland's Taste for Innovation. Netherlands Foreign Investment Agency, https://investinholland.com/news/hollands-taste-innovation/.

Investment NSW. (2021). Food and Agribusiness. Government of NSW, https://invest.nsw.gov.au/invest/locate/western-sydney/opportunities/food-and-agribusiness.

Investment NSW. (2021). Western Sydney Products. Government of NSW, https://invest.nsw.gov.au/invest/locate/western-sydney/western-sydney-products.

Japan Centre for Economic Research. (2018). Emerging cities, sinking cities in Asia. JCER, https://www.jcer.or.jp/english/emerging-cities-sinking-cities-in-asia-by-2030.

Jurgilevich, A., Birge, T., Kentala-Lehtonen, J., Korhonen-Kurki, K., Pietikäinen, J., Saikku, L., and Schösler, H. (2016). Transition towards circular economy in the food system. Sustainability, 8(1), 69-83. https://doi.org/10.3390/su8010069.

Khoury, D. (2020). Analysis: Food and Beverage Industry Challenges in 2020. Octet. https://www.octet.com/blog/food-industry-finance/.

Kiss, K., Ruszkai, C., and Takács-György, K. (2019). Examination of short supply chains based on circular economy and sustainability aspects. Resources, 8(4), 161-182. https://doi.org/10.3390/resources8040161.

KPMG. (2017). Think big, think fresh. NSW Farmers Association, https://assets.kpmg/content/dam/kpmg/au/pdf/2017/western-sydney-fresh-food-precinct.pdf.

Lee, M. (2019). The Future of Food is Biodiverse. https://medium.com/the-future-market/the-future-of-food-is-biodiverse-40cc6211c89b.

Licciardello, F. and Piergiovanni, L. (2020). 6 - Packaging and food sustainability. The Interaction of Food Industry and Environment, C. Galanakis (ed.), Academic Press. https://doi.org/10.1016/B978-0-12-816449-5.00006-0.

MacTiernan, A. (2021). New export opportunities open for Peel and WA producers. Government of Western Australia, https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/12/New-export-opportunities-open-for-Peel-and-WA-producers.aspx.

MacTiernan, A. (2021). Peel RED Grants diversifying regional economies. Government of Western Australia, https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/12/Peel-RED-Grants-diversifying-regional-economies.aspx.

McCarthy, N. (2020). The World's Worst Companies for Plastic Waste Pollution, Forbes, https://www.forbes.com/sites/niallmccarthy/2020/09/18/the-worlds-worst-companies-for-plastic-waste-pollution-infographic/?sh=3acc25e96f10.

McGowan, M. (2022). $100 million Investment Attraction Fund launched to help drive Diversify WA strategy. Government of Western Australia, https://www.mediastatements.wa.gov.au/Pages/McGowan/2022/03/100-million-Investment-Attraction-Fund-launched-to-help-drive-Diversify-WA-strategy.aspx.

METS Ignited. (2021). METS in Australia. https://metsignited.org/australian-mets-sector/.

Ministry of Business, Innovation & Employment. (2020). Energy in New Zealand 21. New Zealand Government, https://www.mbie.govt.nz/dmsdocument/16820-energy-in-new-zealand-2021.

Ministry of Business, Innovation, & Employment. (2020). Agritech Industry Transformation Plan. New Zealand Government, https://www.mbie.govt.nz/dmsdocument/11572-growing-innovative-industries-in-new-zealand-agritech-industry-transformation-plan-july-2020-pdf.

Mintel. (2015). US Millennials Twice As Likely As Non-Millennials To Distrust Large Food Manufacturers. Mintel Group Ltd. https://www.mintel.com/press-centre/food-and-drink/us-millennials-twice-as-likely-as-non-millennials-to-distrust-large-food-manufacturers.

Ncube, L. K., Ude, A. U., Ogunmuyiwa, E. N., Zulkifli, R., and Beas, I. N. (2020). Environmental impact of food packaging materials: A review of contemporary development from conventional plastics to polylactic acid based materials. Materials, 13(21), 4994-5018. https://doi.org/10.3390/ma13214994.

New Zealand Food Innovation Network. (2021). The Foodbowl. New Zealand Food Innovation Network, https://foodinnovationnetwork.co.nz/locations/foodbowl.

NSW Farmers' Association. (2018). Growing NSW's Food Economy – Linking Sydney and the Central West. NSW Farmers' Association, https://www.nswfarmers.org.au/UploadedFiles/NSWFA/Poilcy%20Industry/NSWFAFoodEconomy.pdf.

OECD. (2017). Denmark Trade and Investment Statistical Note. OECD, https://www.oecd.org/investment/Denmark-trade-investment-statistical-country-note.pdf.

On the Grid. (2019). Gadodia Market, https://onthegrid.city/new-delhi/old-delhi/gadodia-market.

Ool, S. (2021). Corporate Catering Services in Australia, Australian specialised industry report OD5504, IBIS World. Available: https://my.ibisworld.com/au/en/industry-specialized/od5504/industry-at-a-glance.

Peel Development Commission. (2021). A Food Innovation Precinct. Government of Western Australia, https://www.peel.wa.gov.au/transformpeel/western-australian-food-innovation-precinct/.

Peel Development Commission. (2021). Investing in Transform Peel. Government of Western Australia, https://www.peel.wa.gov.au/transformpeel/investment-planning-resources/.

Regional Development Australia Central West. (2016). Value Adding to Agriculture in Central West NSW. https://rdacentralwest.org.au/wp-content/uploads/2019/10/FINAL-Value-Adding-to-Agriculture.pdf.

Sánchez-Bravo, P., Chambers V, E., Noguera-Artiaga, L., Sendra, E., Chambers Iv, E., and Carbonell-Barrachina, Á. A. (2021). Consumer understanding of sustainability concept in agricultural products. Food quality and preference, 89, 104136. https://doi.org/10.1016/j.foodqual.2020.104136.

SEGES. (2021). About Us. SEGES, https://en.seges.dk/About-us.

Stahl, K. (1987). Theories of urban business location. In Handbook of regional and urban economics (Vol. 2, pp. 759-820). Elsevier.

Stender, P. (2020). Average number of employed by period, sex, age, socioeconomic status, industry (DB07) and time. Statistics Denmark, https://www.statbank.dk/statbank5a/default.asp?w=1920.

Sustainability Victoria. (2021). Reduce packaging. Available: https://www.sustainability.vic.gov.au/recycling-and-reducing-waste/at-home/avoid-waste/shop-sustainably/reduce-packaging.

The Brookings Institution. (2018). Assessing your innovation precinct: A how-to guide. The Anne T. and Robert M. Bass Initiative on Innovation and Placemaking.

United States Department of Agriculture. (2021). Food Processing Ingredients. Government of the United States, https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Food%20Processing%20Ingredients_The%20Hague_Netherlands_03-30-2021.

Vilariño, M. V., Franco, C., and Quarrington, C. (2017). Food loss and waste reduction as an integral part of a circular economy. Frontiers in Environmental Science, 5, 21 pages. https://doi.org/10.3389/fenvs.2017.00021.

WA Department of Premier and Cabinet. (2019). Diversify WA Economic Development Framework. Government of Western Australia, https://www.wa.gov.au/organisation/department-of-the-premier-and-cabinet/diversify-wa-economic-development-framework.

WA Department of Premier and Cabinet. (2020). Food industry plan to support WA recovery efforts. Government of Western Australia, https://www.wa.gov.au/government/announcements/food-industry-plan-support-wa-recovery-efforts.

WA Department of Primary Industries and Regional Development. (2021). Funding support for Western Australian agribusinesses. Government of Western Australia, https://www.agric.wa.gov.au/agribusinessfunds.

WA Department of Primary Industries and Regional Development. (2021). International Competitiveness Co-Investment Fund. Government of Western Australia, https://www.agric.wa.gov.au/ICCF.

WA Department of Primary Industries and Regional Development. (2021). Seizing the Opportunity Agriculture. Government of Western Australia, http://www.drd.wa.gov.au/projects/Agriculture/Pages/Seizing-the-Opportunity-Agriculture.aspx.

WA Department of Primary Industries and Regional Development. (2022). Regional Economic Development (RED) Grants. Government of Western Australia, http://www.drd.wa.gov.au/rfr/REDG/Pages/default.aspx.

Wageningen University. (2020). Six months of Unilever on Wageningen Campus. Wageningen University and Research, https://www.wur.nl/en/newsarticle/six-months-of-unilever-on-wageningen-campus.htm.

Wageningen University. (2021). Why Wageningen? Wageningen University and Research, https://www.wur.nl/en/wageningen-university/why-wageningen-university.htm.

WWF-Australia. (2021). Over 80% of food packaging examined in a new survey can't go into home recycling bins. Available https://www.wwf.org.au/news/news/2021/over-80-percent-of-food-packaging-examined-in-a-new-survey-cant-go-into-home-recycling-bins#gs.iop0y5.

## Disclaimer



## Authorised Use



Bankwest Curtin Economics Centre

**This report was written by:** Alex Buckland, Alan Duncan, Elizabeth Jackson, Silvia Salazar and Billy Sung from the Bankwest Curtin Economics Centre and Curtin University.

**It can be cited as:** Buckland, A., Duncan, A., Jackson, E., Salazar, S., and Sung, B., *Food Value Add Precinct for the Canning Vale industrial Precinct*, Bankwest Curtin Economics Centre, 2022.

**Acknowledgements:** BCEC researchers would like to acknowledge all stakeholders that help shape this report, for their ongoing provision of information, insights and feedback during the research process. Particular thanks to the Perth City Markets and the Fremantle Port Authority for sharing some of the data with us.

CITY OF CANNING

CANNING.WA.GOV.AU

1317 Albany Highway, Cannington, Western Australia, 6107
Locked Bag 80, Welshpool, Western Australia, 6986
Tel: 1300 422 664

bankwest

Curtin University

Bankwest Curtin Economics Centre (BCEC)
Level 4, Building 408, Curtin University
Kent Street, Bentley, Western Australia, 6102
Tel: +61 8 9266 2873
Web: bcec.edu.au