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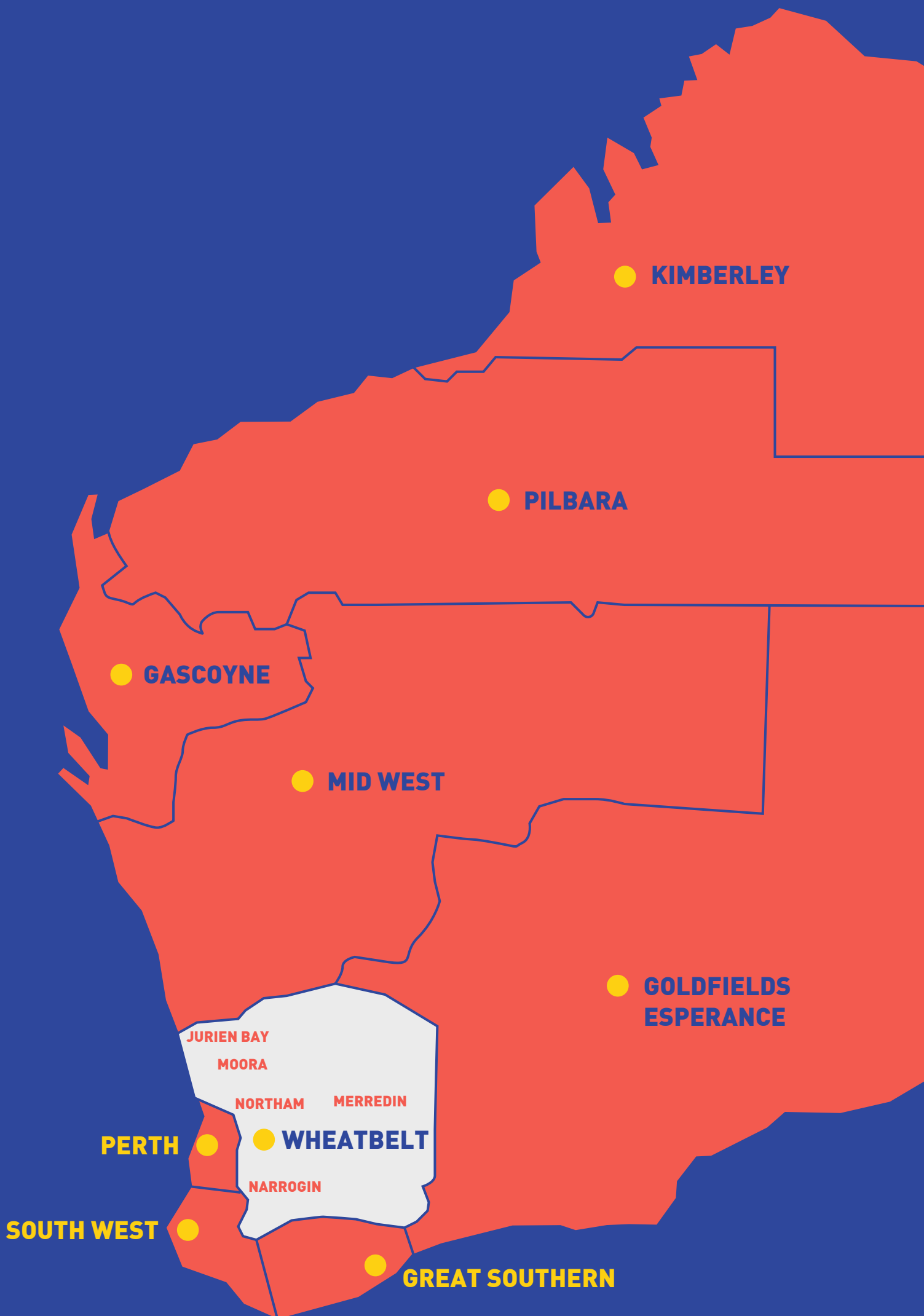
ENTREPRENEURIAL INNOVATION IN THE WHEATBELT

A report on the people, groups and businesses involved in entrepreneurial innovation in Western Australia's Wheatbelt region



An Australian Government Initiative





● **KIMBERLEY**

● **PILBARA**

● **GASCOYNE**

● **MID WEST**

● **GOLDFIELDS
ESPERANCE**

PERTH

SOUTH WEST

GREAT SOUTHERN

JURIEN BAY

MOORA

NORTHAM

MERREDIN

NARROGIN

● **WHEATBELT**

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FOREWORD



FROM THE CHAIR

Improved telecommunications connectivity and the rising demand for food worldwide, particularly within our own neighbourhood of Asia has the potential to enable more and different industries to thrive within the Wheatbelt and further encourage the inward migration we are already seeing. Indeed projections suggest that our population could well double over the years to 2050.

However the projected growth in the Wheatbelt will not just happen with a 'business as usual' approach. While agriculture will continue to play a substantial role there will be an increasing need for innovation and entrepreneurship within agriculture and across other industry sectors if the opportunities are to be realised.

A key driver of this growth will be the Wheatbelt's greatest resource, its people, who are innovative, creative and entrepreneurial. To ensure they are able to realise their potential it is important to understand how best to transform their creative, innovative ideas into sustainable enterprises that will ultimately promote the creation of more jobs and support population growth in the region. The challenges are to categorize the constraints and identify what is needed to develop and grow the necessary domestic and international markets needed to sustain such growth.

In beginning to address these challenges, Regional Development Australia (RDA) Wheatbelt commissioned this report, Entrepreneurial Innovation in the Wheatbelt. The report provides both an analyses of current issues, constraints and opportunities for innovative Wheatbelt entrepreneurs and a snapshot of successful innovative enterprises in the region. At another level the report benchmarks and quantifies innovation in the Wheatbelt and identifies three entrepreneurial innovation corridors within the Wheatbelt.

Arguably the 'Entrepreneurial Innovation in the Wheatbelt Report' delivers a fundamental scoping framework of the challenges and opportunities for an innovative entrepreneurial Wheatbelt that require attention to ensure the region secures its opportunity to grow.

We hope it will be a useful report to help guide Government and Industry groups in the provision of support services and infrastructure to further enable our innovative entrepreneurs.

This report has only been possible with the assistance and input of members of our community who contributed through either completing the survey, attending and contributing to the consultation workshops, or through one on one interviews. We very much appreciate the over 100 individuals who contributed in this way – we couldn't have got this far without you.

MR GRAHAM COOPER
CHAIR
RDA WHEATBELT



“THE PEOPLE OF THE WHEATBELT AND THEIR INNOVATIVE, ENTREPRENEURIAL, ‘CAN DO’ ATTITUDES ARE THE REGIONS’ GREATEST RESOURCE. THEY ARE USED TO DOING THE HARD YARDS AND JUST WORK THEIR WAY THROUGH AND GET ON WITH THE JOB IN HAND. GROWING MARKETS IN ASIA AND IMPROVED TELECOMMUNICATIONS ARE IMPORTANT FOR THE FUTURE GROWTH OF THE WHEATBELT BUT IT WILL BE THE PEOPLE THAT MAKE IT HAPPEN.”

JULIET GRIST
EXECUTIVE OFFICER
REGIONAL DEVELOPMENT
AUSTRALIA WHEATBELT

EXECUTIVE SUMMARY

PROJECT AIMS

This report aims to benchmark and quantify the ecosystem of entrepreneurial innovation in Western Australia's Wheatbelt region and identify the challenges and barriers hindering the development of innovative and entrepreneurial companies and the strengths & opportunities for growth across the region.

SCOPE

This focus of this report is on the people, organisations, businesses and events involved in or supporting the development of innovative companies and entrepreneurial activity across the Wheatbelt region. We sought to capture and show case information on innovative entrepreneurs - those people and businesses who are creating and implementing new ideas, technologies, processes, products, business models or new business start-ups that add value and deliver positive outcomes.

METHODOLOGY & MEASURES

The report was compiled in partnership with the Regional Development Australia Wheatbelt and information was gathered from over 100 people through four regional workshops with over 30 participants, an online survey distributed to over 600 stakeholders and from interviews with 30 people across the region. Information on people, events and companies was also gathered using data from online platforms including LinkedIn, AngelList, CrunchBase and complemented with internet research.

Combining several data sources gives a more comprehensive view than one in which information is taken from any one individual source. However, no research project can claim to offer definitive, complete coverage. Whilst all attempts have been made to be comprehensive, some innovative people, organisations, projects or events in this region may have been missed.

In this report, we measure a range of factors and indicators for entrepreneurial innovation in the Wheatbelt. However, it must be recognised that innovation and entrepreneurship involves many intangible factors and is often complex, making it difficult to measure. In addition, entrepreneurial innovation in rural and regional areas needs to account for different factors than the big cities to reveal what is happening.

SUMMARY OF FINDINGS

Innovation is definitely alive and well in the Wheatbelt, particularly when it is measured by the high number of patent formations, which indicates the development of new ideas, processes and products.

In this report, we highlight some of the entrepreneurial and innovative businesses and individuals that are challenging the status quo and traditional thinking to lead the way to clean, green and growing future.

When we analyse other relevant factors that support entrepreneurial innovation in regional areas it reveals that at the Shire level, the top three ranking LGAs for entrepreneurial innovation are Chittering, Toodyay and Northam.

The next tier of innovative LGAs includes Gingin, Dandaragan, York, Narrogin and Merredin. The third tier includes the Shires of Cunderdin, Tammin, Bruce Rock and Wandering.

The LGAs of most concern are located in the centre of the Wheatbelt in areas above and below the corridor that stretches from Northam to Merredin. More broadly, the eastern and southern areas of the Wheatbelt are also disadvantaged from an innovation perspective. This points to a declining outlook for productivity and growth in these areas.

At a regional level, the analysis identifies three major corridors of entrepreneurial innovation that radiate from Northam, which is located at the epi-centre. These three corridors of entrepreneurial innovation are:

1. Northern Peri-urban Innovation Corridor from Northam to Gingin
2. Southern Peri-urban Innovation Corridor from Northam to Narrogin
3. Eastern Heartlands Innovation Corridor from Northam to Merredin

This report suggests that the limited resources and effort are directed to focus on strengthening these three corridors of innovation to build a dynamic and attractive innovation system that increases collaboration, interactions, density and diversity of the entrepreneurial innovators with the surrounding areas encouraged to tap into these corridors so they can benefit as well.

As the central hub joining the three innovation corridors, Northam is identified as being well positioned to be a focus for facilitating innovative entrepreneurship to stimulate regional economic and population growth.

In general, the region is facing many challenges and businesses must overcome a range of barriers to be successful. The major challenges to entrepreneurial innovation identified at workshops, surveys and interviews were:

- High cost, poor quality and lack of accessibility of internet and mobile
- High costs of business development including connection to power and water supplies
- Lack of access to funding to support entrepreneurial innovation in the region
- Lack of training and education for starting a business or about innovation
- Lack of skilled labour supplies

Based on the community consultation along with additional research of trends we have highlighted seven key areas critical to the development of entrepreneurship and innovation within the Wheatbelt. These fall into the following themes that are explored in more depth in the report:

- People, Communities & Culture
- Digital Communities
- Feeding Asia's Demand
- Ag-tech
- Sustainability
- Creating a Regional Brand
- Renewable Energy

Research and analysis indicates that the Wheatbelt is being shaped by a series of major trends that align with these seven themes.

The lifestyle trend of people moving to rural town located in close proximity (150kms) of a capital city to pursue a lifestyle that gives them greater control over where they live and how they work is intersecting with the rollout of high speed internet connections to fuel more city workers to move to a lifestyle town, telecommute using broadband, and come into the city perhaps once a week for face to face meetings. This e-change trend is likely to fuel more innovative and entrepreneurial people to start-up new businesses as they seek to have the lifestyle they desire and the means to fulfil it and is a big opportunity for rural towns in the e-change zone.

Another major trend is the rise of Asian economies and the increased demand for premium food and beverages. When combined with the strengths of the Wheatbelt as a well established agricultural and horticultural sector with clean and green production it represents a major opportunity for agri-business to pursue premium food platforms produced using innovative and clean practices.

Renewable energy is also at a tipping point with many technologies becoming more economic and within reach of consumers. The energy market is also facing disruption from new business models using new technologies. This is creating opportunities to implement a range of energy solutions to overcome the energy challenges that exist in the Wheatbelt region.

With the very high potential for solar, wind and bio-fuel power generation in the Wheatbelt, the region stands to become a major player in innovative renewable energy solutions in the near future.

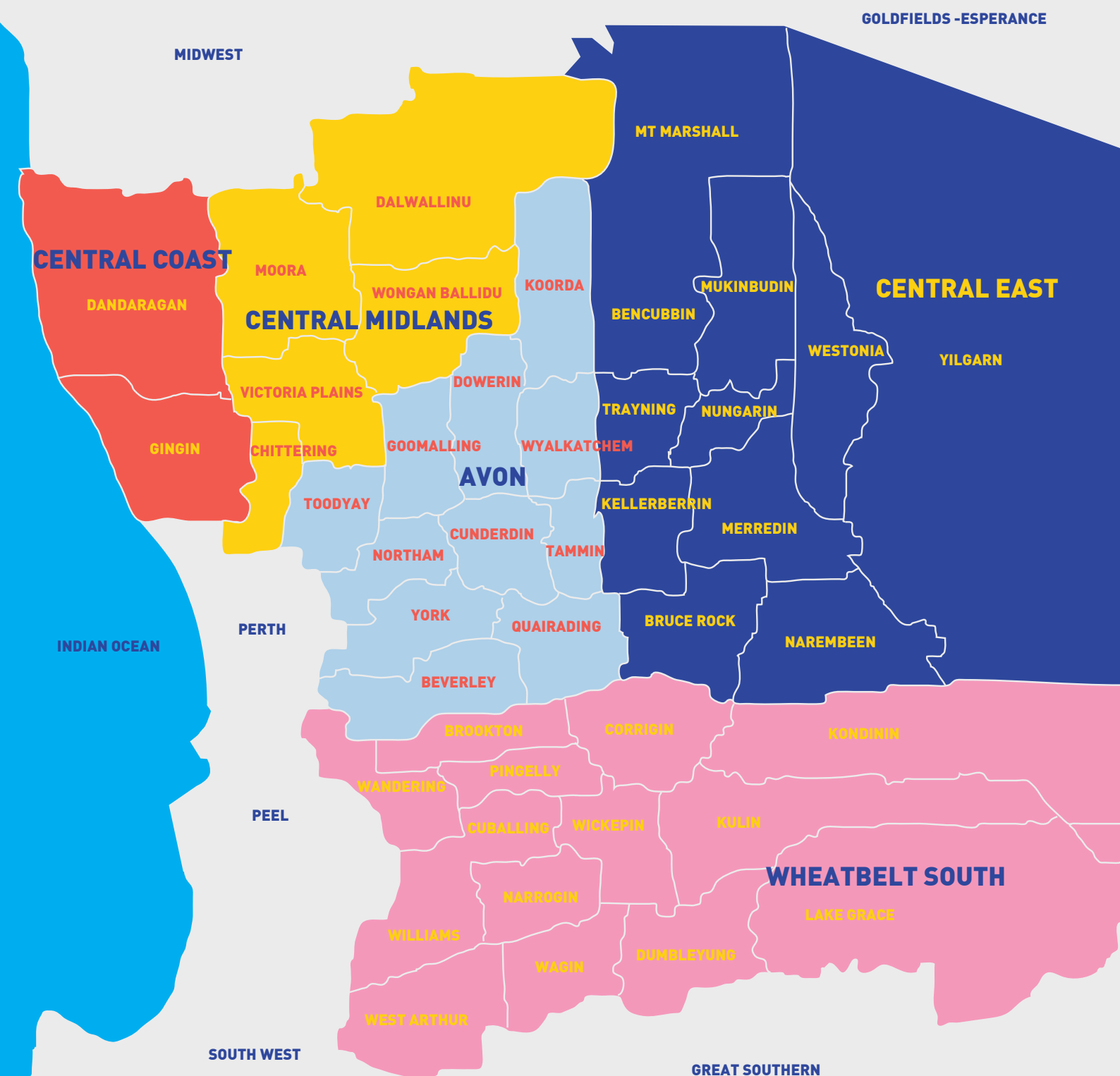
We believe that the Wheatbelt can build up its collaborative networks of innovative businesses and start-ups and support them to reach a critical mass that ignites the latent innovation potential of the region. This will enable them to navigate the disruptive forces they face and master the available opportunities.

LIKE MANY RURAL AREAS, THE WHEATBELT IS CAUGHT IN THE HEADWINDS OF CHANGE. GLOBAL MARKET FORCES, TECHNOLOGICAL DISRUPTION, DEMOGRAPHIC SHIFTS AND CLIMATE CHANGE ARE SHAPING THE REGION NOW AND INTO THE FUTURE.

THIS REPORT SHINES A LIGHT ON SOME OF THE HEROES INVOLVED IN ENTREPRENEURIAL AND INNOVATIVE ACTIVITIES IN THE WHEATBELT AND PROVIDES INSIGHT INTO HOW CHALLENGES AND CONSTRAINTS CAN BE OVERCOME WITH VISION, COLLABORATION AND COURAGE SO THE REGION CAN FLOURISH.

WEST AUSTRALIAN WHEATBELT

The map below shows the five major sub-regions of Avon, Central Coast, Central Midlands, Central East and Wheatbelt South within the Wheatbelt region.



REGIONAL SNAPSHOT

CENTRAL COAST

The Central Coast sub-region is the Wheatbelt's coastal economy. It's a diverse economic region with strong opportunities in food production and processing, tourism, retirement and lifestyle and light industry and construction.

AVON

The Avon sub-region is a major agriculture export oriented economy. Its major drivers are industrial uses, professional services, agriculture and construction. Northam is a key regional centre in the Wheatbelt servicing the Avon Valley and Central Wheatbelt.

CENTRAL MIDLANDS

The Central Midlands sub-region is the Wheatbelt's most diverse economy driven by agriculture, construction, tourism and manufacturing, with emerging opportunities in health and mining support services.

CENTRAL EAST

The Central East sub-region represents the heart of dryland broadacre grain production in the Wheatbelt and is the largest sub-region by land area. Its population is primarily concentrated in the major townships of Merredin, Southern Cross and Kellerberrin, which act as service centres for the sub-regional economy.

WHEATBELT SOUTH

The Wheatbelt South sub-region is predominantly a rural-based economy and is largely driven by broadacre agriculture and livestock.

ECONOMIC GROWTH OVER 10 YEARS

8.2%

Source: Wheatbelt Blueprint Overview 2015

ECONOMIC GROWTH

According to the Wheatbelt Blueprint, the region has experienced very steady growth of 8.2 per cent each year for the past decade.¹ This is remarkable growth for a rural area where agriculture is the main industry and average productivity growth has been stagnant across all broadacre cropping and livestock industries for over 30 years.

This is a good sign of economic diversification and the growth of niche industries. It indicates that entrepreneurship and innovation is alive and well. To strengthen the region's diversified economy and ensure more sustainable growth will require increasing productivity of existing agricultural industry by streamlining the supply chain, increased application of innovation and technology, and supporting growth of emerging industry sectors matched to comparative advantages and global opportunities.

INFRASTRUCTURE

In general, the region offers industrial precincts for manufacturing and new industry in some areas. However, development in many other areas is often constrained due to high costs and lack of available infrastructure, land and housing. Access to infrastructure for water and electricity supply is vital for growth and development in the Wheatbelt region. However, for many Wheatbelt businesses, the costs of connection can be prohibitive.

The region has well-developed transport links with major highways and rail routes to Perth providing easy access to the Port of Fremantle and regional ports at Geraldton, Bunbury, Albany and Esperance, which also provide access to international export markets.

Transport infrastructure and corridors have implications for the development and attraction of businesses as they target opportunities to service customers and businesses along the corridor or use it to access markets locally or overseas more easily.

Investment is required in strategic infrastructure assets including transport, renewable energy and digital infrastructure, land development and housing as this will underpin growth opportunities and also help to attract and retain higher numbers of workforce aged population.

To overcome the constraints, the Regional Investment Blueprint provides a focused roadmap for a bright future... So long as it receives sustained focus, long term support and effort from all levels of Government, industry, businesses and the community.

TOTAL POPULATION 2015

77,823

Source: ABS Cat 3235.0 2015

POPULATION GROWTH TARGET BY 2050

150,000

Source: Wheatbelt Blueprint Overview 2015

POPULATION

The region is divided into five sub-regions: Avon, Central Coast, Central East, Central Midlands and Wheatbelt South. Each of the five sub-regions is serviced by a regional centre (Northam, Jurien Bay, Merredin, Moora and Narrogin).

The Wheatbelt population is highly dispersed, with more than 77,000 people living in over 200 communities, governed by 42 local governments and spread across 155,256 square kilometres.²

While there is significant variability in population dynamics across the Wheatbelt, in general, the region is characterised by low or declining population growth, an aging population and the loss of younger people from the region. The median age of people in the Wheatbelt is 42 years with 30% of the population aged under 24 years old and 32% aged over 65.²

To counter this decline and revitalise the region, the Regional Investment Blueprint for the Wheatbelt outlines a range of strategies to achieve an ambitious target of doubling its population by 2050.

% EMPLOYED BY AGRICULTURAL INDUSTRY ACROSS THE REGION

Source: ABS Region Summary Wheatbelt 2011

24%

% EMPLOYED BY AGRICULTURAL INDUSTRY BY SUB-REGION

Source: ABS Region Summary Wheatbelt 2011

Avon and three Central Regions	21%
Southern Wheatbelt	30%

AGRICULTURAL INDUSTRY

Unsurprisingly, agriculture is a major employer in the region although this declined 18% between 2006 and 2011. The proportion of people employed in agriculture is significantly less in the Avon and three central sub-regions than the southern Wheatbelt reflecting greater diversification of business in the northern areas.³

REGIONAL SNAPSHOT

GOAL FOR AGRIFOODS EXPORTS BY 2025

\$14B

Source: Coriolis Report, 2016

CURRENT VALUE OF AGRIFOODS EXPORTS

\$7B

Source: Coriolis Report, 2016

The Wheatbelt is already a world-class producer of high-quality, safe agriculture, food and fibre products, vital to our state's economy and to feeding the Western Australian community and people in our target export markets. As well as being the nation's largest grain-producing region, the Wheatbelt is a major producer of meat and livestock, dairy, wool and horticulture.

The sector exports more than 80 per cent of its agricultural production to more than 50 countries worldwide with Asia and the Middle East our largest markets. The top commodities were wheat (\$3 billion), barley (\$1 billion), canola (\$0.8 billion), and wool (\$0.5 billion).⁴

Internationally, WA is being recognised as a potential investment destination for agribusiness due to its availability of land, water and climatic conditions suitable for a wide range of agricultural produce. Increased globalisation of world economies, growing affluence in Asian markets and associated demand for premium food products presents opportunities for economic development in the Wheatbelt, given the region's comparative advantages.

To capitalise on this opportunity, the State Government has set a goal of enabling the sector to double in real value between 2013 and 2025 to reach close to 14 billion per annum. More recently, research by Coriolis in 2016 has identified that exports of over \$20 billion per annum are achievable based on pursuit of twenty premium food & beverage opportunities.⁵

ACCESS TO THE INTERNET

68%

Source: ABS Census 2011, Wheatbelt region summary

INTERNET ACCESS

Households located in major cities in Australia are more likely to have internet access at home (88%) compared to households in the Wheatbelt (68%).³ Connectivity for both mobile devices and for the internet is one of the key business development and productivity issues in the Wheatbelt. Mobile coverage and connectivity is seen as having the greatest impact although this blends together with internet coverage issues as many people use mobile devices to access the internet.

NUMBER OF BUSINESSES

9,973

Source: ABS Region Summary Wheatbelt N+S 2011

% CHANGE IN NUMBER OF BUSINESSES ACROSS THE WA WHEATBELT 2009-2013

-2.9%

Source: ABS Region Summary Wheatbelt N+S 2011

BUILDING BUSINESSES IN THE WHEATBELT

Across the Wheatbelt there are 9,973 business working within a wide range of industries. Apart from growth in a few areas such as Chittering, the number of businesses in many areas has stayed the same or declined over the past five years. However, despite tough economic times, the overall decline is small (-2.9%) and reflects the resilience of the people in the region despite tough economic and environmental conditions.³

Of note is that a larger proportion of agri-businesses are exiting than non agribusinesses at a rate of 3:1. This points to a healthy underlying trend of diversification away from agriculture.

RATIO OF AGRI-BUSINESSES LEAVING

3 : 1

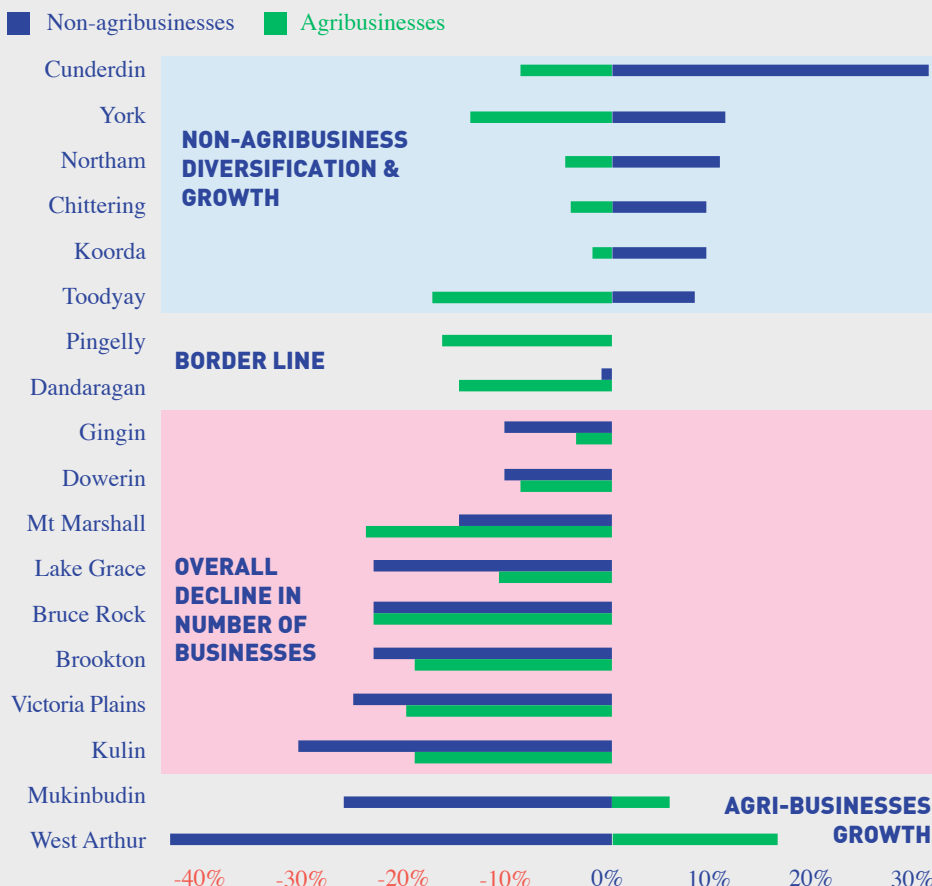
Source: ABS Region Summary Wheatbelt N+S 2011

In September 2016, LandCorp announced that it is offering to pay stamp duty of up to \$100,000 to purchasers of land at industrial estates in an effort to encourage businesses to relocate to or expand in industrial developments across Western Australia. The offer applies to the first 10 lots purchased at participating estates, which includes the Avon Industrial Park, Northam Industrial Park, and Light Industrial Areas in Hyden, Lake Grace, Merredin, Wagin, Williams, Bencubbin and Cunderdin in the Wheatbelt region. These estates support a range of light, general and heavy industrial uses, providing opportunities for sectors including transport, logistics, fabrication, manufacturing, light industry, agriculture and resources.⁶

It is hoped that this will spur new business investment in regional areas of WA including the Wheatbelt.

BUSINESS DIVERSIFICATION FROM AGRI-BUSINESS

Source: Based on RDA Wheatbelt Analysis of ABS Census Data 2006 - 2011



“TO ME, INNOVATION AND DIVERSIFICATION ARE VERY SIMILAR. FOR A SMALL BUSINESS TO SURVIVE IN A SMALL TOWN LIKE OURS, YOU NEED TO BE ABLE TO DIVERSIFY SUCCESSFULLY.

TO ME, INNOVATION IS ABOUT BEING WILLING TO DO THINGS DIFFERENTLY AND RUN YOUR BUSINESS IN A SUSTAINABLE WAY THAT CREATES JOBS AND ADDS VALUE TO YOUR TOWN.

THAT’S SOMETHING THAT IS REALLY IMPORTANT TO ME SO WE CREATE OUR OWN OPPORTUNITIES FOR GROWTH AND ARE NOT RELYING ON EXTERNAL STIMULUS TO MAKE SOMETHING HAPPEN”

**AMANDA WALKER
OWNER, YERECOIN TRADERS & FARMCO
‘EXCELLENCE IN INNOVATION’
2016 WHEATBELT BUSINESS
EXCELLENCE AWARDS**

ENTREPRENEURIAL INNOVATION

DISRUPTION & INNOVATION

We face an uncertain and disruptive future. Australia is moving rapidly into the 4th industrial revolution or the exponential age. In this exponential age, all organisations face a constantly changing environment that has the potential to disrupt old ways of doing business, transform our communities and dramatically reshape work practices. It is placing pressure on traditional social and economic systems in regional Australia and is forcing regions to change whether they want to or not. To sit still is to wither away. Becoming comfortable with continuous change and transformation cycles is the new norm.

Recent reports by PwC⁷ and CEDA⁸ show that more than 5 million jobs are at risk of being displaced by computerisation and automation over the next 20 years. The jobs that are at risk include highly skilled white collar jobs across many sectors including healthcare and professional services.

Innovation is a key to delivering competitive advantage for businesses so they can grow and adapt in a dynamic marketplace. Continuous innovation must become embedded in organisations at various levels to add value to processes, procedures, products and services, right up to business model innovation.

Innovation doesn't happen in a bubble. Key factors in fostering entrepreneurship and innovation are collaboration and maximising connections. This requires trust and common purpose. Building the capacity of regions to adapt to and embrace change and create new businesses and jobs requires everyone to encourage and support a culture of entrepreneurial innovation.

WHAT IS INNOVATION?

Innovation involves the creation and implementation of new ideas, processes, products or models which add value and lead to positive outcomes or changes.

Innovation in business is generally considered to be the development or introduction of new or significantly improved goods, services, processes or methods. In Australia, the ABS measures four broad types of innovation undertaken by businesses: goods or services; operational processes; organisational/managerial processes; and marketing methods.⁹

At a broader level, innovation is an open process, in which businesses, customers, investors, education and research institutions, government and other organisations work together in complex ways that add value. It is a fluid, non-linear process where ideas move easily across organisational boundaries. It can benefit from proximity of people from diverse backgrounds which facilitates the flows of knowledge and the unplanned interactions that are critical parts of the innovation process.

WHAT IS ENTREPRENEURSHIP?

Entrepreneurship is crucial to establishing a vibrant and dynamic regional economy. Entrepreneurship at its most basic level is the creation of new business and is measured by the number of new business start-ups. Innovative entrepreneurs, in particular, are those individuals that bring new products and services to the market and introduce new processes, marketing techniques, or business models. Entrepreneurs are very important during tough economic times because by developing new products or increasing competition, new businesses can boost productivity and demand, which in turn creates new job opportunities. Moreover, entrepreneurs may create entirely new technologies, new markets or even new industries that become the future growth engines of a region.

When we see innovative and entrepreneurial people in action there is a palpable passion and purpose involved. Entrepreneurs share certain traits, such as creativity, a willingness to bear risks, being open to new experiences and different perspectives, belief in their ability to control their own future, and a healthy degree of extraversion, which allows them to develop social networks more easily and to forge stronger partnerships.

Entrepreneurs are often the missing link required for innovation to occur in regional areas. Improving the entrepreneurial skills and capabilities of people is vital to creating a thriving regional innovation ecosystem.

However, innovation and entrepreneurship are difficult to measure as it involves intangible factors and is often complex. In addition, entrepreneurial innovation in regional areas needs to account for different factors than the big cities where large scale research and development (R&D) institutions are more prevalent and high levels of R&D expenditure takes place. These factors dominate typical measures and can conceal what is happening at a deeper level.

MEASURING WHEATBELT INNOVATION

In this report, we measure a range of factors and indicators for entrepreneurial innovation in the Wheatbelt. It takes a lead from the approach used by the Regional Australia Institute in its Insight Innovation report, which is weighted towards measuring the commercial innovation environment in regional areas.¹⁰

The key indicators used in this report include the numbers of new patent formations and new trademark applications. Patents indicate development of new ideas, processes and products while new trademark applications reflect the identification and branding by businesses of a unique product or service, which helps it to stand out in the market place.

is the numbers of new business start-ups. While only a few of these new start-ups may be truly innovative, this measure indicates where there is more growth. Our analysis also accounts for factors that have the potential to sustain Entrepreneurial Innovation in regional areas. Broader factors considered relevant include population dynamics (size, growth and density), location (proximity to the Perth metropolitan area, access to infrastructure), and indicators of competitiveness and economic diversity.

The factors have been analysed and the overall entrepreneurial innovation ranking of the sub-regions within the West Australian Wheatbelt have been captured in an innovation heat map (see p15).

The basic measure for entrepreneurship

**“ WE HAVE A ZEST WITHIN
OUR ORGANISATION TO BE
MORE EFFICIENT AND TO
INVEST MORE INTO OUR
CORE ASSET; OUR PEOPLE -
TO BECOME GENERATIONAL
THINKERS, TO BE DARING WITH
INNOVATION AND CHALLENGE
OURSELVES FURTHER TO
BE ENTREPRENEURIAL IN
OUR FUTURE GROWTH AND
EXPANSION.”**

**JOSEPH LING
MANAGING DIRECTOR,
AGRIFRESH
‘BUSINESS OF THE YEAR’
2016 WHEATBELT BUSINESS
EXCELLENCE AWARDS**

ENTREPRENEURIAL INNOVATION

WHEATBELT INNOVATION HEATMAP

The analysis of the key innovation and entrepreneurship factors have been captured in a heatmap that ranks the performance of the different LGAs. The ranking of the LGAs is aligned with the data used by the Regional Australia Institute, which ranks all LGAs across Australia. The analysis in this report takes this to a deeper level for the Wheatbelt and considers other relevant factors that support entrepreneurial innovation in regional areas such as population dynamics, proximity to Perth, economic diversity and sophistication.

WHEATBELT INNOVATION CORRIDORS

At the Shire level, the top three ranking LGAs for Entrepreneurial Innovation are Chittering, Toodyay and Northam. The next tier of innovative LGAs includes Gingin, Dandaragan, York, Narrogin and Merredin. The third tier includes the Shires of Cunderdin, Tammin, Bruce Rock and Wandering.

At a regional level, a very interesting pattern emerges from the heatmap analysis. There are three major corridors of entrepreneurial innovation and they all connect together with Northam located at the epi-centre. These three corridors of entrepreneurial innovation are:

1. Northern Peri-urban Innovation Corridor:

From Northam to Gingin passing through Toodyay and Chittering

2. Southern Peri-urban Innovation Corridor

From Northam to Narrogin passing through York, Beverley, Wandering and Williams)

3. Eastern Heartlands Innovation Corridor:

From Northam to Merredin, via Cunderdin, Tammin, Kellerberrin and Bruce Rock

The northern peri-urban innovation corridor is the strongest picking up the top 3 LGAs for entrepreneurial innovation of Chittering, Toodyay and Northam. The southern peri-urban innovation corridor is not as strong, possibly as it stretches further away from Perth.

The regional foundation for growth enabling innovation is complex and can be ignited by different factors in different areas. Broadly, innovation is an open process that involves the interactions of many people and organisations - business, customers, investors, State and local government, community leaders, universities and research institutions.

Key factors that influence innovation in the Wheatbelt include those that increase the frequency of interactions between people and organisations. Population density and transport infrastructure has definitely shaped the foundations of where innovation is taking place.

Unsurprisingly, higher levels of innovation occur in cities due to the higher population

and organisational density that increases levels of face to face interactions that drive innovation. The peri-urban arc that surrounds the metropolitan region and encompasses the northern and southern innovation corridors is a testament to this. These regions can use the proximity to the metropolitan area as a strength to building innovative entrepreneurialism.

The eastern heartlands innovation corridor from Northam to Merredin follows the alignment of the Great Eastern Highway, which links Perth to Kalgoorlie and also connects WA to the eastern states. The presence of a major transport corridor has obviously influenced economic activity over many decades as it promotes access to major markets and increases opportunities for businesses to service those using the corridor.

Overall, the implications of this for building a culture and sustainable environment for entrepreneurial innovation in the Wheatbelt is to focus on strengthening these three arms of innovation as resources and effort are limited and the surrounding areas can tap into these corridors and benefit as well. The focus needs to be on building an attractive innovation system that increases collaboration, interactions, density and diversity of the entrepreneurial innovators and their supporters.

As one of nine 'Super Towns' identified by the State Government and as the central hub joining the three innovation corridors, Northam is well positioned to be a focus for enabling innovative entrepreneurship to stimulate economic and population growth.

The Regional Centre Growth Plan identifies that Northam has a number of competitive advantages. These include its strategic location with close proximity and infrastructure connections to Perth, being a well-established service centre for the agricultural sector with strong supply chains and access to skilled labour, strong population growth, and educational and health facilities which can scale up over time to meet the needs and requirements of broader Avon region.

Regional areas that can build up effective collaborative networks of innovative businesses and start-ups with available resources and support mechanisms will be more successful in reaching a critical mass that ignites the latent innovation potential of the region. This may include start-up hubs, co-working spaces and business incubators and accelerator programs. The recent successful trial of the 'Hatch' co-working space in Northam is an encouraging sign of progress.

On the heatmap, the red areas of most concern are positioned above and below the Eastern Heartlands innovation corridor from Northam to Merredin. More broadly, the eastern and southern areas of the Wheatbelt

are more disadvantaged from an innovation perspective. This points to a declining outlook for productivity and growth in these regions. The focus for these LGAs should be on building links to the three innovation corridors.

TRADEMARKS, PATENTS & NEW BUSINESS

Analysis of the data on trademarks, patents and new business formation (p16) reveals a group of LGAs which have higher ratings in all three areas, demonstrating that higher levels of entrepreneurial innovation are occurring, which is likely contributing to regional growth. This includes Northam, Toodyay, York and Chittering and to a lesser extent Beverley, Gingin, Victoria Plains, and Moora, located adjacent to the north and east of the Perth Metropolitan region and further out the Shires of Dalwallinu, Bruce Rock and Narrogin.

It must be noted that as the data is analysed on a per capita basis, some Shires with smaller populations may have higher ratings as a result of a few individuals or companies registering a series of patents or trademarks.

Many Wheatbelt LGAs have high ratings for patent formations indicating that an innovative and inventive culture is alive and well across the Wheatbelt. However, at the same time there is not a high level of new businesses starting up. LGAs like Tammin, Cunderdin, Wandering and Koorda have high levels of patent formation and trademarks but very low growth of new businesses.

CROSSING THE VALLEY OF DEATH

This indicates that patent formations are either taking place in existing businesses as new and improved processes or products. Otherwise it indicates that patents are not resulting in the creation of new business start-ups that are able to move beyond research and development into commercialisation.

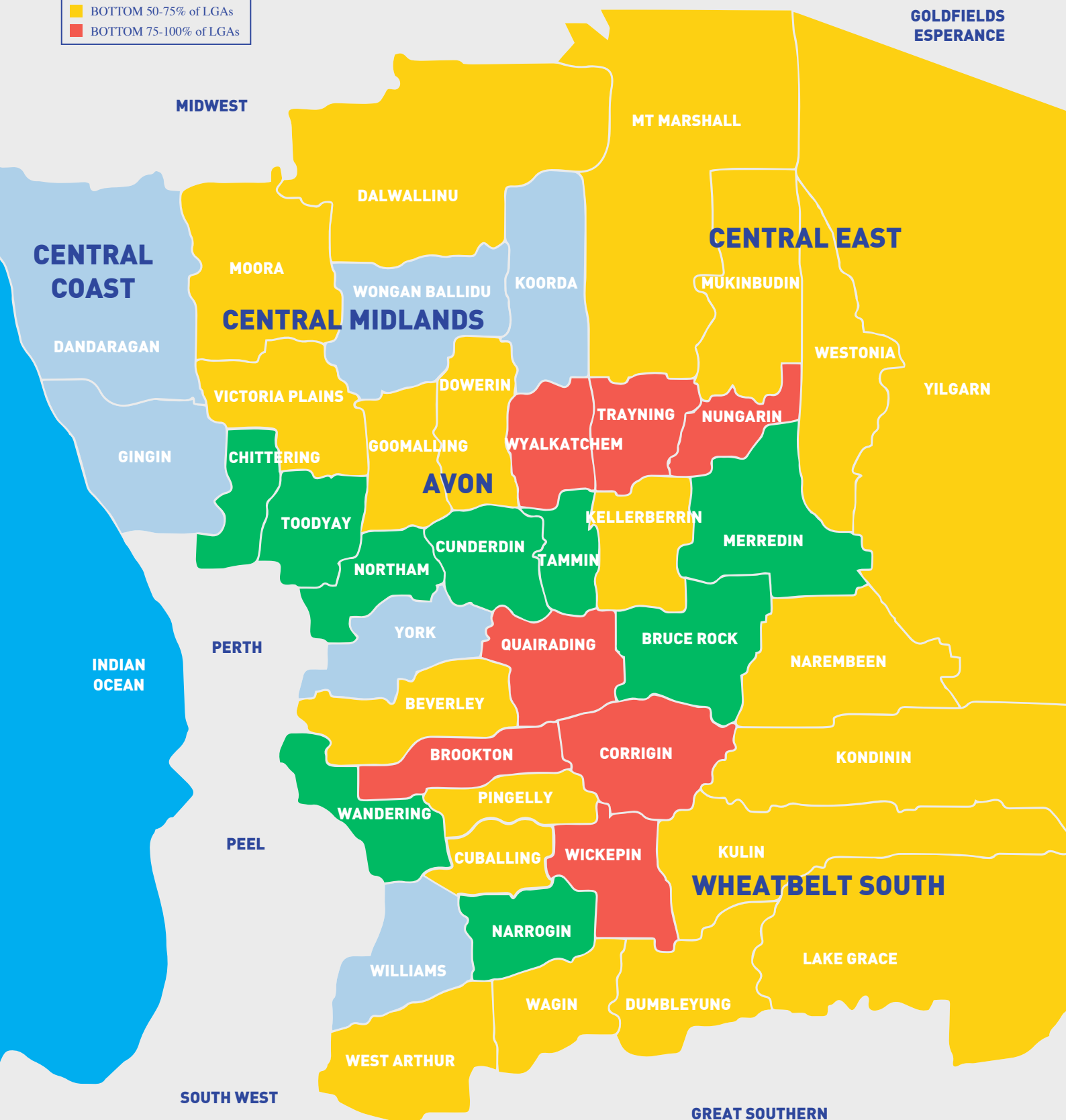
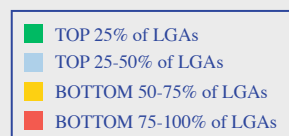
This 'innovation valley of death' is a well known and widespread challenge for many Australian innovators due to the general lack of support for entrepreneurial culture and funding availability for new business start-ups.

For innovative entrepreneurs, crossing the innovation valley of death requires more than a focus on developing new patents, inventions and start-ups but also ensuring that businesses take a broader focus on commercialisation and improve their market orientation.

An area for further analysis in patents formation is to identify the type of innovation that is being patented, the industry or market it is in and whether it relates to an existing established business or a new start-up. This may help to identify where more targeted assistance may be warranted to assist with commercialisation of patents by new innovative entrepreneurs and existing businesses.

WHEATBELT INNOVATION HEATMAP

The heat map below shows the overall entrepreneurial innovation ranking of the sub-regions within the West Australian Wheatbelt and is aligned with data from RAI 2016. Ranking has been more heavily weighted towards factors such as trademark and patent applications and new business entries which are better indicators of entrepreneurial and innovative activities in regional areas. Other relevant factors such as population dynamics, proximity to Perth have also been taken into account.

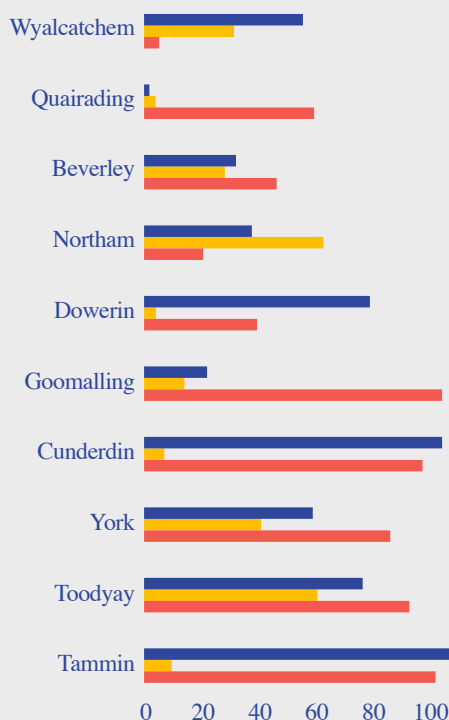


TRADEMARKS, PATENTS & NEW BUSINESSES

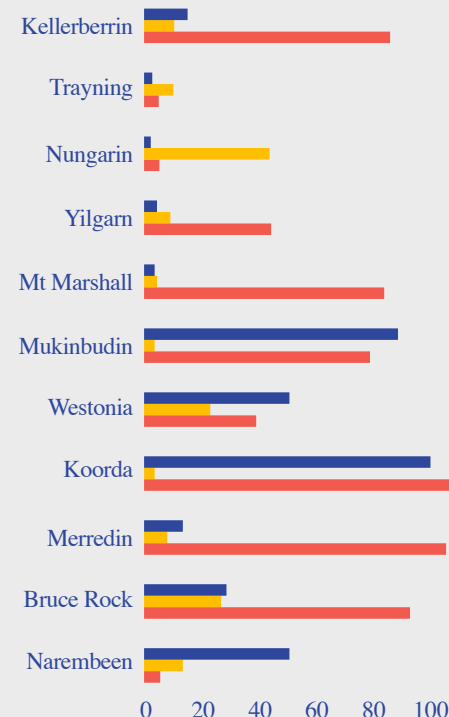
The key indicators used in this report include the numbers of new patent formations, new trademark applications and number of new business formations. These have been ranked below against other LGAs across Australia based on RAI¹⁰ and ABS³ data. It must be noted that as the data is analysed on a per capita basis, so some LGAs with smaller populations may have higher ratings as a result of a few individuals or companies registering a series of patents or trademarks.

■ Trademarks ■ New Business ■ Patents

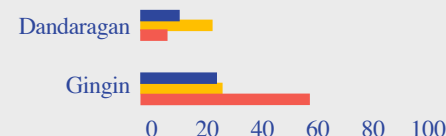
AVON REGION



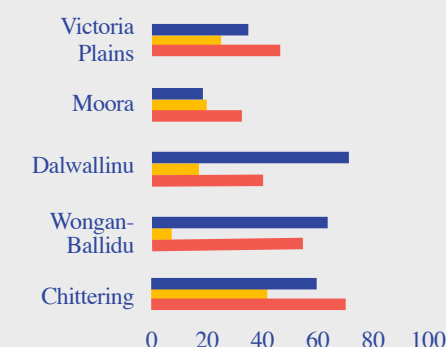
CENTRAL EAST REGION



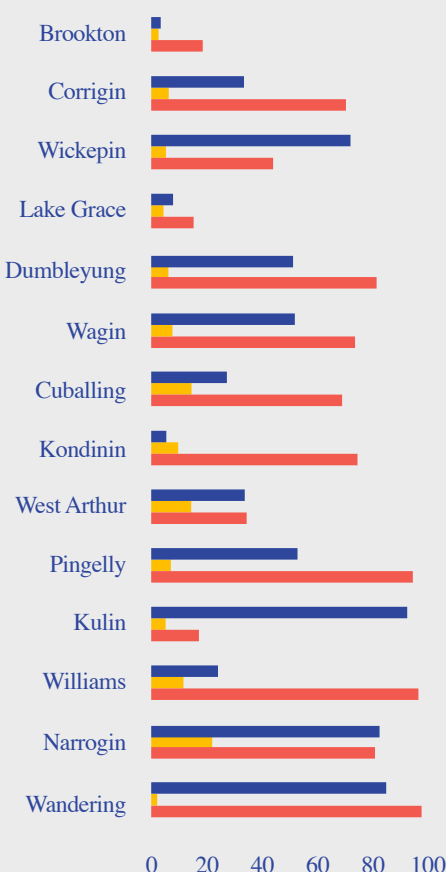
CENTRAL COAST REGION



CENTRAL MIDLAND REGION



WHEATBELT SOUTH REGION



ENTREPRENEURIAL CASE STUDIES

corporealhealth⁺

Corporeal Health is a dynamic business start-up with an innovative business model that is harnessing technology to deliver services tailored to regional communities.

The business was recently awarded 'Business of the Year' at the 2016 Wheatbelt Business Excellence Awards and its founder Carl Della was also recognised as the 'Young Entrepreneur of the Year'.


Carl grew up a 'country boy' starting life in Esperance and then moving to Northam in his teenage years. Having enjoyed the benefits of growing up in a regional setting, he became increasingly frustrated with services drifting from regional WA to Metro locations, and asked himself, "Why should those living in regional WA not receive service equal to, or better than those living in the city?"

His upbringing and passion for regional living inspired his decision to start Corporeal Health in Northam. Since its establishment in late 2014, Corporeal Health Pty Ltd has grown to provide specialist Workplace Health services, Clinical Exercise Physiology and Chronic Disease Management services across regional Western Australia.

Carl said, "We understand first-hand the unique challenges of WA's geography. Knowing this, our innovative approach means we provide high-quality services and continuity of care that comes from dealing with 'locals'. We leverage our health networks and the latest technology to provide health and rehabilitation services informed by the latest evidence-based research."

Having become successfully established and profitable in its first year based on its innovative business model, Corporeal Health has strong growth targets over the next two years aiming to achieve business growth of 400%. Beyond that, Carl is planning for an expansion in the suite of health services provided to include holistic chronic disease management the next 3 to 5 years.

Carl said, "We will also increase our range of services and expand them to greater regional WA as part of our vision to be a market leader in delivering innovative, tailored health solutions for regional and rural employers, employees and communities."



Bowman Brush

Brushwood Fence Panels and Screening

Bowman Brush is an innovative, family owned company which both grows and processes brushwood into fence panels, screening and brushwood accessories for the Australian market. The fence panels are manufactured from Melaleuca trees (brushwood, broom bush) which are hand harvested from a 450 hectare plantation situated 25kms north of Meckering.

Brushwood is a long lasting and also termite resistant hard wood ideal for fencing material. It is harvested from an Australian native Melaleuca species, such as Melaleuca Uncinata or Hamata, which is a tree that grows naturally in many areas of Australia. Melaleuca plants are hardy and can be harvested repetitively over their lifespan, generally every 5-7 years. It has a degree of salt tolerance and can be planted in salt affected areas to lower the water table, making it useful for efforts to improve degraded land.

Clive, Cheryl and Brett Bowman, founded the company in the year 2000 through a wish to diversify their business interests. After planting their own hand picked selection of brushwood on their property in South Australia it became apparent that the plants were not going to produce the quality of stick required for hand packed fences.

"We started tinkering with the idea of a machine that could utilise this sort of brush to produce prefabricated modular brushwood fence panels. With Brett's engineering skills combined with Clive's driving force and forward thinking nature, we embarked on a four-year exercise developing a brushwood panel machine from scratch." Cheryl said.

The company has also diversified to develop brushwood logs, which can be used on water eroded hillsides or riverbanks to allow the area to be replanted and regenerated or prevent/slow future damage.

"We strive to maintain our position as market leaders and rigorously pursue new ideas and products in the brushwood industry. We have great pride in what we have achieved thus far and endeavour to progress strongly into the future."

Bruce Rock ENGINEERING

One entrepreneurial company that has overcome the perils of the innovation valley of death to commercialise its world leading patented products is Bruce Rock Engineering.

Mike Verhoogt formed the company based in the Wheatbelt with his wife Gay in 1980, and it has grown to become respected across Australia for excellence in design, innovation and customer satisfaction. Mike's son, Damion Verhoogt, who grew up around the family business from an early age, has since taken on the role of Managing Director since the retirement of Mike & Gay.

From humble beginnings, the company now operates in the heart of the Wheatbelt from a modern manufacturing facility in Bruce Rock, delivering road transport equipment to the agricultural, mining, government and transport sectors across Australia.

Damion said, "The BRE team thrive on finding tailored solutions to clients transport problems that aren't easily overcome using standard equipment or thinking."

"We have a proud history of designing and building all of our equipment in-house to ensure 100% quality control throughout every step," says Mr Verhoogt.

Bruce Rock Engineering recently launched the innovative technology for the world-first BRE Super-Quad, a 60 metre road train which delivers significant cost efficiencies to the mining sector whilst reducing heavy vehicle road traffic and therefore reduces the impact on road infrastructure.

"We custom designed the new 60-metre road train utilising the Performance Based Standards framework and it is an international top line patented product," said Damion.

In recent years, Bruce Rock Engineering has expanded to build state of the art manufacturing facilities in Forrestfield, workshops and offices in Port Hedland and has now launched national distribution and sales offices on the east coast.

"We have always been respected as an innovator in the industry and now with the opening of offices on the Eastern seaboard, BRE will have the capacity to deliver end-to-end road transport services across the east coast."

TECHNOLOGY REGION COMPARISONS

TECHNOLOGY CLUSTERS

Technology clusters are geographic concentrations of interconnected technology firms, suppliers, service providers, related firms and associated organisations in a variety of fields or areas that form a symbiotic ecosystem that collaborates and competes within and with other clusters and regions.

Silicon Valley is recognised globally for its success in forming a global technology cluster that has spawned many very successful technology companies. Stanford University was very instrumental in the development of Silicon Valley. Similar high-tech clusters are gathered around MIT near Boston. Other technology clusters have formed around a major technology company, like Microsoft in Seattle spawning many firms that build on or support Microsoft products and services.

Other international regions that have well developed technology clusters include Tallin in Estonia, Eindhoven in the Netherlands and Bend, Oregon.



ACTIVE USERS ON SKYPE

300M+

TALLIN, ESTONIA
POPULATION: 400,000



VALUATION: TRANSFERWISE

\$1B+

Estonia is the 132nd smallest country in the world by land mass yet it produces more startups per head of population than any other country in Europe. It has a population the size of Copenhagen but has one of the world's most advanced e-governments.¹¹

In 2000, its government deemed internet access a basic human right and free wi-fi became the norm throughout the land. It was the first country to offer online voting for general elections. Most Estonians file their taxes within minutes via their mobile phones and their health records are stored in a digital cloud. Within Estonia all children are taught to code until 16.

In a relatively short period of time Estonia has produced a number of world leading technology companies such as Skype and TransferWise, based in the capital Tallinn.

SKYPE

In August 2003, six people from Estonia, Sweden and Denmark launched a new product in Tallinn. On its first day, 10,000 people downloaded it. A few months later, it had a million users. Ten years later, it is used by 300 million people around the world. The product is called Skype.

It is difficult to overestimate the snowball effect Skype has had on Tallinn. "You need a local success story to legitimise creating startups as a viable business," said Taavet Hinrikus, founder of TransferWise, a currency-exchange service.¹³

Skype also provided many young Estonian programmers and software developers with share options from the start — which meant that when Skype was sold to eBay in 2005 for US\$2.5 billion, many gained seed capital to start on their own companies. According to Sten Tamkivi, early employee with Skype, 36 people from Skype have since founded their own business since leaving the company¹³, most notable TransferWise, currently valued at over \$1 billion USD.

EINDHOVEN, NETHERLANDS
POPULATION: 216,000



STARTUPBOOTCAMP'S FUND SIZE

€100M

Eindhoven is hands-down the most inventive city in the world based on one of the most commonly used metrics for mapping the geography of innovation, what is called "patent intensity."

Eindhoven produces patents at the rate of 22 for every 10,000 residents, which far outpaces the second place for most inventive city by patent intensity, San Diego (8.9 patents per 10,000 residents).¹⁴

Eindhoven's High Tech Campus houses more than 10,000 researchers, developers, and engineers from around 125 companies, all working to develop new technologies and products. Its most popular startup accelerator, the Startupbootcamp, is the biggest in Europe with a fund size of €100 million.¹⁴

BEND, OREGON
POPULATION: 79,000



RAISED

\$91M



CLEARFLOW
ACTIVE CLEARANCE TECHNOLOGY

RAISED

\$24M

A real world example of kickstarting a cluster is underway in Bend, Oregon. Dino Vendetti, a former Bay Partners general partner (a venture capital firm), moved up to Bend on a mission to consciously engineer an entrepreneurial cluster in a regional city to spur economic development and job creation.

Steve Blank eloquently summarises Dino's strategy to encourage and engineer entrepreneurial density:¹⁵

- Leverage the local university to produce STEM talent and in particular computer science
- Lobby for direct flights to major markets
- Develop local early stage risk capital
- Invest in connection via local entrepreneur events and startup schools
- Harness local business community support

TECH COMPANY DENSITY

This table below examines the density of high-tech companies in several regions throughout the world (by high-tech we mean those technology companies producing their own intellectual property), and Angel Density (the number of people in a region per angel investor, investor that invest in high-tech companies). Note that smaller ratios are better, such as Tel Aviv which has approximately 1 tech company per 400 people in the population. The table is sorted by the regions most dense with technology companies per capita. Note blank fields (-) do not indicate zero (0) entities but rather no data on the category, and should not be taken to indicate a high or low ratio.

Region/City	Year of Data	# People per Tech Company	#Tech Companies	Population	# Coworking Spaces	# People per Coworking Space	Angel Investors	# People per Angel Investors
Tel Aviv	2015	400	1025	410,000	-	-	488	840
Vancouver	2015	477	1264	603,000	-	-	313	1,927
Amsterdam	2015	1,018	766	780,000	-	-	196	3,980
Toronto	2015	1,093	2378	2,600,000	-	-	548	4,745
Paris	2015	1,290	1706	2,200,000	-	-	422	5,213
Bangalore	2015	1,648	2609	4,300,000	-	-	334	12,874
Montreal	2015	1,801	944	1,700,000	-	-	168	10,119
Barcelona	2015	2,721	588	1,600,000	-	-	168	9,524
Stockholm	2015	2,902	448	1,300,000	-	-	153	8,497
Phoenix	2015	3,106	483	1,500,000	-	-	116	12,931
Sydney	2015	3,513	1224	4,300,000	-	-	348	12,356
Munich	2015	4,023	348	1,400,000	-	-	147	9,524
Singapore	2015	4,057	1331	5,400,000	-	-	809	6,675
Cairns	2015	4,297	37	159,000	1	159,000	-	-
Melbourne	2015	4,700	851	4,000,000	-	-	179	22,346
Prague	2015	4,797	271	1,300,000	-	-	48	27,083
Western Australia	2016	5,741	451	2,589,000	12	215,750	-	-
Warsaw	2015	6,615	257	1,700,000	-	-	65	26,154
Vienna	2015	6,967	244	1,700,000	-	-	88	19,318
Hamburg	2015	7,203	236	1,700,000	-	-	73	23,288
Mackay	2015	8,786	14	123,000	0	0	-	-
Toowoomba	2015	9,000	18	162,000	1	162,000	-	-
Rockhampton	2015	9,444	9	85,000	0	0	-	-
Bundaberg	2015	9,500	10	95,000	0	0	-	-
South East Queensland	2014	10,000	250	2,500,000	-	-	100	25,000
Townsville	2015	11,875	16	190,000	0	0	-	-
Western Australia	2013	11,986	216	2,589,000	3	863,000	-	-
Regional Queensland	2015	15,126	119	1,800,000	3	600,000	-	-
Ipswich	2015	17,273	11	190,000	1	190,000	-	-
WA Wheatbelt Region	2016	19,456	4	77,823	1	77,823	-	-

Source: AngelList, CrunchBase and Boundless research.

CHALLENGES & OPPORTUNITIES

- BUSINESS & COMMUNITY INSIGHTS
- FEEDING ASIA'S DEMAND
- SUSTAINABILITY
- PEOPLE, COMMUNITIES & CULTURE
- ECONOMIC DIVERSIFICATION
- CREATING A REGIONAL BRAND
- DIGITAL COMMUNITIES
- AGTECH
- ELECTRICITY & RENEWABLE ENERGY



**“THERE IS NOTHING MORE
DIFFICULT TO TAKE IN HAND,
MORE PERILOUS TO CONDUCT,
OR MORE UNCERTAIN IN IT’S
SUCCESS, THAN TO TAKE THE
LEAD IN THE INTRODUCTION OF A
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**BECAUSE THE INNOVATOR HAS
FOR ENEMIES ALL THOSE WHO
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WARM DEFENDERS IN THOSE
THAT MAY DO WELL UNDER THE
NEW.”**

**NICCOLO MACHEAVELLI
THE PRINCE**

COMMUNITY INSIGHTS

COMMUNITY INSIGHTS

As part of the project, information was collated from over 100 people including four workshops with over 30 participants and 30 interviews were held with people from across the WA Wheatbelt. Participants were asked to discuss, identify and vote on issues and challenges for innovation and entrepreneurship in the region; identify what opportunities there were to support innovation and entrepreneurship and to identify the actions which would address these challenges & opportunities.

The major challenges identified were:

- Cost, quality and accessibility of internet and mobile
- High costs of business development including connection to power and water supplies, and land and housing
- Lack of access to funding to support entrepreneurial innovation in the region
- Lack of training and education for starting a business or about entrepreneurial innovation
- Lack of skilled labour supplies

INFRASTRUCTURE

Across the region issues, opportunities and actions around infrastructure featured strongly. Participants and interviewees commented on the challenges involved with high cost low bandwidth internet and mobile capabilities, and the limitations this inflicted on businesses and activities associated with innovation such as research and skills development.

Participants often brought up the high costs to access electricity and water supply. To address energy constraints, participants identified opportunities and new technology developments in renewable energy and micro-grids.

AGRICULTURE

As would be expected the opportunities around agriculture and food production were often identified. Participants discussed the opportunities to develop and export unique high quality food and produce for the Perth metro area and Asian markets.

In general, participants discussed the creation of unique, high-quality diversified food products along with developing the marketing and branding of the region's core staples (grains and beef).

REGIONAL BRAND

Across all workshops people spoke of a need to develop a regional brand, such as can be found in the Swan Valley or Margaret River. Participants thought a dedicated organisation with substantial funding needed to be focussed on developing and supporting the brand.

Building on these two points (high-quality food and a regional brand) participants supported the development of greater

agri-tourism to the region. They discussed the opportunity for activities such as long-table lunches, progressive lunches, tours to producers and an app highlighting regional produce.

COLLABORATION & NETWORKS

Participants also saw a need for a central online hub to support innovation, entrepreneurs and businesses throughout the region. This complimented a range of comments on the need for greater education for entrepreneurs, and increased opportunities for entrepreneurs to network, collaborate and learn from peers and mentors throughout the region. Participants thought these could be both physical and virtual events to increase networking, collaboration and learning.

Actions and resources for focused marketing efforts to scale up and refocus an online portal such as Heartlands WA has the potential to increase promotion of the region at home and internationally, to establish a strong regional brand and foster collaborative entrepreneurial innovation activities and education programs.

PEOPLE, COMMUNITIES & CULTURE

Participants also spoke of the challenges around attracting and retaining skilled people to the region, particularly retaining young people.

"Unfortunately, and I think it's almost a worldwide thing, it's not just Australia or Western Australia, a lot of rural areas have trouble keeping their younger people in them. The bright lights of the bigger cities are a big attraction, and if the people that do come in haven't spent a fair bit of their younger years in a country area, they're not likely to stay." - Mike Verhoogt, interview

SURVEY, INTERVIEW & WORKSHOP RESPONSES

On the following page is the summary data from the community consultation and research process. Workshop, survey and interview participants were asked about the opportunities, challenges and needs across the region. Business respondents also answered questions regarding the type and level of innovation they engaged in within their business.

KEY CHALLENGES & OPPORTUNITIES

Based on the community consultation along with additional research of trends we have highlighted seven key areas critical to the development of entrepreneurship and innovation within the Wheatbelt:

- People, Communities & Culture
- Digital Communities
- Feeding Asia's Demand
- Ag-tech
- Sustainability
- Creating a Regional Brand
- Renewable Energy

BUSINESS INSIGHTS ON INNOVATION

WHAT ARE THE CONSTRAINTS FOR INNOVATIVE ENTREPRENEURSHIP IN THE WHEATBELT?

High cost of internet and mobile and low quality/bandwidth.	17%
Cost of business development is prohibitive (incl. high cost of power and water).	12%
Lack of access to funding for innovation and entrepreneurship (private or government).	11%
Lack of knowledge and expertise around starting your own business or innovation.	11%
Government policy, regulation and bureaucracy that inhibits innovation.	9%
Labour shortages (lack of skilled staff, suitable accommodation, high costs and talent flight).	8%
Lack of networks for mentoring, knowledge and professional development.	7%
Lack of a culture and awareness of innovative entrepreneurship.	6%
Dispersion of industry.	4%
Difficulty in accessing local markets.	3%

WHICH MARKETS DO YOU SELL TO?

Australia	50%
WA only	28%
Asia (South East & Central)	15%
Japan	11%
Middle East/North Africa	6%
Europe	6%
None as yet	6%
New Zealand	3%
North America	3%
Russia	3%

WHAT ARE THE OPPORTUNITIES FOR INNOVATIVE ENTREPRENEURSHIP IN THE WHEATBELT?

Innovations in agriculture, cross-breeding, aquaculture, aquaponics and horticulture.	14%
Opportunity for collaborative business network/collective.	11%
Opportunity to provide more healthcare infrastructure through the region.	9%
Innovation looking at moving from commodity agriculture to food.	8%
Opportunity to create and promote a regional brand.	8%
Connecting businesses directly with researchers for the early adoption of ideas.	7%
New funding models such as crowd funding that support new ventures.	6%
Gastronomic, Provence & Agri-Tourism: progressive lunches, tours and a regional app.	6%
Renewable energy (particularly solar).	6%
Sell in international markets online.	4%

GEOGRAPHIC MARKET INNOVATION

Tackling an existing market	44%
New to geographic market	22%
New to our business	20%
Totally new for our industry	6%

TECHNOLOGY INNOVATION

We're using existing technologies	69%
We're not using any technology	17%
Variation of existing technology	11%
Totally new for our industry	3%

BUSINESS MODEL INNOVATION

It's an existing (longstanding) business model	55%
Variation of existing business models	41%
Totally new for our industry	3%

WHAT ARE THE ACTIONS NEEDED TO DEVELOP INNOVATIVE ENTREPRENEURSHIP IN THE WHEATBELT?

Expand existing regional funding for startups or form dedicated local fund for startups.	20%
Create a central hub/platform with business information to assist SMEs.	15%
Improved access to reliable, fast and affordable internet.	14%
Improved educational programs and information online on innovation.	13%
Improve collaboration and networking opportunities.	12%
More activities to increase awareness and culture around innovative entrepreneurship.	11%
Create a regional agriculture precinct and regional brand.	6%

MARKET FOCUS OF INNOVATIVE ORGS

Agriculture, forestry, fishing & hunting	17%
Arts & Recreation Services	10%
Information Media & Telecommunications	10%
Professional, Scientific & Technical Services	10%
Education & Training	8%
Entertainment, Tourism & Sport	6%
Public Administration & Safety	6%
Retail Trade	6%
Communication	5%
Construction	4%

MARKET FOCUS OF NORMAL BUSINESSES

Agriculture, Forestry and Fishing	47%
Non-Agribusiness	53%

WHAT IS YOUR REVENUE?

\$1 - \$100k pa	33%
\$1m - \$5m pa	17%
\$100k - \$500k pa	14%
\$5m - \$10m pa	3%
\$20m - \$50m pa	3%

**“YOU NEED TO BE OUT THERE
TALKING TO GUYS AND PRESSING
THE FLESH AS THEY SAY. A LOT OF
THE IDEAS AND INNOVATIONS THAT
WE GET COME FROM GROWERS
THEMSELVES.”**

**FRANK D’EMDEN
INTERVIEW**

PEOPLE, COMMUNITIES & CULTURE

CULTURE

Quality of life is very important to the Wheatbelt community including access to good services and affordable housing. The regional landscape and connection to the land is an integral part of people’s lifestyle enjoyment. Many people enjoy the country lifestyle and express no desire to ‘join the city rat-race’. Important values include involvement in the community and feeling of self-determination i.e. “being my own boss”, all factors that align with and support a culture entrepreneurial innovation. The rural lifestyle is a strong competitive advantage for attracting more people to live in the Wheatbelt.

A key theme picked up from participants in workshops and surveys was that a culture and communities of entrepreneurship and innovation needed to be developed within each of the five sub-regional areas to create new market ready businesses.

Specific cultural themes that inhibited innovative entrepreneurship in the region included lack of an appetite for risk, lack of an entrepreneurial spirit or global ambition; resistance to change; business confidence; scepticism of new ideas, unwillingness to share information and lack of understanding of the impacts of technology and new ideas.

“I believe we kind of have lost a lot of that innovative spirit. The whole approach to risk management can really lead to no-one taking any risks out here.”

Glenice Batchelor – Interview.

WHERE DO YOU SOURCE YOUR ADVICE AND SUPPORT FROM?

Other innovative business owners	61%
Online sources	47%
Chamber of Commerce	25%
Family and Friends	25%
Accountant	17%
Insurer	17%
Australian Business Register	11%
Mentor	11%
Other non-innovative business owners	11%
Small Business Centre	11%
ASIC	8%
Lawyer	8%

Source: Report workshops & surveys 2016

NETWORKS & COLLABORATION

Feedback at the workshops and surveys indicated that people in the Wheatbelt source advice and information about innovative and entrepreneurial activities from other innovative business owners and trusted online sources.

For innovation efforts to succeed, it is critical they are integrated closely with the local community, involving local people and local media, so they will be considered opinion leaders and a valued source of information. This ties into the themes of collaboration and communication of these efforts to build momentum in the innovation ecosystem.

“You need to be out there talking to guys, and pressing the flesh as they say. A lot of the ideas and innovations that we get come from growers themselves. They come up with an idea, and they’ll say, “Look, can you do this for us.” We’re like, “We didn’t think about that.”

“All the grower groups across the Wheatbelt, have open memberships. They’re very open with their information and they’re the ones that should be targeted by any initiatives from government to try and foster innovation. They attract the farmers who are the doers, the leaders in the community. These grower groups are really important in the transfer of ideas from research into industry.”

Frank D’Emden – interview

Rural communities are often dealing with a complex range of constraints and barriers involving multiple stakeholders. It is very difficult for one person or one organisation to make a difference.

Many issues and challenges faced by rural communities can be overcome by developing a culture of entrepreneurship and innovation which is supported by communities taking collaborative action. Real change can happen when communities come together with passion to address the multiple issues and stakeholders in a more cohesive approach to achieve change across the existing system. Collaborative approaches involving multiple stakeholders with common purpose have already resulted in more cost effective and efficient project and service delivery across communities in the region.

Actions outlined at community workshops included the need to hold more physical and virtual events to increase networking, collaboration and learning to support innovative and entrepreneurial businesses and learn from peers and mentors throughout the region. Sustained support for such innovative efforts is required on an ongoing basis.

HUBS & CO-WORKING SPACES

One way that this can be effectively implemented is to establish a digital hub or co-working space. Co-working spaces are dynamic and flexible shared working environments where people from different businesses or organisations can work independently but they also provide opportunities for collaboration and

innovation. A digital co-working space acts as a place for business development through activities and events which create opportunities for creativity, connection, and collaboration among the local and visiting business community. A successful co-working space will build a supportive community of collaborative workers with an entrepreneurial spirit that encourages sharing of ideas.

The establishment of a co-working space requires a high level of connectivity, availability of suitable premises and access to appropriately skilled labour to manage ongoing business and technical needs. It also requires access to, or potential to develop, a sufficient level of demand from business within a region, to ensure it can be commercially viable within the short to medium term.

HATCH CO-WORKING SPACE, NORTHAM

To capitalise on Northam’s potential as a hub for entrepreneurs and micro business owners, in September 2016, Anna Dixon from Creative IQ and Rhiannon Bristow-Stagg from Lagom, organised a one week trial of a pop-up co-working space for local professionals called “Hatch”. Hatch provided a co-working space that was designed to:

- Support emerging and established business owners to develop their businesses
- Allow larger organisations to share knowledge and collaborate within the space
- Provide a contemporary physical space for running events and activities for the benefit of the community
- Fill a service gap for tertiary students to access space, equipment and knowledge.

Feedback from people using Hatch showed strong interest in using it to work on their existing business and three people indicated they would use it to establish a new business. Many people were interested in using it for meetings and workshops for their own business while also wanting to interact with other coworkers in shared spaces.

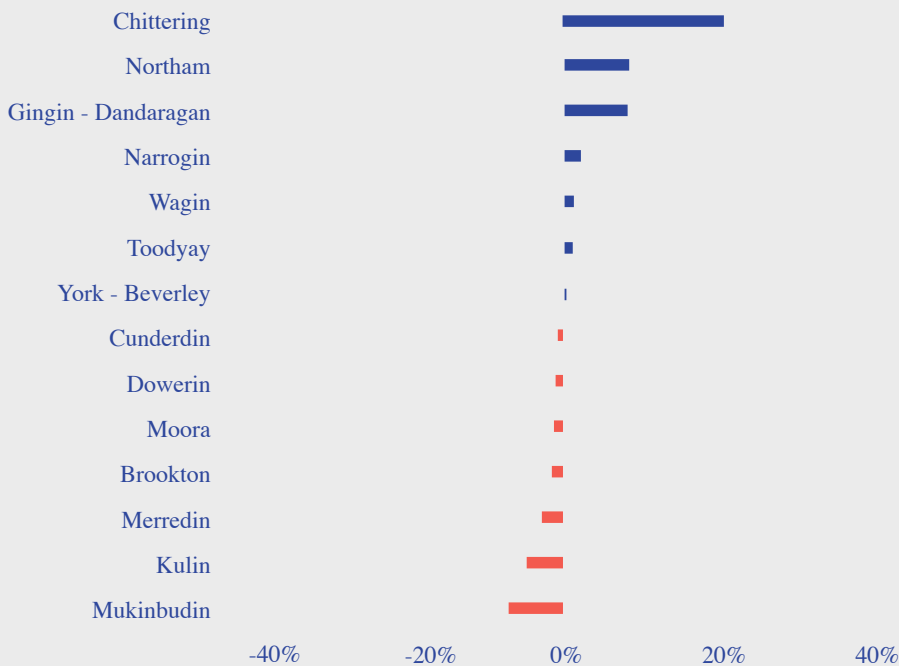
There was a high interest from users in attending networking and training events and the Wheatbelt Business Network has expressed interest in examining the viability of providing training and networking opportunities to microbusinesses in Northam.

Based on the success of the trial, the Hatch co-working space is likely to be established on a permanent basis in Northam depending on it receiving further long term commitment and support from the Shire of Northam.

PEOPLE, COMMUNITIES & CULTURE

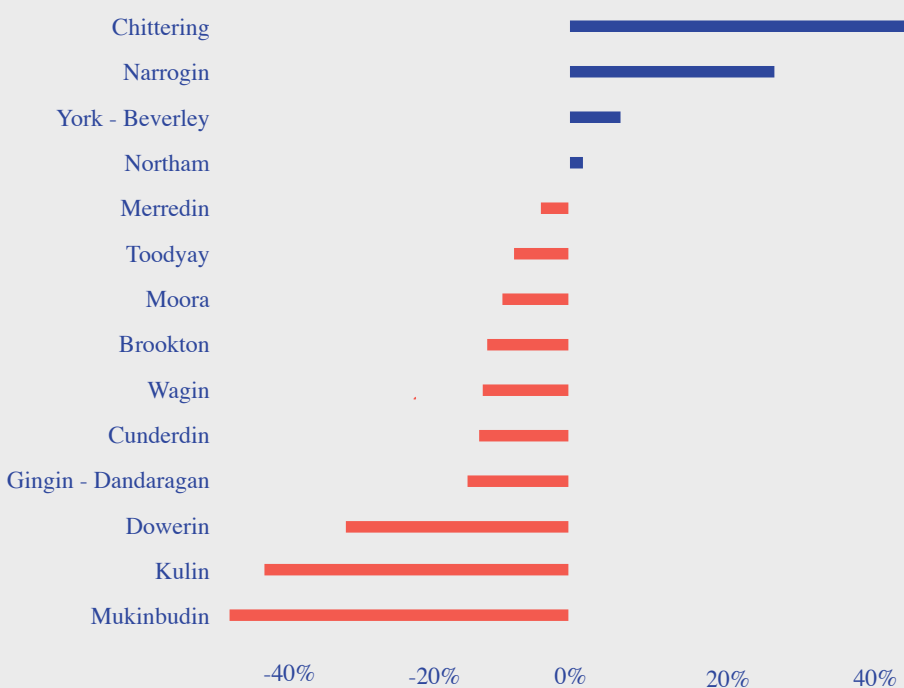
% TOTAL POPULATION CHANGE 2010-2015

SOURCE: ABS CAT 3235.0 2016*



% YOUTH POPULATION CHANGE 2010-2015

SOURCE: ABS CAT 3235.0 2016*



*Note that the ABS collects data for population using sub-regional boundaries that differ from Shire boundaries so they are not perfectly aligned.

POPULATION GROWTH

The Wheatbelt region is home to over 77,000 people, making it the third most populous region in the State.² Overall, the region is experiencing low population growth centred around the near metropolitan and western coastal areas while communities in the eastern and southern Wheatbelt are slowly declining in population. For rural communities to remain viable, they need to maintain a critical number of residents of a range of ages and skills.

Over the past decades in rural areas, there has been a consolidation of the traditional family farms into larger holdings. This has led to a population decline as farmers have moved to larger machinery with less units of labour required for farming the land. The drift of younger generations out of rural towns is exacerbated by greater availability of further education and job opportunities in the Perth and metropolitan area. With this decline there has been a flow-on effect to the schools and recreational facilities in the smaller towns, leading to an under utilisation of these facilities or them closing down.

Each of the sub-regions is serviced by a regional centre: Northam, Jurien Bay, Merredin, Moora and Narrogin. However, there is no single dominant regional centre. The low population density and lack of sizable regional centres presents a range of constraints for business development and can be a barrier for entrepreneurship and innovation due to lack of critical mass to direct efforts and resources to.

Bigger population size, higher growth rates and density are factors that can influence the levels of innovation and entrepreneurship in regional areas as they encourage collaboration, sharing of ideas and information and formation of new start-up businesses.

In this regard, Northam has the largest population size and highest density in the Wheatbelt region and has achieved strong population growth over a decade. It has also experienced growth of its youth population.

Chittering has had strong population growth over the past decade, with particularly strong growth of the youth aged 15-24 years old. It also has a higher density relative to other Wheatbelt areas. Gingin and Dandaragan have also experienced strong population growth over the past ten years.

Population growth in York and Toodyay has levelled off in the past five years after stronger growth in the preceding five years. Notably, the youth population in York has grown in the past five years while Toodyay's has declined slightly.

Narrogin has experienced strong growth of its youth population, possibly due to the presence of a Senior High School and the College of Agriculture, which has a proud history of serving the agricultural community since 1906.

LABOUR AND HOUSING CONSTRAINTS

Access to human capital is recognised as a constraint to future development of the region. The agriculture industry is finding it harder to find permanent and seasonal labour. This trend is also being felt by many local business owners in towns.

The lack of local, affordable, quality housing stock is a major constraint to attracting a labour force in many towns across the Wheatbelt region. While the cost of suitable land for housing (where it is available) is relatively low, the solution is not as simple as building new homes either as banks require a 30% deposit and there is little prospect of capital growth. Land development in rural areas is not a straight forward process and without a strong foundation of existing businesses and residents with prospects for growth, it is financially challenging and places the Shires in a chicken and egg situation.

Regional growth plans such as ‘Growing our Community’ – An Economic Development and Implementation Strategy for the Midlands Centre¹⁶ can provide a vision and guiding principles to enable economic growth and enhance prosperity and well-being for the communities. The Midlands Centres is made up of the three Shires of Dalwallinu, Moora and Wongan-Ballidu. These areas possess unique comparative strengths complementing one another, making them well placed to accommodate growth, with regional wealth in natural amenities and attractions, existing infrastructure and functional, sustainable communities. The growth plan for the Midlands Centres includes actions, projects and initiatives to promote and share the benefits of growth across the sub-region and accommodate a tripling of the population to approximately 15,000 by 2050.¹⁶

Shires and communities can develop innovative approaches to solving these complex problems. For example, within the Shire of Dalwallinu, the smaller towns have diminished substantially as farm holdings have been doubling in size every ten years and the on-farm population is reducing because of this. However, the Dalwallinu town site has grown as other businesses that are less reliant on agriculture have started up. The Council put in place a Business Investment Program aimed at attracting new businesses into the area with assistance provided in the first four years to allow them to grow and develop.¹⁷ The Shire and community has diversified to attract industries that have including engineering, fabrication (machinery, concrete and housing), mechanical services and transport services. Plans are also in place for land releases to address shortages of housing supply and other innovative approaches to labour supply are being pursued.

REGIONAL REPOPULATION PLAN FOR THE CENTRAL MIDLANDS

This project originated from local community member Stuart McAlpine becoming disheartened with the current decline in population within his home town of Buntine. Identifying a number of skills shortages within the region, Stuart worked closely with the Dalwallinu community and Shire to address two obvious areas which required more attention; the need to have access to more labour immediately; and the need for more local, affordable housing.

This resulted in a Regional Repopulation Plan¹⁸ being developed by the Dalwallinu community who saw a direct need for attraction & retention of migrants into the local area based on the firm belief that the ability to attract migrants from a range of backgrounds and cultures will not only bring greater diversity but also provide a much needed lifeline to regional areas. Many migrants have a strong work ethic and sense of community, they are eager to find meaningful employment and to improve not only their own lives and those of their children, but also those of the broader community. This project aims to provide a mentoring program and a welcoming environment so that migrants can adapt to their new country faster. It also aims to become a best practice pilot program for regional WA.

Stuart said “We’ve obviously been very successful in converting a lot of the 457s visas into permanent residents. We did a lot of work early with refugees. Governments were too slow to do the training that was required for the local businesses. 457 visas appeared, and we were able to use those to get skilled labor from places like Korea and the Philippines. Our businesses were able to get these people, yet they’re all sending their money home. So we said, “Do you like it here?” and they told us “Yeah, we love it.” So we asked them “Why don’t you try and bring your family across?” Now a lot of them have, and they’re just fitting in magnificently into our community.”

Since the Regional Repopulation Plan started, linked to a strong Economic Development Strategy, the population has increased by over 100 new residents. For these efforts the Shire of Dalwallinu has been described as ‘the best Shire in the Wheatbelt to have engaged and formed strong ties with its culturally and linguistically diverse community’ and was awarded the Implementing Multiculturalism Locally Award in 2013.¹⁹

GROWING BRUCE ROCK

Another example of a community leader overcoming local constraints is Mike Verhoogt, at Bruce Rock Engineering.

Mike said, “We’ve been expanding recently by building a couple of additional facilities for us. We’ve done one in Port Hedland that’s been operating for over a year and opened another branch of ours in Forrestfield in Perth. That was after finishing another development at Bruce Rock.”

As the business has grown, Mike realised he needed to tackle the problem of attracting new workers. To meet this challenge, Bruce Rock Engineering bought accommodation to make it easier to attract workers with families.

He said, “We’ve bought a couple of houses, as well as the singles accommodation, to provide accommodation for senior staff, and rented as well.

We also hired workers from overseas using 457 visas to cope with tight labour market supply. These workers have subsequently become permanent residents and some have brought their families to live with them.”

The Shire of Bruce Rock is also encouraging other new businesses to establish in the light industrial area alongside Bruce Rock Engineering by releasing six new blocks. This is accompanied by the release of a new residential sub-division.

All round this is continuing to revitalise this area with a flow on effect as these new businesses grow and new families come into a town bringing more children into local schools and increasing their viability.

DIGITAL COMMUNITIES

CROSSING THE DIGITAL DIVIDE

The emergence of the global digital economy is creating both opportunities and challenges for regional areas in Western Australia. The ability of regions to innovate and engage with the knowledge economy can provide a competitive edge and make the difference between a trajectory of future growth or decline.

Technology offers opportunities to deepen the connection of the Wheatbelt to the rest of the world. It offers potential for regional businesses to access domestic and international markets for goods, services and employment. Fast and efficient connectivity offers the best options for the expansion of business in regional areas, particularly for online work and relying on the ability to transmit large amounts of data efficiently such as jobs in communications, graphic art, scientific and technical design, and Information Communication Technology (ICT).

The roll-out of the National Broadband Network (NBN) to deliver high-speed broadband across Australia will enable high levels of connectivity where available.²⁰ Fixed wireless NBN is already available in some towns including Moora, Dalwallinu, York, Northam, Calingiri, Merredin, Mukinbudin, Narrogin, Williams, Gingin and Katanning.

In addition, the WA Regional Mobile Communications Project has recently improved highway and town site coverage for some regional areas, including 16 new mobile towers or significant upgrades in the Wheatbelt.²¹ The next phase is the Regional Telecommunications Project,²² which is focused on the delivery of improved coverage to regional communities, including eight sites located in the Wheatbelt.

ECONOMIC POTENTIAL OF THE WEB

PwC modelling estimates that there is \$26 billion of untapped economic potential which could be realised over the next ten years by small businesses in rural and regional Australia by embracing mobile and internet technologies to transform their operations.²³ In the electorate of Pearce, which encompasses the Northern Peri-urban Innovation corridor from Gingin to Northam plus York, the modelling estimates that internet technology can unlock an additional \$129 million of additional economic output over ten years (+\$37k for each small business).²³

Investment in ICT infrastructure alone will not spur on business development in regional areas. It also requires investment in training people and adapting businesses to make the best use of technology to be an effective tool for growth in the hands of any community. Areas of technological readiness in connectivity, workforce skills and business support capacity which may be restricting economic growth need to be identified and addressed. Regions that are able to improve their technological capacity are likely to increase their future prospects for economic growth.

POOR INTERNET & MOBILE CONNECTIVITY

Connectivity for both mobile devices and for the internet is one of the main business development and productivity constraints in the Wheatbelt that is limiting the ability of businesses to reach their full digital potential. Mobile coverage and connectivity blends together with internet coverage issues as many people use mobile devices such as smartphones and tablets to access the internet, often due to poor internet accessibility in the first place.

Inadequate or no connection to the internet was one of the top issues identified in the surveys, interviews and workshops. Large parts of the Wheatbelt, particularly those located further away from the Perth metropolitan region, face substantial challenges with connecting to reliable, high-speed broadband or obtaining access that is affordable and has sufficient speed and data capacity to work as a substantial driver for economic growth.

Some Wheatbelt communities have expressed their concerns about their future competitiveness as a place to live, work and invest if they can only access satellite NBN services, as they have concerns about reliability and data speed. Areas with sizable populations and no planned improvements in connectivity risk the creation of a digital divide which will inhibit their long term growth.

While the rural roll-out of NBN is in its early days, a recent survey of almost 2,000 rural households using internet services found that 88 per cent of customers did not have services that met their needs. Other findings were that most internet use was for business purposes and a majority of users were struggling with slow or restricted speeds, capped download capabilities and high costs of data.²⁴

To bypass poor services and help end the 'data drought' some small telecommunications companies, like Red Wifi in Queensland, set up fixed wireless networks and sell internet plans with unlimited data. The company runs high-speed fibre cable from a tower in town to broadcast from wireless dishes placed on farmers grain silos 40kms away.²⁵

WHEATBELT DIGITAL ACTION PLAN

The Regional Development Australia Wheatbelt has developed a Wheatbelt Digital Action Plan²⁶ to guide future technology and communications projects and direct investment in five focus areas:

1. Digital Learning

Overcoming learning gaps with relevant, local demonstration of benefit and outcomes, followed by practical support to get more on-line and develop the regions capabilities. This includes the formation of the a Digital Flying Squad to improve people's knowledge of and capability to use digital technology and online applications.

2. Connectivity and Access

Further research and problem solving into areas of service need, technology options and investment capacity will be required to overcome this business productivity issue and improve users mobile and internet access.

3. Leadership and Advocacy

Generating a high degree of collaboration, cooperation and governance between all key organisations and amongst communities.

4. Building Community and Services

On-line Support key service providers and communities to move on-line to drive and grow demand, and to capture new residents choosing to work, live or invest in the region.

5. Building Digital Innovation

Work with the exemplars and inspire and promote digital technology uptake, and support key sectors where adoption is already high and benefits well understood.

ONLINE BUSINESS DIVERSIFICATION

One Wheatbelt business that looked to the internet to diversify and expand it's business is Yerecoin Traders. It was recognised for its entrepreneurial approach taking two awards at the 2016 Wheatbelt Business Excellence Awards, including the 'Excellence in Innovation' award.²⁷

Amanda and Tim Walker are the passionate business owners behind Yerecoin Traders, which is a general store, café and also sells farm and rural merchandise as well.

Amanda said, "about 2 years ago, we dipped our toes into the online e-commerce space because we felt that was a way for us to diversify and to reach out to a different customer base. That's when our FarmCo online business was born.

"We started off selling online what we had in the store here. Then after two years, we had a good look at what we're selling, where we're selling and who we're selling it to and realised we need to do something different. So we put together a completely new business model for the online market and changed our product offering to meet the needs of an online customer base who are primarily based in the eastern states."

FarmCo.com.au now fills a market niche as a small farm supplies specialist providing animal care, weed and pest control, water management, fencing and more online. It has distribution warehouses across Australia to ensure products are delivered to the door with a minimum of time and fuss.

FarmCo not only takes advantage of the internet for sales but is also active in communicating online with small farmers on their specialised small farm advice website Farmstyle.com.au. Amanda said, "it is full of great advice and has a very active forum. "

“IF YOU WANT TO DO THINGS DIFFERENTLY, YOU’VE GOT TO RESEARCH. TO RESEARCH, WHAT ARE YOU GOING TO USE? YOU’RE GOING TO USE THE INTERNET.

IF YOU HAVE NO ACCESS, POOR QUALITY, SLOW RATES AND HIGH COSTS, WHAT CAN YOU DO? THAT’S A BIT OF A SORE POINT WITH ME ACTUALLY.”

AMANDA WALKER
OWNER, YERECOIN TRADERS & FARMCO

DIGITAL COMMUNITIES

BUILDING A RURAL KNOWLEDGE ECONOMY

Ensuring that business, communities and industry have access to mobile and internet telecommunications is crucial to enable increased participation in the knowledge economy for regional communities.

Knowledge-based work can potentially be undertaken in any place with sufficient connectivity, equipment and workforce capability. Advances in technology and increasing internet accessibility has untied many types of work from needing a fixed location. The term online work refers to work delivered from a home-based office, a mobile work site, a call-centre, a tele-centre or digital hub, or a remote operations centre.²⁸

Online work widens access to employment and customer markets, helps increase productivity and lowers business overheads. Online work can help grow and retain regional populations, as people currently living in the metropolitan region can fulfil desires to move to (or return to) regional communities while retaining the security of their existing employment.

Based on ABS census data, demographer Bernard Salt has identified the evolution of a lifestyle trend of people moving to small-town and provincial-city living within striking distance of a state capital city that is being pursued by about one-in-six Australians in every Australian state. He calls it a fusion of tree-change and sea-change with e-change. E-change is a shift that taps into a fundamental Australian desire to live a different non-metropolitan lifestyle and it is being enabled by the rollout of high speed connection to the internet and fuelled by people's desire to pursue a lifestyle that gives them greater control over where they live and how they work.²⁹

Lifestyle towns identified by Bernard Salt in the Wheatbelt include Chittering and Muchea, Northam, York, Toodyay, Cunderdin, Brookton, Gingin, Goomalling, Moora, Williams, Beverley, Wandering and Dowerin.²⁹

In the future with super-connectivity it is expected that some towns in particular within the e-change zone will be the destination for city workers seeking a lifestyle shift. Move to a lifestyle town, telecommute using broadband, and come into the city perhaps once a week for face to face meetings. The e-change trend is likely to fuel more innovative and entrepreneurial people to start-up new businesses as they seek to have the lifestyle they desire and the means to fulfil it.²⁹

CREATING DIGITAL COMMUNITIES

There is currently untapped potential for online work in regional Western Australia. Regional centres and local government areas with good existing broadband connectivity and workforce capacity are best positioned to build an online workforce. Fast and efficient connectivity offers the best options for the expansion of business in regional areas, particularly for work relying on the ability to transmit large amounts of data quickly and efficiently such as jobs in communications, graphic art, scientific and technical design, and ICT. Knowledge sector jobs have the greatest potential for expansion.

Commuter proximity to Perth offers the opportunity to develop part-time or full-time homebased work for residents in the peri-urban areas of the Wheatbelt, such as Chittering, York, Gingin, Toodyay, Northam and Beverley. These areas offer particular opportunities for part-time shares between home-based work and office-based work, or full-time home-based work with occasional commuting to Perth to participate in training or development activities.

Proximity to metropolitan areas and the availability of labour also offers potential for the development of call-centres or back-office processing in the peri-urban arc of the Wheatbelt region, so long as sufficient connectivity is available. As call-centres do not need to be tied to a specific location, there is high potential for them to be located in larger regional service towns like Northam, which can offer lower overheads, high local availability of labour and lower staff turnover rates.

In an economic environment where Government departments are facing ongoing pressures to reduce costs, the decentralisation of back office services into peri-urban regional sites has the potential to lead the way for business and industry to follow by demonstrating the productivity and cost benefits that can be realised through service relocation and investment in regions.

The establishment of an educational/research innovation centre or the relocation of State or Federal government offices would provide a much-needed stimulus for the development of a larger employment market in the region. This level of policy intervention is warranted to kick start a cumulative growth pattern that will increase population and industry density and create a more receptive environment for businesses to establish in the region.

For this report, we found that the "e-change" trend of people moving to lifestyle towns and the shift towards a digital workforce being established in the Wheatbelt region was already underway and found a great start-up business that exemplifies this at Corporeal Health.

CORPOREAL HEALTH

Corporeal Health, based in Northam, was established in late 2014. It consists of two businesses working in tandem, Corporeal Health and CorpFit. Corporeal Health specialises in workplace health and injury management services and CorpFit is an Exercise Rehabilitation service.

Director, Carl Della said, "During our business planning phase, we identified that high costs and reduced quality of services were two major barriers for engaging a workplace rehabilitation provider in a regional setting. So we designed Corporeal Health's business model to overcome these two significant challenges".

"As the vast majority of our duties are performed either onsite or in a clinical setting, we decided not to have a 'shop front' commercial property. Rather, staff perform their administrative duties, which equates to approximately 30% of their time, from a home environment. We offer complete flexibility in working arrangements, meaning working hours can be tailored to the individual staff member. To support this, we provide our staff with a vehicle, tablet / docking station, printer / scanner and Smart Phone.

Given these flexible working arrangements, we give preference in recruitment to those who have previously lived regionally, or have family links to regional areas. This allows access to suitably skilled and experienced specialist staff to deliver services to regional locations, whilst ensuring they have an understanding of life outside of the major metropolitan centres.

Our service delivery model is focused on reducing cost, whilst maintaining a high level of service. We utilise a cloud-based platform that ensures our staff can remain productive outside of an office environment. This means we can reduce our total travel costs passed on to clients as we have minimal 'down time', even when travelling remotely. It also improves overall turnaround times for release of reports.

CorpFit utilises an industry leading exercise prescription platform that includes video demonstration of exercises, real-time tracking of exercise performance, client feedback, pain monitoring, outcome measures and exercise compliance. This ensures we can closely monitor our clients whilst reducing the frequency of face to face sessions, therefore ensuring improved outcomes at a reduced cost.

In addition to the above, we use video-conferencing and email communications to maintain regular contact with our clients.

“STARTUPS BEGET STARTUPS. PEOPLE WHO WORK FOR STARTUPS START THEIR OWN. PEOPLE WHO GET RICH FROM STARTUPS FUND NEW ONES.

I SUSPECT THIS KIND OF ORGANIC GROWTH IS THE ONLY WAY TO PRODUCE A STARTUP HUB, BECAUSE IT'S THE ONLY WAY TO GROW THE EXPERTISE YOU NEED.” ³⁰

PAUL GRAHAM
FOUNDER, YCOMBINATOR

FEEDING ASIA'S DEMAND

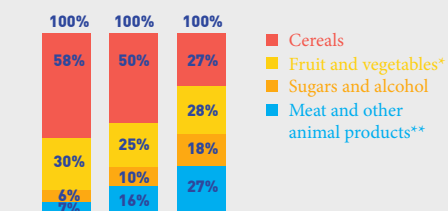
In the five years to 2010, the developing world accounted for almost three quarters of global growth. The result has been a surge in demand for the basic materials necessary to support industrialisation and urbanisation, particularly in Asia.³¹ Asian markets accounted for over 60 per cent of the value of Australian agricultural exports in 2011–12 with the main destinations being Japan, China, Indonesia and the Republic of Korea.³²

The rise of the middle classes in Asia has boosted calorie consumption and spurred the demand for higher protein diets such as meat and dairy. Demand for some agricultural products is outstripping supply and given the relative scarcity of water and land in Asia some are predicting that Australia is well placed to be a considerable player in providing Asia with a portion of its food supply. The share of Australia's agricultural and food exports to Asia is projected to increase from more than 40 per cent to between 65 to 75 per cent.³³

HIGHER INCOME DIETS ARE MORE RESOURCE INTENSIVE

Calorie intake by food type

Percentage of daily calorie intake



* Includes pulses, spices, roots and oil crops

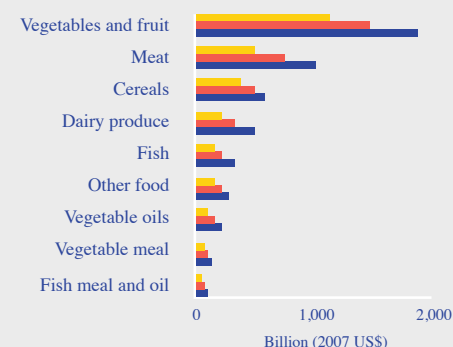
** Includes milk, eggs, aquatic products and cheese and excludes meats

The growing affluent population in Asia also presents Australia with an opportunity to capture price premiums. This includes expanding the production of differentiated commodity products and, in some cases, manufacturing value-added products for export markets in niche areas.³¹

We identified Moora Citrus and Dandaragan Camel Dairies as Wheatbelt businesses that already identify Asia as an important opportunity for growth.

DEMAND FOR FOOD WILL GROW³⁴

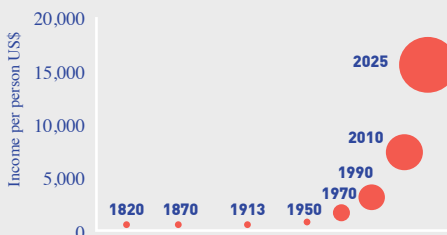
Global demand by commodity



WHAT ARE THE CHALLENGES?

The potential to capitalise on our neighbour's growth is undoubtedly exciting but meeting the demand for food production will not come easily. While the increase needed in agricultural yields is comparable to those achieved in the past, crop productivity growth is slowing and producers face much greater environmental constraints and challenges than ever before.³⁴

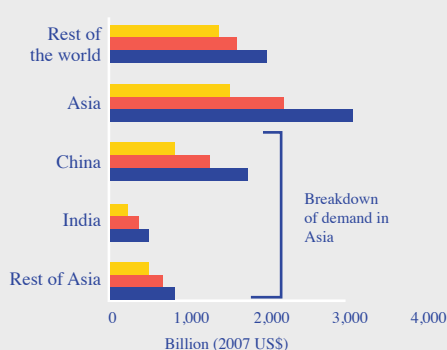
ASIA'S ECONOMIC RESURGENCE IS SET TO CONTINUE³⁴



Australia currently produces enough food for 60 million people, which accounts for only 2 per cent of the population in Asia. Given that Asia's middle class alone is expected to grow to 3 billion by 2050, how do we boost our productivity in a way that meets this demand sustainably?³⁵

■ 2007 ■ 2025 ■ 2050

Global food demand



Success depends on the agricultural sector addressing the key issues that are hindering performance and holding back potential growth.

Deputy director of CSIRO's Agriculture Flagship, Brian Keating has said previously that meeting even some of the demand would require a significant boost in our production and a shift towards high value product. It's also expected that any major production or value increase will hinge on efforts to lift productivity in existing agricultural areas.³⁵

"As a historical point of reference, aggregate output from Australian agriculture doubled between 1965 and 2000, ABARES data says. This required massive technical innovation and structural change. It also required a three-fold increase in irrigation within the Murray Darling Basin and a five fold increase in nitrogen fertilizer inputs," he told the ABC late 2014.³⁵

The challenge for Australian agriculture will be in meeting this booming world need for food and fibre through increasing production – at a time when we have less arable land, less water and less human resources. However, international competitiveness in agriculture is about more than just having access to good land and rainfall.

According to a report released by ANZ, success will require "developing connected and mutually reinforcing areas of high capability where extremely efficient supply chains exist side by side. For this to occur there needs to be top R&D capability, innovative financing, clear strategic vision and productive profitable farms with the requisite scale, organisation, financial acumen, funding and skills. This kind of success, based on clusters of highly competitive activities, has not emerged in Australian agriculture in any substantial way for some years."

While ANZ says these are critical factors in Australian agriculture producers having a strong competitive position in the global agricultural market, this report has identified strong challenges around access to capital and R&D, sparse innovative practice and little access or understanding about securing or developing foreign markets.

CLEANER FOOD FOR ASIA

Expanding Asian societies need food and fibre like never before and due to their growing affluence they are demanding produce of the highest quality.³⁶ While Australia may be a relatively small global food producer, we're also a reliable exporter of high quality, 'clean and green' agricultural commodities and food products.³⁴

According to CSIRO Australian food is "renowned for its quality and consistency, valued for its safety and sustainable production, and attracting premium prices – whether staple foods like wheat or sugar or luxury items like lobsters and premium wines".³⁷

At the Ag in the Asian Century Conference in Queensland in late 2015, Craig Liu from Asian trading company Anson Pacific said Asian importers are on the hunt for Australian products that have a clean green image, and producers should match their products with that demand.

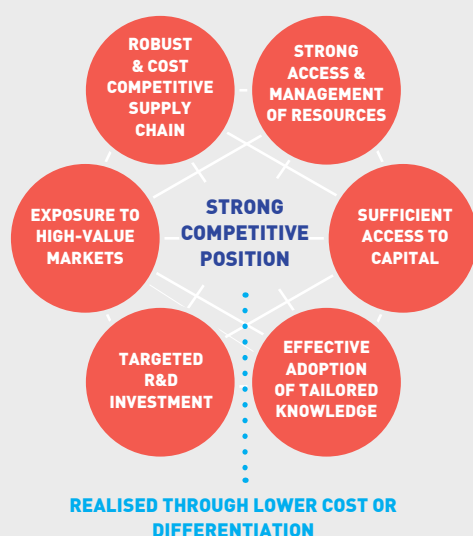
"Food demand is quite strong in China, because we have our food problems, but Australia has a green image, it is a clean country and it is safe," he said.³⁸

The demand for clean and green food is so strong that Asia is currently experiencing an unprecedented boom in its indoor agriculture sector as everyone rushes to find the best ways to grow food that is pesticide free and from reputable sources.

The Wheatbelt is in a unique position to capitalise on this demand for clean food with a number of companies already implementing highly sustainable and environmentally friendly farming practices. For example Wide Open Agriculture are developing water-secure, 'spray-free' greenhouse technology to produce clean and green, local vegetables and fruits for local and overseas markets.

THERE IS ALREADY A GLOBAL RACE TO CAPTURE THE OPPORTUNITY

What does Australian agriculture need to achieve a competitive advantage?³¹



MARKET ACCESS

Western Australia's agri-food products are valued at \$20 billion at the retail and export levels. WA's food manufacturing industry comprises around 1200 businesses, with two-thirds of WA agrifood products exported.⁵

The WA agri-food sector has not kept pace with the export and productivity growth enjoyed by many of its competitors over the past 10 years.⁵ For WA agricultural exports to remain competitive and grow their share and value in international markets the agri-food sector needs to rapidly increase productivity growth across the whole supply chain, not just on-farm.

With the world food trade undergoing significant change, affluent Asian and Middle East countries are increasingly seeking to import quality, safe food to meet their needs. These changing market conditions present real opportunities for growth in the State's agri-food sector.

The Department of Agriculture and Food, Western Australia (DAFWA) Food Industry Innovation project is working with a range of partners throughout WA to transform agri-food businesses and the regions into preferred suppliers of premium quality products, which will generate flow-on benefits to other businesses throughout the State.³⁹

Western Australia's competitive advantage in agrifood is built upon multiple layers. Western Australia has a modern food industry that produces safe food from a clean and trusted environment, located in the same time zone as Asia's major markets. Combining these factors with skilled people and a compelling story positions Western Australia favourably against peer competitors.

DAFWA has commenced a three year, \$6 million Asian Market Success project to provide WA agri-food businesses with confidence to invest in accessing and developing high value, premium export markets in Asia. The Asian Market Success will assist agri-food businesses by aligning them with targeted market opportunities to become preferred suppliers of premium quality food products.⁴⁰

This will be achieved by an assessment of what premium food products, from temperate and Mediterranean environments, Asian consumers want, WA's competitive advantage in these food products, and identification of key in-market import partners for our WA agrifood businesses.

To succeed within the areas of beverages, processed foods, dairy and eggs, produce, seafood, meat, oilseeds, oils and fats, animal foods, and grains, Western Australian producers need to be targeting "premium" positions. According to the research, these opportunities have the potential to deliver an estimated \$1.3b per year in incremental, new export revenue to Western Australia in the next seven years.⁵

In this report we identified a small number of businesses that are creating unique and differentiated products. These companies include: Cambinata Yabbies, the leading producer of yabbies in the southern hemisphere; 3Farmers Quinoa, the first company to successfully grow and process quinoa in WA. Lastly, Dandaragan Camel Dairies is in the early stages of testing the viability of creating WA's first camel milk for human consumption.

NORTHERN VALLEYS AGRIBUSINESS EXPANSION PROJECT

A proposed \$450,000 agribusiness development project that aims to boost grower profitability, enhance collaboration and identify scaleable regional solutions in the Northern Valleys has received government funding to help grower groups capture new agricultural export opportunities and build on research and development activities.⁴¹

The joint project is spearheaded by the West Midlands Group (WMG). It aims to develop new commercial opportunities in the Northern Valleys by:

- Providing a dedicated regional adviser to identify new commercial opportunities (such as the new Cataby abattoir and new Fair Trade Agreements).

- Undertaking research and a 'proof of concept' to explore the conversion of food production waste – or seconds – into a higher value product to increase grower profitability and productivity.
- Ensuring regional opportunities are appropriately leveraged to benefit the agribusiness sector.

WMG executive officer Anne Wilkins said, "WMG is seeking to further expand into horticultural and food basket sectors and is excited to work with Northern Valley Agribusiness and RDA Wheatbelt to progress this important and timely project".

RDA Wheatbelt executive officer Juliet Grist noted there was great potential for the Northern Valleys region to tap into new high value markets by streamlining supply chain links, value-adding or developing new products and enhancing farm productivity.

"This project will assist agribusiness in the region to take advantage of these many opportunities as well as lay the foundation for long term growth," Juliet said.⁴¹

WA CITRUS

Another recipient of a grower R&D grant of \$263,500 is Citrus WA focusing on improving the capability of the citrus value chain and expanding markets for WA citrus fruit.⁴²

Moora Citrus is one grower that has already branched out to export large quantities of navel oranges. Orchard manager Shane Kay said that the Asian export market is going to be very important to the future of this orchard with registered blocks going to Korea, Thailand and China and options to send some to Japan, Hong Kong and Singapore. To overcome labour supply challenges, Moora Citrus bring in pickers using 457 visas, the Pacific harvest scheme (Seasonal Worker Programme) and the holiday visa scheme.

AGRIFresh is another large citrus grower based in Dandaragan who are pursuing a dream to grow, pack and market highest quality WA citrus fruits to meet both local demand and supply to premium international markets. It was recognised as Business of the Year at the recent Wheatbelt Business Excellence Awards.

Both of these producers have applied innovative approaches to scale up their packing plants using state of the art technology and processes to ensure fruits are graded and packed to highest standards.

They are now are working to increase the volume of fruit exported over the next few years as significant new plantings come into full production. The State Government and Citrus WA are now working with other WA citrus growers interested in exporting their fruit to build on this export market success.

ECONOMIC DIVERSIFICATION

PRODUCT & INDUSTRY DIVERSIFICATION FOR ECONOMIC SUSTAINABILITY

Agricultural returns tend to be cyclical in nature, a few years of good returns followed by a few years of negative returns. Innovation and diversification allows farmers to widen their range of produce to counteract the effects of such cycles. A diversified portfolio of produce should ensure that farmers do not suffer complete ruin when conditions aren't favourable.⁴³

As the largest producers of new and traditional agricultural products in Western Australia (accounts for 50% of all production in the State), the Wheatbelt is in a unique position to be able to diversify in to new markets to meet the demand for food from the rising Australian and world population.

Building on a strong base in agriculture and food production and to counter some of the cyclical nature of farming it is imperative that the Wheatbelt also diversifies some of the industries that are in the region.

In the scope of this report we identified a range of companies that are diversifying the range of food and also the types of markets and industries they are tackling.

Within the agriculture industry we identified companies that are diversifying outside of the Wheatbelt's core offering, wheat, to produce other food products such as quinoa (3FarmersQuinoa), camel milk (Dandaragan Camel Dairies) and yabbies (Caminata Yabbies).

We identified some companies that had strong activities in agriculture and food production and had then expanded into other industries such as accommodation and tourism such as Caminata Yabbies who are a yabby farm but also host events and have cottages for tourists.

Ian Nenke from Caminata Yabbies said diversification is important for growth. "One farm for one family needs at least four or five thousand acres, it's about incorporating other parts of business. If we have one industry that is performing poorly one year, we have others to keep us going."

Another example of building on the Wheatbelt's strengths around farming are those creating and selling technologies that assist in agriculture. Examples of these include Hectare (precision agriculture) and Wide Open Agriculture, which builds glasshouse technology to grow fruits and vegetables new to the region.

The Wagin Shire and Curtin University are working together to start a local aquaponics industry in the region by tapping into a water desalination system to simultaneously grow leafy greens, herbs and barramundi.



WIDE OPEN AGRICULTURE

Wide Open Agriculture plans to build a 1,500 square metre pilot greenhouse on a farm near Arthur River in the Wheatbelt, looking to harvest capsicum, tomato and cucumber crops.

The company is using water-secure, 'spray-free' greenhouse technology to produce clean and green, local vegetables and fruits for local and export markets. A scoping study of diverse activities in the Wheatbelt showed that intensive horticulture offers rapid financial returns, maximises use of natural resources and can build community around it.

Wide Open Agriculture managing director and Narrogin local Dr Ben Cole told ABC Rural earlier this year that the idea came about from wanting to offer some diversification to the already established farming practices in the Wheatbelt.

"Wheat and sheep have been the predominant focus but [we wanted] to create a diversified option, to look at what else is available, and what we saw was that horticulture offered us a really great first step in diversification," he said.

"It is quick cash flow, it is a crop that is well-suited to this climate, and it was really just that matter of water, making sure we had a good solid source of water and we think we've solved that as well."



3 FARMERS QUINOA

Kukerin grower Megan Gooding, Narrogin grower Ashley Wiese and agronomist Garren Knell are the founder of 3 Farmers Quinoa, a company that grows and processes its own quinoa in the Wheatbelt. The quinoa has been available for purchase in Coles supermarkets since April 2016.

Quinoa is traditionally grown in South America and imported. It is still an emerging crop in the state and WA only had its first commercial scale harvest last year. Growing and processing the superfood is a feat in itself.

"There's several facets of our innovation. The first is to grow the crop to start with because it hadn't been grown on a conventional scale broad acre scale before. That was a new thing for Australia," says Megan Gooding.

Furthermore, Quinoa can't be processed at a conventional grain processing facility because unlike other grains, it needs a special machine to remove the bitter coating on the outside of the seed.

"It's quite difficult to remove, there's no other machinery which can do it and a lot of the processing in South America is very labour intensive. We weren't prepared to do that so we've have to design new machinery to get this coating off but this year we've built a processing facility near Narrogin to remove the saponine from the seed."

DANDARAGAN CAMEL DAIRIES

Dandaragan Camel Dairies is the first commercial camel dairy farm and milk processing in WA.

Chief Executive Officer Henry Steingieser says the camel dairy is a largely untapped market ripe for disruption. He says following the introduction of camels to Australia in 1860 for the purposes of transportation and construction and then the subsequent releasing of them into the desert with the arrival of cars, herds have been left to proliferate.

"Australia has the healthiest camel herd in this globe. There are still some 300,000 wild camels. We believe there is a better solution by developing a new agricultural industry, starting in Dandaragan WA.

"In addition to be easily digested by lactose-intolerant individuals, camel's milk is an important source of protein, vitamins and minerals, and is particularly rich in calcium."

On top of that, he says other health benefits could increase the demand for the milk.

"As an alternative to traditional sources of milk, camel's milk is highly regarded as a premium health product."

“WHEAT AND SHEEP HAVE BEEN THE PREDOMINANT FOCUS BUT [WE WANTED] TO CREATE A DIVERSIFIED OPTION, TO LOOK AT WHAT ELSE IS AVAILABLE, AND WHAT WE SAW WAS THAT HORTICULTURE OFFERED US A REALLY GREAT FIRST STEP IN DIVERSIFICATION.”

**DR BEN COLE, MANAGING
DIRECTOR
WIDE OPEN AGRICULTURE**

AGTECH

Agriculture is in the middle of a digital revolution. The benefits of converging the digital and physical worlds are too valuable to ignore. In the not-so- distant future, constant connection between farmers, soil, weather systems and plants, in real-time, will be the norm.⁴⁴

A rising tide of Australian and international reports have identified advances in agricultural technology (AgTech) as the key to long-term productivity gains. AgTech is a nascent industry but it points to any technology developed that helps the agriculture industry feed the growing population without destroying the planet.⁴⁵

Included in AgTech is precision agriculture, broadly defined as the group of hardware and software technologies that help farmers improve decision-making with data-driven analytics, including drones, robots and sensors. Precision farming uses data at the level of the square metre or decimetre, or even of a single plant, to optimise the consumption of inputs and make adjustments to accommodate variable characteristics within and among fields. Its spread will be enabled by the increased use of sensors, software and wireless connectivity on farming implements.⁴⁴

According to a report from the Boston Consulting Group, the likes of precision farming technology will be the major trend reshaping farming worldwide by 2030.⁴⁶

Horticulture Innovation Australia chief exec John Lloyd told the Financial Review in February 2016 that AgTech will become crucial to the agriculture of the future.

"We can't rely on just being a quality producer any more, so we have to use technology and automation to drive labour efficiency more and more"

Australian Farm Institute executive director, Mick Keogh, echoed his sentiments: "The ability to capture digital information at the farm gate is growing rapidly; harvesters, tractors, farm implements, sprays, walk-over weighing scales – all those sorts of things allow us to capture a huge amount of data associated with farm production. The key is turning that flood of information into sensible tools that support decision-making."

The advent of digitised agriculture means farmers now have the ability to monitor and control inputs with far greater precision.

"It is now possible to speak about farm management decisions down to the level of the individual plant or animal," says Keogh.

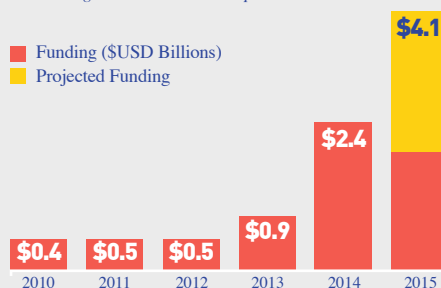
IDEAS INTO BUSINESSES

One of the biggest challenges for AgTech is the lack of support and incentives to turn ideas into viable businesses. While CSIRO and universities are constantly conducting

important foundational research, Australia struggles to convert this into scalable commercial ventures. Adding to this is the lack of private sector investment, which is significantly lower than the US and many other developed countries.⁴⁷

GLOBAL AGTECH FUNDING 2010-2015

Source: AgFunder Mid Year Report ⁴⁴



According to AgFunder's AgTech Investing report, 2014 was a record-breaking year with USD\$2.36 billion raised across 264 financing deals. This figure surpassed well-known sectors like fintech (\$2.1 billion) and cleantech (\$2 billion) and was 40% higher than the entire Australian venture and private equity investments over the same period across all industries. 2015 funding is expected to be \$4.1 billion USD.⁴⁴

From precision agriculture to biotech and drones, venture capitalists are actively investing in companies set on revolutionising how we grow, produce, and distribute food around the world. Notably absent from the AgFunder's data is Australia. AgFunder states that "whilst Australia has a large agriculture industry, we are not seeing much AgTech activity at all.

TOP 10 COUNTRIES FOR AGFUNDING 2014

Source: AgFunder Mid Year Report ⁴⁴

United States	\$1028m
Israel	\$510m
China	\$155m
India	\$111m
United Kingdom	\$85m
Canada	\$35m
Sweden	\$27m
France	\$24m
Germany	\$23m
Switzerland	\$22m

But this is starting to change with the launch of SproutX, the country's first agtech accelerator, an initiative of the National Farmers Federation (NFF) and Findex. SproutX was launched in late 2015 and offers "entrepreneurs a world-leading Agritech accelerator program that will identify, nurture, promote and help commercialise the best new ideas in food, fibre and agribusiness."

SproutX recently launched a \$10 million fund, with start-up accelerator programs and services to spur innovation among start-ups and tech players targeting the agricultural sector. This move has attracted private sector investors with Bio Pacific Partners, Finistere Ventures, and AgFunder looking to fund agtech in Australia. Notable Australian agtech startups like Observant, AgDNA, AgBiTech, and The Yield are gaining global recognition and even attracting corporate funding.⁴⁷

THE WHEATBELT AND AGTECH

One challenge seen in other innovation hubs such as Silicon Valley is that investment is simply not enough. Successful innovators need to understand the local context and identify the key challenges faced by those in farming. This provides an opportunity for those in the wheatbelt to create innovative technologies to solve these domain-specific problems.

While the move towards the utilisation of more specialist skills in agriculture is in its infancy in the Wheatbelt, we did come across a handful of innovators in the region. Precision Agronomics and another, younger company, Hectare, use technology to access the soils and determine what kind of food or tending each area of land needs.

The livestock industry is also seeing some movement with AgTech. Livestock farmers now have the ability to track their animals and "map where they are grazing represents a profound opportunity for pasture management in an industry that has traditionally lagged in applying automation." Wheatbelt company AgInnovate is using tags on livestock to better understand things like growth and breeding rates and the optimal amount of food intake.

Aside from AgTech, we also identified other businesses using tech to expand their markets. Yerecoin Traders is a general store, café, farm and rural supplies business in Yerecoin owned by Amanda and Tim Walker. The duo launched an online retail store - www.farmco.com.au - to meet the increased demand from busy farmers for their farm supplies. They now deliver to farms across Australia. They sell an abundance of goods from weed control tools to gumboots and floodlights through their online store.

GLOBAL AGTECH FUNDING 2014

\$2.36B

PRECISIONAG STARTUP FUNDING 2014

\$276M

CASE STUDY HECTARE

Michael Ford is working in the precision agriculture space with his tech startup, Hectare. The 20-year-old grew up on a 5000-hectare family farm 100kms northeast of Geraldton and was spurred on to create a simpler and more efficient way for farmers to operate.

“A while back people realised that it doesn’t make sense to treat every hectare of your farm as equal. You have some good ground, some bad ground, some gets more rain and some doesn’t,” says Michael.

“Maybe you break a 100-hectare paddock into 4 zones and you vary what goes into each 25 hectare area by turning it into a prescription.”

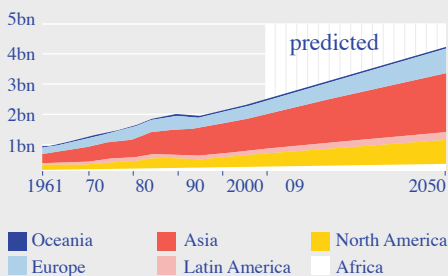
Although in its early stages, Michael’s technology will allow farmers to load their prescription into their tractors and the tractor then manages its outputs as it move in and out of those zones in the paddock.

Michael is also trying to develop technology that is not reliant on access to the internet, given many areas of the wheatbelt still lack critical infrastructure.

“I’m trying to build software that can operate without an Internet connection. A lot of the machinery already has very good connectivity even though it may not appear. I can see Hectare as essential software that runs on a tablet in the cab and connects directly to the machine.

CEREAL CROP PRODUCTION (tonnes)

Source: Farming First Green Economy ⁴¹

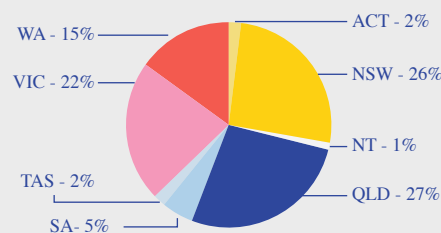


DRONES

A growing ecosystem of West Australian drone operators is already catering to clients in agriculture, land management, energy, and construction. Commercial drones have leapt far ahead of regulators and are already entrenched in a handful of massive industries. Many are small private companies and startups — although some large companies are beginning to invest in drone technology too.

There are currently 269 registered UAS (Unmanned Aerial Service) Operator Certificate Holders in Australia, with 40 (15%) registered across Western Australia. Drone Technology is now proliferating at an extraordinary rate, with capability and performance doubling every 18 months, and price continuing to plummet. Nevertheless, to become a CASA (Civil Aviation Safety Authority) certified holder, the approvals process can take months and costs thousands of dollars, with applicants required to complete about 90% of a conventional private pilot’s course.

DRONE CERTIFICATES PER STATE

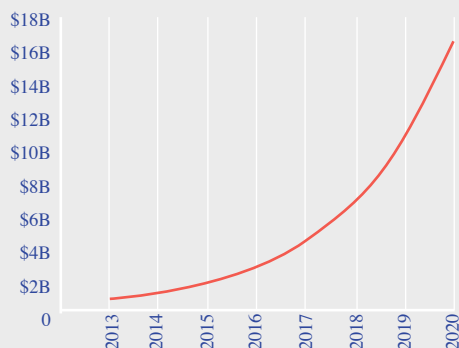


ROBOTICS

The global agricultural industry is quickly moving towards full automation. Agricultural robots automate business processes, meet stringent hygiene and safety regulations, work 24 hours a day, and relieve human workers of physically arduous tasks. Robotics and automation can play a significant role in regional WA meeting projected agricultural production needs.

WinterGreen research in a 2014 report, projects the global agricultural robot market size to grow from \$817 million in 2013 to \$16.3 billion by 2020.⁴⁸

PROJECTED GROWTH AGROBOTIC MARKET



AGTECH CASE STUDIES



E-CONNECTED GRAINBELT

Technology is an important component to ensuring our State's agricultural sector remains internationally competitive. The Department of Agriculture and Food, Western Australia's (DAFWA) eConnected Grainbelt project, funded through Royalties for Regions, is working to connect information across the grains industry to enable growers to make more profitable decisions tailored to their farm business.⁴⁹

To gain meaningful feedback on decision support tools, systems and technologies, 14 grower groups and consultants are hosting 11 eDemonstration sites across the grain-belt, including:

- Corrigin Farm Improvement Group
- Facey Group, Wickepin
- Far East Agricultural Research Group, Moorine Rock
- Merredin and Districts Farm Improvement Group
- Mingenew Irwin Group
- Southern DIRT, Kojonup and West Arthur Trials Group, Darkin
- West Midlands Group, Dandaragan
- Wheatbelt Natural Resource Management, Northam
- Yuna Farm Improvement Group, Yuna and Mullewa Dryland Farming Initiative.

Each site will be fully instrumented with an automatic weather station and soil moisture probes at no cost to the grower group.

These projects are expected to deliver:

- Better flow of information between grain growers, their consultants, suppliers, buyers of grain, researchers, suppliers of weather data, and other industry participants.
- Improved decision tools that use this information to help growers with management decisions in grain production.
- A higher level of skill in the grains industry in the utilisation of electronic tools for decision making.



PRECISION AGRONOMICS

Precision Agronomics was founded 10 years ago in the Wheatbelt and is now based in Esperance. The company uses geophysical sensors to map soil types and based on the results come up with variable rate maps (where the rate of application is based on the precise location, or qualities of the area that the material is being applied to) for those farmers to ensure fertilizers are administered based on needs of the particular soils and crops, as opposed to doing blanket rates across the whole paddock. For example, one area of a paddock may require a different amount of fertilizer to another area due to the difference in soil health.

Precision's Technology Development Manager, Frank D'Emden, said the introduction of the technology to the region has been successful with a number of farmers in different regions in the Wheatbelt using the technology, enabling the company to successfully work out how to interpret a vast range of soil types in different landscapes.

"One of the key things in the adoption of new innovations and diffusion of them throughout the market is awareness and understanding. For farmers, in particular, this means seeing something that's been applied in their local area," he says.

"We find that there tend to be hotspots of activity where we get work. That comes about from someone doing some work with us and talking to their neighbour saying, "How did that go?" and the client going, "Yeah, it was great. We did this and it saved me those input costs. I've got better productivity." Then their neighbours will go out and we'll get a call from them and they want to go and do it. We end up with a lot clusters of activity."



AGINNOVATE

AgInnovate is a specialist livestock consultancy in Narrogin, founded in 2014 by Danielle England. Danielle and her small team work with farmers to increase productivity and profitability of their livestock enterprises. The company offers electronic identification services to farmers and although the technology is not new, AgInnovate is the first to introduce it to WA farmers.

Electronic identification in sheep simplifies the data recording within a farmers' sheep enterprise allowing farmers to easily identify the most profitable animals within the flock, and drive home enterprise profitability.

Danielle says even though the trials are only 6 months in, she's already getting positive feedback from her clients.

"Livestock services account for anywhere from 30 - 50 per cent of land area on Wheatbelt farms. Introducing these tags means we can do all sorts of things like pedigree scans; we can scan ewes and lambs and get better genetic recording, we get more accurate data in yards, such as growth rate, and reproduction, quality of the animals.

"We can put monitoring systems in place to allow us to get some weight gains to put specific feeding programs in place. It's really quite an exciting time for the livestock industry in WA."

“NOW, THE FARAWAY LABOURER – OR INTELLIGENT MACHINE – IS AVAILABLE FOR HIRE AND MAY BE BETTER ENDOWED THAN THE LOCAL LABOURER IN SKILL OR PRICE OR SPEED OF WORK, OR WITH THE EFFICIENCY OF ORGANISATION, OR WHATEVER IS REQUIRED TO WIN THE CUSTOMER.”⁵⁰

**MCKINSEY
COMPETE TO PROSPER**

**“AS A FARMER FROM CORRIGIN,
MY INVESTIGATIONS HAD SHOWN
THAT SINCE 1980 RAINFALL HAS
REDUCED BY 15% TO 20% DURING
THE GROWING SEASON.
THIS IS THE ELEPHANT IN
THE ROOM FOR MY FARMING
BUSINESS AND ALSO FOR MY
PEERS IN THE WHEATBELT.”**

**SIMON WALLWORK
FARMER AND PARTICIPANT
IN THE CLIMATE CHAMPION
PROGRAM**

SUSTAINABILITY

GLOBAL SUSTAINABILITY

Over the past 50 years, the world's agricultural system has expanded to feed 7 billion people by doubling or tripling food production, with only a 12 per cent increase in cultivated land. This increase in food production was driven by a 7-fold increase in inputs of nitrogen fertiliser, a 3.5-fold increase in inputs of phosphorus, comparable increases in pesticides, higher fossil fuel use and a 70% increase in irrigated land.

Greater food production has come at the cost of reduced soil fertility, increased water pollution and biodiversity loss. One quarter of the world's land is now highly degraded, based on the first global assessment of land resources.

SUSTAINABILITY IN AUSTRALIA

Now, we're faced with the great task at hand of producing 60 per cent more food by 2050 with less water, land, fuel and chemicals. CSIRO's Sustainable Agriculture Flagship has set a national goal of helping "to secure Australian agricultural and forestry industries by increasing productivity by 50 per cent and reducing net carbon emissions per unit of food and fibre by at least 50 per cent between now and 2030."³⁷

So how do we boost our productivity sustainably so as not to repeat history? How do we increase production per hectare without relying on greater use of expensive fertilizer and fossil fuel inputs, or running up against the environment's capacity to absorb runoff, nutrients or greenhouse gas emissions?⁵¹

While water and resource scarcity is a global problem comparable to many other regions Australia is well placed with the amount of arable land and quantity of renewable water available as shown in the graph below from ANZ's report Greener Pastures.

Given our abundance of water and arable land, and the problems facing the rest of the world, Australia has a greater responsibility to develop innovative practices that use Australia's natural resources more efficiently for the benefit of the rest of the world.

SUSTAINABILITY IN THE WHEATBELT

The Wheatbelt covers large areas of agricultural land that are under pressure from wind erosion, soil degradation, salinity and climate change.

Natural Resource Management is concerned with taking care of natural resources with a focus on how the management affects the quality of life for present and future generations.⁵²

Western Australia's National Landcare Programme currently funds two natural resource management organisations (NRMs) in the Wheatbelt region, which work in collaboration with community, Landcare and farming system groups to implement regional NRM planning and activities to support environmental protection and sustainable agricultural practices.

The Wheatbelt NRM focuses its efforts on 12 million hectares of the Avon River basin. It aims to increase the adoption of farming practices that improve natural resources, including biodiversity, soil health and water quality while also contributing to production outcomes for our farmers.

By 2018, the Wheatbelt NRM aims to have 25% of the Wheatbelt community actively improving the Wheatbelt environment through multi-disciplinary strategies and programs.

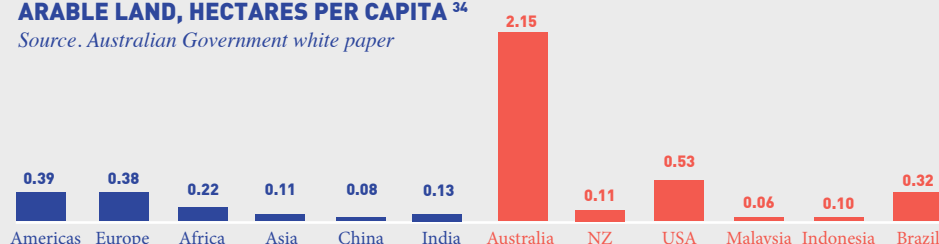
In 2015, the lack of rainfall and salinity were the biggest environmental concerns for people living in the Wheatbelt. There was also concern over the number of chemicals being used and where they were ending up. Statistics from the Department of Water found on average 210 tonnes of nitrogen and five tonnes of phosphorus had flown into the Swan Estuary from the Avon River. Broad-acre farming systems contributed 90 per cent of these nutrients. It's believed that by educating farmers on smarter farming practices, it is possible to reduce the amount of fertilizers entering waterways by up to 30 per cent.⁵³

This report identified many innovative community organisations, farmers and companies championing sustainability through active natural resource management and smarter farming practices. These include (but are not limited to): Auria, Wheatbelt NRM Sustainable Agriculture Program, Sustainable Communities Program, Climate Change Champions program, River Conservation Society in York, Nungarin Community Development Group NRM Professional Network, Merredin Land Conservation District Committee, Earth Solutions-Avon Valley, Nyabing Farm Improvement Group, Gabby Quoi Quoi Catchment Group, Mt Marshall Sandalwood, Mukinbudin Conservation Group—Regional Herbarium, Toodyay Land Conservation District Committee, Ucarty Catchment Group, Westonia Tidy Towns, Kulin Wildflower Group, Wongan Ballidu Bush Care Group.

Continuing efforts to scale up these projects and market a 'clean, green and growing' regional brand is a significant opportunity for the Wheatbelt. This will help producers to charge higher premiums on products and position them to take advantage of the high demand for clean and healthy foods in key Asian and Middle Eastern export markets.

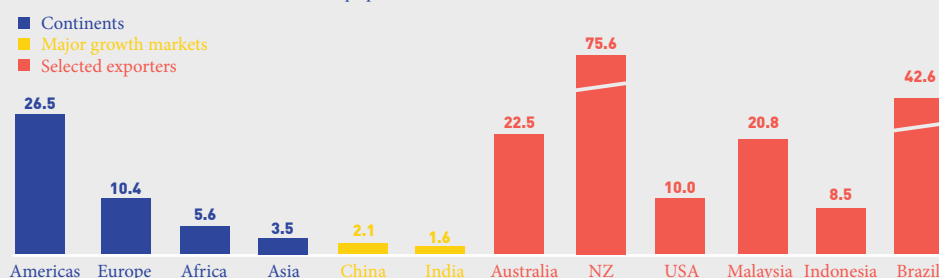
RAPIDLY GROWING EXPORTS INTO ASIA IS INEVITABLE: ARABLE LAND, HECTARES PER CAPITA³⁴

Source: Australian Government white paper



ANNUAL RENEWABLE WATER SUPPLY: # LITRES IN MILLIONS PER CAPITA³⁴

Source: Australian Government white paper



*Land & water data for 2009. Renewable water supply comprises fresh water only from surface & underground sources, incl rainfall.

PROTECTING OUR SOILS: UNDERSTANDING SOIL BIOLOGY

The potential for Australian agriculture to increase productivity growth will depend heavily on successful management of the soil resource. Australia has fragile soils, which have been degraded by farming practices over decades. The key to keeping land productive lies in restoring the structure and health of its soils.⁵⁴

According to the Centre for Policy Development, there is a risk we will lose soils faster than they can be replaced. The Farming smarter, not harder report states that, "acting now to improve soil condition could increase agricultural production by up to \$2.1 billion per year and help cut costs on fertiliser and water use."⁵¹

SUSTAINABILITY

THE TRUE COST OF CHEMICALS

The impact and control of weeds using pesticides costs Australian agriculture more than \$4 billion per year. Agricultural pesticides may have reduced food loss and helped farmers provide the unblemished produce consumers expect but they also represent a significant source of risk for human and wildlife health, and pollution into our waterways.⁵⁶

Australia also has the worst weed resistance problem in the world, and many herbicides are no longer an option for control. According to a CSIRO report, producing crops at a profit may be at risk, and the best way to get on top of the problem is likely to be by non-chemical means.

CHEMICALS IN THE WHEATBELT

Increasing amounts of fertilisers, pesticides and tillage are often needed to maintain yields on poor quality soil in the Wheatbelt. Wheatbelt farmer Stuart McAlpine says the cost of using chemicals has come at a great cost.

“Chemical-based farming has fed the world, but it’s also caused a lot of destruction. There are other ways. I think very clearly the message in Europe is that more and more consumers are looking for produce that isn’t treated with all these dangerous chemicals.

“What about the future generations going forward? What happens if we create vast areas of land that we can’t plant because we’ve got too much chemical residue that affects the yield? What happens when the resistance to herbicides, fungicides and insecticides keeps increasing? We need to build the health of our soil up and lessen our need for chemicals.”

Mary Nenke from Cambinata Yabbies says the use of chemicals is not only damaging to the environment it also can negatively impact local businesses. Cambinata Yabbies lost 70 per cent of their production after the State Government sprayed pesticides. Mary also believes it makes the region less attractive to visit.

Given the Wheatbelt is WA’s premiere farming region, there is a great opportunity for farmers to develop innovative, non-chemical techniques that improve soil biology and provide long-term solutions to environmental problems and create a vibrant regional brand around this.

HOLLANDS TRACK FARM

Improving soil health and reducing chemical use was something Nick Kelly almost stumbled upon as a way of relieving debt. He, along with other members of the Wheatbelt community launched the Wheatbelt Integrity Group as a way of helping small, family farms survive the tough times.

Nick’s initial aim for the group was to raise capital to help farmers get out of debt but when this didn’t work, the group’s aim shifted to educating other farmers.

“We went back to the drawing board and we realised that the biological farming we’d done on our own farm meant we weren’t reliant on banks anymore. If you’re relying on the bank for your next crop you only need a couple of bad years and it’s all over.”

Nick took what he learned from improving soil health on his family farm and is now educating those around him.

“[Biological farming] is all about feeding soil rather than plants. This year, we’re still going to use a little bit of synthetic fertilizer, but it’s almost an insignificant amount and next year there will be none at all. We haven’t used any granular synthetic fertilizer for two years now, and we’re virtually synthetic fertiliser free now.

“Our herbicide bill is declining about 10% per year. Our cost of production, when we used fertiliser was 40 to 50 dollars a hectare, now we’re down to about two to five dollars and only have to add a little bit of ammonium sulphate with our liquid fertiliser.”

TACKLING SALINITY

Dryland salinity is one of the greatest environmental threats facing agricultural land and affects more than 1 million hectares in the south west of WA. Dryland salinity is where salinity at or near the soil surface causes a reduction in plant growth, reduced water quality and damage to infrastructure. Salinity is usually first noticed when plants grow poorly and yields of farm crops and pastures are reduced by more than 30%. In severe cases, bare patches, known as salt scalds, develop with salt obvious on the surface.⁵⁷

There has been some success in tackling this massive challenge. A ten year research project involving CSIRO and DAFWA uses a saltbush system at a farm in Yealering to manage salinity. The outcomes have been impressive as the system has increased livestock grazing value and reduced soil salinity and the movement of salt, nutrients and silt off the farm.⁵⁷

AURIA FORESTRY PROJECT

David Kennett started the Auria Forestry Project in 2001 with the aim of discovering ways to make farm forestry a financially rewarding and effective means for farmers to address environmental issues, particularly salinity, in regions with very low rainfall.

Like many innovators, David was sometimes ignored during the past fifteen years because he was seen to be challenging traditional forestry and farming practices.

David said, “People need to keep an open mind and be prepared to take time to learn how subtle techniques can significantly improve the survival and growth rates of trees. Reluctance to adopt new unconventional ideas only slows down progress. However, once something has been proven to work, it should be adopted willingly.”

“We only plant trees on a modest 5% of cleared land so that it doesn’t significantly reduce the amount of productive land,” David said.

Most people plant trees during the winter rains from May to August. This is when weeds germinate, shade and out-compete young trees reducing success rates. Herbicides are often used to control the weeds. The Auria project takes a different approach by adopting practices that suit endemic native trees and the local climate and don’t require chemicals.

“I planted thousands of trees and watched what happened very closely. As a result I now plant all my trees after winter with very high survival and growth rates using our methods,” David said.

“We slash the winter weeds before they go to seed and then plough them in and deep rip the compacted soil beds. The organic matter improves the moisture retention and heat insulating qualities of the soil and stimulates microbial activity. It also avoids use of costly pesticides and herbicides, which kill soil microbes and fungi. We also use companion planting rather than monocultures to improve tree growth and control insects without the use of chemicals. This is very important for the health of soil, water, wildlife and for us!”

David found that once the belts of trees were established that soil fertility improved. The trees protected crops from the desiccating winds and elevated humidity, which therefore increased night time condensation on crops.

“The belts of trees increase the biodiversity and provide untold benefits for crops grown between them. The economic value that comes from regenerating degraded land is enormous,” David said.

“On my property, the water table [which is responsible for bringing the salt to the surface] is now about two metres below what it used to be prior to the start of my project. The benefits extend far beyond my property with thousands of acres up and down the catchment now recovering, as evidenced by the weeds that are growing on formerly salt-degraded land.”

The results speak for themselves and slowly but surely, the Auria methods are now being adopted by a growing number of people. He believes that if enough farmers come on board they will collectively produce huge benefits for rural economies and the environment.

**“ RELUCTANCE TO ADOPT NEW
UNCONVENTIONAL IDEAS ONLY
SLOWS DOWN PROGRESS.
HOWEVER, ONCE SOMETHING HAS
BEEN PROVEN TO WORK, IT SHOULD
BE ADOPTED WILLINGLY”**

**DAVID KENNETT
FOUNDER, AURIA
FINALIST, 2009 & 2011 WORLD
ENVIRONMENT DAY AWARDS**

“WHAT THEY [THE SOUTHERN FOOD GROWERS] DID WAS THEY CHANGED THE WAY THEY WERE THINKING. THEY THOUGHT, “IT’S NOT ABOUT ME, IT’S ABOUT MY REGION. IT’S ABOUT IDENTIFYING OUR REGION AS A SIGNIFICANT PLAYER IN THE AGRICULTURE INDUSTRY.”

**JAYME HATCHER
GENERAL MANAGER
SOUTHERN FOOD FORESTS
COUNCIL**

CREATING A REGIONAL BRAND

AGRITOURISM AND BUILDING THE WHEATBELT'S BRAND AWARENESS

In the course of this report many participants identified a need to create a regional brand. The belief is that a regional brand will go a long way in helping attract tourists to the region and help in exporting produce to Perth and our neighbouring Asia who in the not-so-distant future will be clamouring for our food.

Currently the Wheatbelt region or towns are not recognised as a top holiday destination for interstate visitors. In fact, as can be seen from the table below, interstate visitors are predominantly unaware of the region (not in the top 15 destinations for prompted awareness).

PROMPTED AWARENESS OF WA HOLIDAY DESTINATIONS: % OF INTERSTATE RESIDENTS

Source: Tourism WA

Perth	84%
Broome	76%
Fremantle	71%
Margaret River	67%
Kalgoorlie	64%
Rottnest Island	55%
The Kimberley Region	54%
Albany	53%
Monkey Mia	49%
Port Headland	48%
The Pilbara Region	47%
Geraldton	47%
The Bungle Bungles	45%
Esperance	42%
Bunbury	40%

BRAND BUILDING AND PREMIUM FOODS

To create a regional brand both farmers, support organisations and government need to work together to build a coherent strategy that provides benefits to producers and other companies in the Wheatbelt.

While Australia may be a relatively small global food producer, we're also a reliable exporter of high quality, 'clean and green' agricultural commodities and food products.³⁴ Add to this the growing affluent population in Asia and we are presented with an opportunity to capture price premiums. This includes expanding the production of differentiated commodity products and, in some cases, manufacturing value-added products for export markets in niche areas.³¹

The Wheatbelt currently boasts a range of top-quality niche products ripe for local and overseas markets such as quinoa, yabbies, olives and citrus. The region's name may lend itself to some challenges in promoting diversity of produce but this can be overcome with clever marketing.

Cambinata Yabbies' Mary Nenke agrees that the Wheatbelt's exceptional, unique and diverse produce has far reaching potential for growth under a unified brand.

"What we need to focus on in the wheatbelt is producing premium foods that the world wants so that we're actually known as the food bowl of premium produce. I believe very strongly that the market out there is willing to pay for it, particularly with the rising number of wealthy people in Asia. They're right on our doorstep. We've got huge opportunities there."

A strategy adopted by some communities within the region is to focus solely on their branding at a shire or town level but given the small size of each area and its offering, it's not a great strategy for creating brand awareness for international or east coast markets. A recent study into brand strategy in Margaret River done with a group of 400 participants from Perth and interstate found that sub regions detract from the perception of there being a variety of experiences in a small area and they also have the potential to overcomplicate things and make travel within the area seem more daunting. Given the competitive nature of food branding, the resources required to build a strong national or global brand and the limited size of the Wheatbelt region it seems reasonable that Shires within the region collaborate to develop a regional brand.

CREATING A SUCCESSFUL REGIONAL BRAND IN MANJIMUP

Not far from the Wheatbelt, in Manjimup, the Southern Food Forests Council (SFFC) has successfully implemented and promoted the region under the "Genuinely Southern Forests" brand.

The Council was founded in 2010 by a group of passionate local producers who recognised that the wealth and abundance of produce grown in the region made it perfect for food tourism. The council covers the areas of Manjimup, Pemberton, Northcliffe and Walpole with a total population of about 6,040, compared to the wheatbelt's 75,000 residents.

SFFC's role was formalised in 2012 after receiving a \$5million investment under the State Government's SuperTowns initiative. The investment is part of a \$7million Royalties for Regions allocation to the shire of Manjimup for its Agricultural Expansion Project.

SFFC General Manager Jayme Hatcher said the creation of a regional brand, as opposed to individual brands, was imperative.

"What the growers did was they changed the way they were thinking. They thought, "it's not about me, it's about my region. It's about identifying our region as a significant player in the agriculture industry."

Producers in the region are growing roughly fifty different types of fruits and vegetables. Hatcher says diversity and originality is something they continually strive to celebrate. Self-promotion and sharing stories has been critical to the success of the brand.

"Each area has something different to pull people to but if they don't share their stories they're not going to draw people into the region. I think they undervalue that too, they don't realize what they have in an international perspective. Going to a farm and picking produce is a pretty unique experience but often farmers don't think that way."

In April 2016, Greendotdot, Hong Kong's largest retail chain for organic and natural produce, agreed to stock a range of Genuinely Southern Forests grab-and-go bags. The initial trials include apples, plums, potatoes, persimmons and tamarillos.

As we've detailed before, the Wheatbelt with its emerging niche markets, clean and green food and a relative abundance of natural resources, has an exciting opportunity to create a regional brand to attract tourists and boost the delivery of premium produce to other corners of the world. It must be done, however, with a unified, unique and robust regional strategy.

CASE STUDIES

As previously mentioned, the Wheatbelt is yet to develop a well known unified regional brand that brings together the diverse produce on offer in the region. However, we have identified a number of individual businesses and organisations going their best to boost tourism and awareness of the unique produce and experiences on offer in the vast Wheatbelt region.

CASE STUDIES



CAMBINATA YABBIES

In 1991, faced with expensive education bills for their 6 children, Mary Nenke and her husband Michael started Cambinata Yabbies on their wheat and sheep farm in Kukerin. Since then the Nenkes have grown their business from a small tank to now being the largest processor of yabbies in the southern hemisphere.

The yabbies are sourced from 700 farms in the region and, in a good year, the company sells 75 tonnes of yabbies, 70 per cent of which are exported.

In 1999 the Nenkes built a state of the art export kitchen and processing facility, which Mary says makes them a worldwide leader in yabby processing and marketing. They have boosted their brand by developing relationships with restaurants in Perth and they have diversified to create tourism opportunities within their business.

In 2003 they turned their shearing shed into a function centre where they host weddings and the Cambinata Extravaganza function annually. The extravaganza aims to promote the region showcasing the food and wine. Next they built a commercial kitchen and offer camping grounds and then in 2013, they received a tourism grant and built Mary's Farm Cottages. They've even turned an old truck into a barbecue. Tour companies are knocking at the door.

"In the last month we've had 3 tour companies discover us. One from Perth and they are coming back. We give these companies a list of all the amazing opportunities in the region."

"It's about being connected, this connectivity is essential. If you travel, you want to go to many places and see many interesting things. People in this region need to realise the next door town is not their enemy but their friend."

Mary's passion for producing quality produce and showcasing it to the rest of Australia and the world, is evident. They have promoted their yabbies in Hong Kong, Singapore, Korea, Taiwan, Paris, London, Boston, Sydney, Melbourne and Perth.

"The Wheatbelt should be known as the food bowl of WA. What people aren't realising is the tourism opportunities, and of course, the value adding opportunities. If we value add here, that's really important."

Mary also implores other businesses to think of Perth and other areas as a wealth of opportunity.

"When you look at the numbers of farmers, we're less than 1% of the population in Australia. We really need to connect to the city."



SHIRE OF KULIN

Using innovation and entrepreneurship to boost tourism is high on Gen Whisson's agenda. Gen works for the Shire of Kulin and runs her own short-term accommodation, Villa Kulin. She says the Wheatbelt is greatly undervalued and could benefit from a more region-wide approach.

"A lot of businesses still really focus on their local community market rather than looking beyond the person that lives in their town. I think some of the country areas struggle to see themselves in a broader sense."

"One of the biggest things out here is people need to properly market and sell their services. For instance, Villa Kulin is probably one of the only accommodation places that I know of in our area, apart from Wave Rock, that actually has a website for their business. Simple things like that should be standard out here."

She said this mindset is detrimental to tourism and showcasing the innovative events and businesses within the regions. But it does seem to be changing in favour of a more holistic approach while still championing individual stories.

"There are plenty of innovative ways to bring in people to our region. As a Shire, we coordinated the Rocking Out on the Pathways to Wave Rock promotional film, on a budget of \$10,000. This unique film showcases some of the diverse tourism attractions found in the Wheatbelt region using music from popular WA indie band San Cisco and it was a finalist in the WA Tourism Awards."

The Shire of Kulin recently upgraded the main street, Visitor Discovery Zone. They created different sections that tell a story about the community.

"People visiting our towns want to know the individual stories and personal stories that are unique to them. We've also been able to achieve this with little cost, we're not investing infrastructure but we're creating programs and experiences that support the things we already have."

"In April, we held 3 back to back shows over the ANZAC long weekend to do with celebrating our community's heritage. The shows sold out with 90 people attending each night with 75% coming from Perth and other areas."

"In previous years we had 200 people turn up for "the Novel Event", which is like a giant book club, and won the state award through Clubs WA for the best community project."

"With a bit of creativity, a bit of clever marketing and getting community onside, you can actually do anything and produce just as good a quality as what you would find anywhere."



THE SPACE PLACE

The Space Place is located in Julimar, Toodyay. The observatory holds evening and daytime astronomy events which feature hands on telescope use, allowing plenty of time with local astronomers. The Observatory runs year round and feature special astronomical events throughout for the general public, clubs, schools, local and international visitors.

THE GRAVITY DISCOVERY CENTRE

The Gravity Discovery Centre (GDC) is a science education centre in Gingin and the only centre in Australia with a focus on Gravity and Cosmology. Families, tourists and school groups engage in a range of interactive activities, including the Leaning Tower of Gingin, hands-on science exhibits and the relevance of science and technology to your everyday life. The GDC Observatory also has a fully retractable roof, state of the art telescopes and the amazing WA dark sky, offering visitors a world class astronomy experience including the famous Zadko telescope. In 2012 Australian Geographic named the Gingin Observatory as one of the top 10 in Australia.

“THE WHEATBELT SHOULD BE KNOWN AS THE FOOD BOWL OF WA. WHAT PEOPLE AREN'T REALISING IS THE TOURISM OPPORTUNITIES, AND OF COURSE, THE VALUE ADDING OPPORTUNITIES. IF WE VALUE ADD HERE, THAT'S REALLY IMPORTANT.”

**MARY NENKE
FOUNDER,
CAMBINATA YABBIES**

ELECTRICITY & RENEWABLE ENERGY

SOUTH WEST ELECTRICITY SYSTEM

Access to infrastructure for electricity supply is vital for growth and development in the Wheatbelt region. However, the costs of connection can be prohibitive for many businesses. The region is part of the South West electricity network, operated by Western Power, which together with all of the electricity generators comprises the South West Interconnected System (SWIS) as shown on the following page.⁵⁸ A major issue for the SWIS, particularly in areas of the Wheatbelt, are the vast lengths of powerlines that currently connect only small groups of customers and are very expensive to maintain and upgrade making them an uneconomic proposition that requires subsidisation.

POWER CHALLENGES

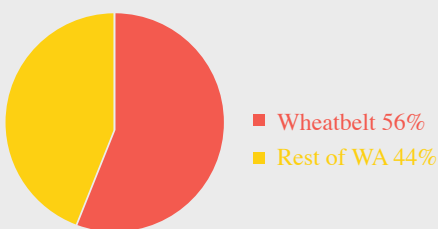
In terms of electricity supply, there are a number of barriers restricting development in the Wheatbelt region. These include:

- High cost of connection to power infrastructure for new residential, commercial and industrial developments
- Ability of new businesses to afford the high cost to connect or upgrade their connection
- Power outages and reliability issues
- Very high investment costs for Western Power to upgrade power infrastructure

RENEWABLE ENERGY GENERATION

In terms of renewable energy generation, the Wheatbelt has very high potential for both wind and solar projects, particularly along the coastal strip which has some of the best wind and solar resources in the world.

RENEWABLE ENERGY GENERATION IN WA



There are already two large scale wind farms in operation:

- 80MW Emu Downs Wind Farm at Cervantes
- 206MW Collgar Wind Farm at Merredin

There are proposals to build more large scale wind farms in the region including:

- Badgingarra Wind Farm (130MW)
- Joanna Plains Wind Peaker Project (106 MW dual fuel gas turbine power station), and
- Dandaragan Wind Farm (513MW).

Additionally, other proponents are investigating alternative technologies utilising biomass.

SOLAR FARMING

Perth-based company Sun Brilliance plans to build a 100MW solar farm on farmland near Cunderdin. A purpose built visitor centre will be built with retail outlet and cafe to cater for tourists and visitors wanting to see this iconic attraction. Sun Brilliance has publicly stated that after the Cunderdin solar power station is in operation in 2017 the company has broader plans to roll-out a number of Solar Farms across the Wheatbelt.⁶⁰

THE CHALLENGES FOR RENEWABLES

There are many challenges for new renewable energy generation projects including:

- Integrating high levels of new renewable energy generation into the State's main electricity grid due to the intermittent nature of supply, which is dependent on the availability of sun or wind resources
- Upfront cost of connection is a significant barrier
- Capacity restraints in the distribution network are limiting the regions ability to contribute more to the renewable generation market
- Large scale renewable plants are likely to be restricted to areas in close proximity to existing and planned high voltage power lines
- Small scale renewable distributed generation is likely to be restricted to off-grid installations as the capacity of the local power distribution network limits their ability to feed power back into the grid

The good news is that the economics of past supply models are no longer competitive with current and future technology choices, particularly for regional areas like the Wheatbelt and customers at the edge of the grid. With the cost of battery storage and solar and other renewable energy sources becoming much more economic for a range of applications, this will drive widespread uptake of these solutions in the next five years. Distributed renewable energy combined with battery storage systems are predicted to be the predominant energy source in the future supported by the network.⁶¹

RENEWABLES MICRO-GRID SOLUTIONS

The West Australian government and Western Power are looking to create renewables-based micro grids to reduce massive costs and cross-subsidies to service remote areas. A feasibility study for a micro-grid at Kalbarri will be an important test for applying technology in an innovative way to improve electricity supply for regional communities. It will serve as a model for other regional areas and help in the development of further renewable generation across the rural edges of the electricity network.⁶² The Wheatbelt's high potential for both wind and solar projects and the long distances covered by the electricity network to service relatively few customers makes it

an ideal proposition for investigating areas for implementing renewable micro-grid solutions and off-grid solutions.

The Wheatbelt Development Commission's blueprint identifies that investment in energy infrastructure is a priority and includes a target for having up to 30 towns supplied by off-grid power solutions.¹ Bruce Rock is one of these towns that is actively investigating the possibility of off-grid power or other cost effective solutions to enhance the electricity network and reduce the number of brownouts.

STAND ALONE SYSTEMS

Stand alone systems are another alternative in areas of the network that supply low numbers of customers dispersed along vast lengths of powerlines making them an uneconomic proposition that requires subsidisation by the rest of the network. Made up of solar panels, battery storage and back-up generation, these stand alone power systems have the potential to supply electricity to properties in rural areas, particularly those on the fringe of the networks.⁶³

A 12 month pilot in the Southern Wheatbelt is being conducted by Western Power in partnership with Horizon Power and Synergy to install up to 10 stand-alone power systems and will explore whether the systems can provide a more cost effective and reliable electricity supply for rural customers.⁶⁴ The pilot is considered innovative as it is unusual for these systems to be provided by an electricity company and participants pay the same price for electricity as other customers still on the network. If successful, there are thousands of property owners throughout the Wheatbelt region that could benefit from this technology.

RENEWABLE ENERGY AND STORAGE

While this study was only able to find a few examples in the Wheatbelt region, we believe that renewable energy solutions such as solar and battery storage technology will be widely implemented for a range of businesses and households in the region. Some Wheatbelt businesses are investigating the use of renewable energy for on-site generation to reduce costs and improve profitability. These trials could deliver feasible alternatives for energy generation and supply that negate the requirement for businesses to connect to the South West electricity network. Business and community collaboration on these initiatives would potentially achieve economies of scale that can deliver self-sufficient industrial and residential developments.

This report has identified that the adoption of more renewable energy is at a tipping point and the energy market is being subjected to a range of innovative and disruptive forces and technologies that are opening up opportunities for households, businesses and communities to exploit.

SOUTH WEST ELECTRICITY NETWORK



ELECTRICITY & RENEWABLE ENERGY

ENERGY MARKET DISRUPTION

Perth startup company Power Ledger has started trials of peer-to-peer electricity trading using Blockchain technology.⁶⁵ Peer-to-peer trading will let households and businesses trade their surplus power from solar panels to each other at a price that returns more than the low feed in tariff (7c/kWh) and is less than electricity supplied from the grid (23c/kWh). People without solar panels will also be able to buy solar power cheaply from neighbours. This innovative trading of renewable energy is expected to further disrupt the electricity market and make installation of renewable systems even more economic for consumers.

FINANCE FOR RENEWABLES

A new loan facility that will help Australian businesses invest in solar, battery storage, energy efficient technologies and electric vehicles is available from Westpac Bank in conjunction with the Clean Energy Finance Corporation.⁶⁶ This will assist entrepreneurial businesses to implement projects including rooftop and off-grid solar PV, battery storage and solar thermal, installation of energy efficiency equipment, low emissions vehicles, energy efficiency retrofits or upgrades, and energy from waste.

LARGE SCALE COMMERCIAL SOLAR

Growth of large scale commercial solar panel installations is expected to be rapid, following on from the dramatic growth in residential solar panels in WA. The State Government has recently made changes to power purchasing agreements to make it easier for shopping centres or commercial businesses to have solar systems fixed to their roofs so they can buy power over time from a provider. Energy Minister Mike Nahan said that this is expected to help this emerging market to develop and increase the choices that businesses have to access these innovative and renewable sources of electricity at an affordable price.⁶⁷

Perdaman Advanced Energy is one company leading the charge and they are already building the state's largest commercial solar panel installation at the Northam Boulevard shopping centre with a 665 kw capacity and has plans to install rooftop solar panels for many shopping centres and aged care facilities.⁶⁸

BIO-FUEL ENERGY

There is a natural fit in this agricultural region to pursue bio-fuel energy options. Biofuel energy plants could provide job opportunities, a sustainable plantation cropping industry, while also saving millions of dollars in energy costs.⁶⁹

One of the main hindrances to the uptake of bioenergy projects is high capital and maintenance costs. There are only a handful in operation in WA.

Possibly the greatest barrier to wider adoption is simply lack of knowledge a reluctance to switch to an unfamiliar process. Getting people to believe that the systems work and are economical was their biggest problem.

Phil Beresford, Manager at Macco Feeds, said that small Wheatbelt communities could reap significant benefits by investing in biofuel energy generators. The company invested in a biofuel boiler that uses wood that would normally go to landfill and is estimated to save more than \$500,000 each year in gas costs.

Mr Beresford said that while small biofuel plants were in place all over Europe, Australia was yet to realise the potential of the industry. He said that he believed biofuel plants would be the way of the future, particularly for regional Australia.⁶⁹

RAINBOW BEE EATER

Peter Burgess, Managing Director of Rainbow Bee Eater, believes that rural areas will gain significant environmental, social and economic benefits by using safe and clean technologies for the sustainable production of renewable energy from biomass residues that are currently burnt or landfilled. Peter's career includes many examples where he has initiated or been a key player in trialling, developing and implementation of new technologies including many environmental initiatives.

Rainbow Bee Eater has developed a pyrolysis based system that converts large bales of straw into clean syngas and biochar. The syngas is a clean gas suitable for gas engines and boilers. Independent research indicates that biochar may reduce fertiliser consumption and increase crop health and yield on some soil types. Biochar is also a form of long-term carbon storage. The prototype plant was commissioned on a large wheat farm at Kalannie in 2013. After further development, in 2016 the RBE System is now fully automated and producing syngas directly from the pyrolyser.

Peter said, "This is a significant breakthrough. Production of clean syngas has been the missing piece in biomass gasification and pyrolysis technologies. We have now commenced discussions with a number of potential partners for our first commercial demonstration projects."

RENEWABLE BRAND OPPORTUNITY

This report has already noted the need to create a strong regional brand that is based on elements such as being clean, green and growing to assist it with marketing premium foods and attracting people to live and work in the region. The increasing level of renewable energy generation in the region is another opportunity that can be leveraged to enhance the green reputation of the Wheatbelt.

ORGANISATIONS

ABOUT

Organisations identified through the survey, interviews, workshops or manual online research as potential innovative organisations or contributors to the development of innovation and entrepreneurship in the Wheatbelt. This is not a complete list of all organisations operating in the Wheatbelt.

ORGANISATIONS

37 Community Resource Centres located across the Wheatbelt
2 Workin Oz
3 Farmers Quinoa
A Centaur Consulting
A Country Practice
A Flash Of Life Photography
A-Dec Electrical Contracting
Ability Focus
ACE Technology
Adage Furniture
Adam B Harris, Musician
Adam May Building
Adept Electrical Solutions
Advantage Pest Control
Ag Implements
Aginnovate
Agrifresh
Agserve Goomalling
Agwest Machinery
AJ Welding
AKH Contracting
Alan Windsor Mechanical Repairs
Alan's Auto Electrics
Alex's Green Corner
Allround Concrete
Alzheimers Australia WA Central Wheatbelt
AMJ Industries
Ampol Service Station Cunderdin
Andrews Cabinets
Angie Roe Photography
Anne's Tutoring Services
Anspach Agricultural Contracting
ANZ Bank
AP & JC Thompson Sheep Carting
Applied Northam Bearings Sales
Arcadia Farm Art
Arinya Plants
ASAP Freight Express
Ashford Tiling Services
Ashlee Renae Hair Studio
Ashman Fine Cabinets
Atkinsons of Merredin
Auria
Aurora Art Space
Australia Post
Australian Farm Albums
Auto Pro
AV-Sec Security Services
Avalon Homestead
Avon 4 Wheel Drive Centre
Avon a Party
Avon Accommodation
Avon Auto Air
Avon Car & Furniture Upholsterers
Avon Carpentry Services
Avon Community Development Foundation
Avon Community Employment Support
Avon Computech
Avon Earthworks
Avon Express Transport
Avon Fencing
Avon Fertiliser Spreading
Avon Fibretech
Avon Home Improvement Centre
Avon Joinery
Avon Paper Shred
Avon Region Pest Control
Avon Service Specialists
Avon Shearing & Country Clothing
Avon Skip Bins
Avon Spice Cafe
Avon Terrace Dental
Avon Tractor & Implements

Avon Trading Co
Avon Valley Arts Society Inc
Avon Valley Bakery
Avon Valley Building Co
Avon Valley Chalets & Caravan Park
Avon Valley Contractors
Avon Valley Dental Centre
Avon Valley Flyscreens
Avon Valley French Hot Bread Shop
Avon Valley Glass
Avon Valley Mitsubishi
Avon Valley Mower & Chainsaw
Avon Valley Nissan
Avon Valley Pools & Spas
Avon Valley Spraying
Avon Valley Transport
Avon Valley Tyre Service
Avon Valley Windscreens
Avon Waste
Avon Youth Community & Family Services Inc
Avonbrook Wines
AVW Electrical
AW Duncan Carpentry & Building Maintenance
B & M Stokes & Sons
B-Vec Electrical Services
B. L. & F. L. Williams
Bairbre Lewis Barrister & Solicitor
Bakers Hill Cafe
Bakers Hill Rural Supplies
Bakers Hill Tavern
Bakers Hill Truck, Backhoe & Bobcat
Bakers Hill Vet Hospital
Balladong Country Estate Global
Ballantyne Showcave Jewellers
Ballard Seeds
Bankwest Merredin
Bankwest Narembeen
Barclay Books
Barna Mia
Baxters Rural Centre
Beaurepaires
Beazley Fencing
Bedford Harbour Engineering
Bee Happy Apiaries
Betta Home Living
Beverley Auction Centre
Beverley Bakehouse & Cafe
Beverley Bed & Breakfast
Beverley Country Kitchen
Beverley Dome Fuel & Hire
Beverley Earthmoving Contractors
Beverley Electrical Services
Beverley Farm Services
Beverley Gas & Plumbing Services
Beverley IT
Beverley Licenced Post Office
Beverley Newsagency
Beverley Pharmacy
Beverley Plasterboard
Beverley Supermarket & Liquor -IGA
Beverley Transport Service
Beyond Power
Bill Chambers
Bill Livingstone Firewood Supplies
Bindoon Bakehaus & Cafe
Binthere Bins
Bird Silo's & Shelters
BJ Meredith Electrical
Black Wattle Catering
Black Wattle Retreat
Blackwell Plumbing And Gas
Blackwell Slashing & Firebreaks
Bloomys Florist
Bob's Gardening Services
Bookman Machinery
Bookham LW & Co Transport
Bosston Auto Bodies Cunderdin
Bowen Therapy
Bowman Brush
BP Roadhouse Goomalling
Brendan Wilkes - Electrical
Brennans Water Carting
Brian Taylor Shearing Contractor
Brookfield Rail
Bruce Rock Ag Supplies
Bruce Rock Bed & Breakfast
Bruce Rock Dental

Bruce Rock Engineering
Bruce Rock Post Office
Bruno's Pizza Bar
Bubbles & Suds Laundrette
Budisek Information Technology
Bulk Seed Cleaning
Burnsyde Alpacas
Burton's Welding & Repairs
Bush Contracting
Button ER & J
Byfields Business Advisors
Bywaters Fertiliser Service
C & B Transport
C Y O'Connor Institute
Cadds Fashion Surf And Sports
Café 56
Cafe Yasou
Caltex Goomalling
Cambinata Yabbies
Cammeray Farm
Camp Kulin
Canci Consulting Services Pty Ltd
Carmel Ross Consulting
Carpet & Lounge Suite Cleaning
Carr's Mechanical Repairs
Castle Hotel
Catherine Ritchies Travel Advisor
CBH
CDA Air & Solar Venture Imports
Cellabrations At Howletts
Cellabrations Of Merredin
Central Ag
Central Farm Contractors - Seed Cleaners
Central Regional TAFE
Central Secondhand
Central Wheatbelt Imports
Central Windmill Services
Centre West Exports
Centrelink Northam
Chatfields
Chattaways Engineering
Chemdry Betta Finish
Cherry Picker Hire
Chitibin Heights Getaway
Chrisp Laundry
Christina's Cottage
Christine Dunkerton - Loan Market
Christmas 360
Civic Video
Clackline Fencing Contractors
Clackline Sound
Clackline Valley Olives
Clements Smash Repairs
Clickright Child Restraints
Cliff Haines Tyres And More
Co-op Cafe
Cobwebs Op-Shop
Cockymart
Coles Supermarket
Colin King Real Estate
Combined Tyre Power
Commercial Hotel Northam
Community Matters
Community Op-Shop
Concrete By Rossi
Connelly Images
Consolidation Plants
Consult, Innovate, Create
Consultag
Contract Carting & Spreading
Coodernuppin Hire & Haulage
Cooida Centre Op Shop
Coorinja Winery
Corporeal Health
Corrigin Electronic Services
Corrigin Farm Improvement Group
Corrigin Pharmacy
Corrigin Post Office
Corrigin Vet Clinic
Country Chemist
Country Copiers Northam
Country Financial Directions
Country Ford
Country Realty Northam
Country Wide Insurance Brokers
Country Wide Windscreens
Countryside Electrical & Air Con
Countryside Pest Control

Countrywide Landscaping
Countrywide Pools
Courier - Quairading Agri Services
Craig Mostyn Group
Craig's Handyman Service
Cranmore Home
Creative Construction
Crichton Vale
Cronje Business Solutions
Croquet Club
CSBP Depot
Cummins Liquid Waste Disposal
Cunderdin Beauty Studio
Cunderdin Caravan Park
Cunderdin Chiropractic Centre
Cunderdin Day Care
Cursed Cafe
Cutting Room On Bates
D & D Transport
D & G J Pease
D & M Services
D & D Cabinets
D Hewitt Electrical
Daisy Chain Threads
Dale River Carpentry
Dallimore Carpet Choices - Choices
By Dallimore
Damian's Plumbing
Dandaragan Camel Dairies Pty Ltd
Danes Cabinets
Dark Sunshiny Days
Darmodys Bus Service
Darry's Plumbing And Gas
Dave's Property Improvements
David Kennett Water Divining
David Yates Restorative Services
Davies MJ
Dawsons Concrete & Reinforcing
DC Boase Cattle Transport
Dept of Agriculture & Food WA
Department of Sport And Recreation
Department of Training And Workforce Development
Dial-A-Dingo
Digging Docks - Kanga Loaders
Direct Heating And Cooling
Directions Workforce Solutions
Disability Services Commission
Discount Drug Stores - Northam
DKT Rural Supplies
Dobenaire Kennels & Cattery
Dog Washing & Pet Sitting Services
Donovan Engineering
Dowerin & Districts Farm Shed
Dowerin Bulk Transport
Dowerin Butcher Shop
Dowerin Carpentry
Dowerin Commercial Hotel
Dowerin IGA Express
Dowerin Newsagency
Dowerin Shearing Services
Draco Air
Dragon Earth Truck & Bobcat Service
Drill Maintenance Australia
DT Worx
Dukes Inn
Dunlop Super Dealer
Dunning AR & CF
Dunnings Fuel Supplies
Dylan And Anita Cole
E Squire Contracting
Earth Sculptures Pottery & Chalet Retreats
Earth Works—Denaro Nominees
East Avon Pest Control
East End Gallery
Eaton D N
ED & MJ Rous Electrical
El Caballo Resort
Elders Dowerin
Elders Insurance Northam
Elders Merredin
Elders Real Estate Northam
Elders Rural Services Narembeen
Elizabeth Men's Hair Design
Embroid-It
Emdavale Farms
Emfert
Emin Bulk Haulage

Emu Down Wind Farm
 Endeavour Newspaper
 Entity Media
 Esslemont Estate
 Eurofins Agrisearch York
 Everlastings On Fitzgeralds
 Extreme Contracting
 Extreme Makeover Cleaning Services
 Eziway Food Stores
 F111 Engineering
 Facey Group
 Falkner LH
 Farm Direct Stockfeed Supplies
 Farmanco
 Farmways Dowerin
 Faversham House
 FEC Fowler Electrical Contracting
 Federals Football Club Catering
 Fiona Jasper Arbonne Independent Consultant
 First National Real Estate
 FJD Furniture Removals
 Flat Out Freight
 Floral & Gold
 Flour Mill Cafe
 Focused Tax
 Foley Admin Services
 Formbys Lawyers
 Four Farmers & Pars Rural
 Frameswest
 Freebairn Recreation Centre
 Freemasons Tavern
 Freindies Transport
 G & M Harris Electrical Contrators
 G & S Carr Cropspraying
 Game On Contracting
 Gangells Ag Solutions
 Gary Mcnamara Building Contractors
 GDR Civil
 Gecko Lodge
 Generations Music
 Geronimo's Farm Equipment
 Gibbo's Car Detailing
 Gilmac
 GJ Jones Plumbing And Gas
 GNE Civil Works
 Go Cafe
 Go Handy
 Golden Grain Cafe & Bakery
 Golden York Chinese Restaurant
 Goodfield Quality Butchers
 Goomalling & Districts Community Bank
 Goomalling Bakery Radio
 Goomalling Dental Clinic
 Goomalling Farmshed
 Goomalling Gumnuts Childcare Centre
 Goomalling Post Office
 Goomalling Reuse Centre - The Tip Shop
 Goomalling Tavern
 Grafton Electrics
 Grandma's Kitchen
 Gravity Discovery Centre
 Great Southern Fuels
 Great Southern Gallery
 Greenhills Historic Inn
 Greenhills Inn Bar & Cafe
 Grey Street Surgery
 Grinder Enterprises
 Grove Wesley Design Art
 Gullace's Roadhouse
 GWN7 Television
 GWY Painting Service
 HACC
 Hagboom Catering
 Hagboom Transport
 Hairitage Hair By Lisa
 Hall Contracting
 Hammond Fencing
 Handy-Man Alan
 Handyman Sam's
 Handyman Services
 Hannaford Central Wheatbelt Seedclean
 Hannagan's Hearth House
 Hannagan's Solar Shop
 Happy Days Coffee Pot

Harrington Seed Destructor
 Harry's Glass
 Hay Australia
 Hay Rolling
 Healthy Living Country Service
 Heartlands Vet Hospital Toodyay
 Heartlands WA
 Hectare
 Hendersons Earthmoving
 Hills Concrete Products
 Hillside Country Retreat
 Hilton Barr Transport
 Hoffman Home & Property
 Improvements
 Holberton Earthmoving Pl
 Holcim
 Holland's Track Farm
 Hollett/Dpt
 Holmbush Springs
 Holyoake Wheatbelt Comm Alcohol & Drug Service
 Home Bake Shoppe Bakers Hill
 Home Restorations
 Home Support Services
 Homestyle Chic
 Hon Darren West
 Hon Mia Davies, MLA
 Hon Paul Brown, MLC
 Hope Farm Guest House
 Host Auto Repairs
 Hot Spot Electrical
 Hotel Beverley
 Housing Authority
 Hunger Busters
 Hunting For Ladybugs
 Hutton & Northey Sales
 Hyden Business Development
 I C Frith & Associates
 IA & JK Robinson Hay Contractors
 Ian Lane - Farmer
 IBC Services
 IGA Supermarket Cunderdin
 IL & RJ Jones
 In Balance Fitness
 IRE Agricultural Worldwide
 It's All About Hair
 Jasper & Co Mechanics
 Jilakin Downs Dorpers
 Jolly & Sons
 June Richards Massage Therapist
 Jurien Bay Chamber
 Kailam Transport
 Karni Engineering
 Kerrigan Valley Beef
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 Kellerberrin Farmers Co-op
 KG'S Diesel Service Centre
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 Kulin Caravan Park
 Kulin Childcare Centre
 Kulin Community Bank Bendigo & Adelaide Bank
 Kulin Delivery Service
 Kulin Hardware & Rural
 Kulin Hotel
 Kulin IGA
 Kulin Transport Cartage Contractor
 Kulin Tyre Service
 Kulin Woolshed
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 Landmark Hyden
 Lavendale Farm
 Liebe Group
 Lindsay Tuckwell Civil Celebrant
 Living Farm
 Loose Stitches
 M&W Kitchens
 M.A.L. Automotives
 Macrofertile Careema Farms
 McCall Motors
 McCubbing Transport
 McIntosh and Son
 McPest Pest Control
 Merredin Bed & Breakfast
 Merredin Blitz & Beauty
 Merredin College
 Merredin Squash & Fitness
 Middle East Engineering

Moora Budget Accountants
 Moora Citrus
 MP Miles Mechanical
 Mukinbudin Caravan Park
 Mukinbudin Hotel
 Muntz & Partners Chartered Accountants
 Naremben Medical Centre
 Naremben Tyres
 Naremben/Corrigin Dental
 Narrogin Nursery Café and Gallery
 Neu-Tech Auto Electrics & Mechanical
 Newtons Home Furnishings
 NJG Bush
 Northam Towing
 Oliver Rural It Solutions
 Outback Aromas
 Outback Styles Hair Salon
 Outcrop Consutling Pty Ltd
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 Shire of Dandaragan
 Shire of Dalwallinu
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 Shire of Dumbleyung
 Shire of Gingin
 Shire of Goomalling
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 Shire of Koorda
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 Shire of Lake Grace
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 Shire of Moora
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 Shire of Nungarin
 Shire of Pingelly
 Shire of Quairading
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 Shire of Wyalkatchem
 Shire of Yilgarn
 Shire of York
 Sia Merredin Pty Ltd
 Sippe's
 Small Business Centre Merredin
 Solum

Something Painted
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 Stargazers Club WA
 Stumpy's Roadhouse
 Stringybark Winery
 Syred Mechanical
 Tammin Fish Farm
 Tamora Plumbing And Gas
 The Ag Shop
 The Hair Shoppe
 The Merredin Wheatbelt Mercury
 The Toodyay Herald
 Tin Horse Highway Store
 Tincurrin Rural Services
 Toodyay Farmers Market
 Total Ag Naremben
 Transtruct
 Treetops Guesthouse
 Trufab/ Grain King
 Varley Ag Solutions
 Vernon Contracting
 Vic Plains Business Builders
 Villa Kulin
 WA Young Nationals
 Walkabout Physiotherapy
 Watson's Way Country Stay
 Westpac
 Wheatbelt Business Network
 Wheatbelt Community Development
 Wheatbelt Development Commission
 Wheatbelt NRM
 Wheatbelt Science Hub
 Wheatbelt Steel
 Wickepin Rural Service
 Wide Open Agriculture
 Williams Rural Supplies
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REFERENCES

1. Wheatbelt Development Commission, 2015, Wheatbelt Blueprint Overview (www.wheatbelt.wa.gov.au/publications/wheatbelt-blueprint/)
2. ABS 2016, ABS 3235.0 - Population by Age and Sex, Regions of Australia, 2015 (<http://www.abs.gov.au/ausstats/abs@.nsf/mf/3235.0>)
3. ABS 2011, Census, Region Summary Wheatbelt (<http://stat.abs.gov.au/itt/r.jsp?databyregion>)
4. DAFWA 2016, Western Australia's agriculture and food sector (<https://www.agric.wa.gov.au/western-australias-agriculture-and-food-sector>)
5. Coriolis 2016, Target Market Opportunities in Asia for Western Australian Premium Products (www.agric.wa.gov.au/agricultural-exports/target-market-opportunities-report)
6. LandCorp 2016, (<http://www.landcorp.com.au/News/News-Archive/LandCorp-Offers-Up-To-100k-for-Stamp-Duty/>)
7. PwC 2015, A Smart move: Future-proofing Australia's Workforce (<http://www.pwc.com.au/press-room/2015/stem-skills-apr15.html>)
8. CEDA 2015, Australia's future workforce? (<http://www.ceda.com.au/research-and-policy/policy-priorities/workforce>)
9. ABS 2016, 8158.0 - Innovation in Australian Business, 2014-15 (<http://www.abs.gov.au/ausstats/abs@.nsf/mf/8158.0>)
10. Regional Australia Institute 2016, [In]Sights for Competitive Regions: Innovation (<http://www.regionalaustralia.org.au/home/tools-and-products/insight/>)
11. Rooney, B, 2012, The many reasons Estonia is a tech startup nation, The Wall Street Journal, (<http://www.wsj.com/articles/SB10001424052702303734204577464343888754210>)
12. Giang, V, 2014, 4 Countries leaving Silicon Valley in Their Tracks, Fast company, (<http://www.fastcompany.com/3030100/bottom-line/4-countries-that-are-leaving-silicon-valley-in-their-tracks>)
13. Tambur, S, 2013, Skype and the Estonian start-up ecosystem, Estonian World (<http://estonianworld.com/technology/skype-estonian-start-ecosystem/>)
14. Petrovic, Y, 2015, Startup Ecosystems in Europe: Cities of Innovation, Tech.Co, (<http://tech.co/startup-ecosystems-europe-innovation-2015-02>)
15. Blank, S, 2014, Bigger in Bend – Building A Regional Startup Cluster, (<http://steveblank.com/2014/01/20/bigger-in-bend-building-a-regional-startup-cluster-part-1-of-3/>)
16. WDC 2016, Growing our Community – An Economic Development and Implementation Strategy for the Midlands Centres (http://www.wheatbelt.wa.gov.au/files/8814/6432/8533/2016-05-19_WDC_Growth_Plan_Central_Midlands_-_full_report_FINAL_low_resolution.pdf)
17. Shire of Dalwallinu 2016, (<http://www.dalwallinu.wa.gov.au/economic-development.aspx>)
18. Shire of Dalwallinu 2016, Regional Repopulation Plan (http://www.dalwallinu.wa.gov.au/Assets/Regional_Repopulation_Pilot_Project_Report_-_FINAL.pdf)
19. Western Councillor April – May 2013, (<http://58.162.66.245/NewsPublications/Publications/WesternCouncillor/2013.aspx>)
20. NBNCO 2016, (<http://www.nbnco.com.au/learn-about-the-nbn/rollout-map.html>)
21. WA Dept of Commerce 2016, (<https://www.commerce.wa.gov.au/industry-and-innovation/regional-mobile-communications-project-0>)
22. WA Dept of Commerce 2016, (<https://www.commerce.wa.gov.au/industry-and-innovation/regional-telecommunications-project-0>)
23. PwC 2016, (<http://www.digitalinnovation.pwc.com.au/small-business-digital-growth/>)
24. ABC 2016, (<http://www.abc.net.au/news/2016-05-05/data-drought-survey-results/7386780?pfmredir=sm>)
25. ABC 2016, (<http://www.abc.net.au/news/2016-10-08/rural-australians-find-alternative-ways-to-get-online/7913328>)
26. RDA Wheatbelt 2014, Wheatbelt Digital Action Plan (<http://www.rdwheatbelt.com.au/publications/current/2>)
27. Wheatbelt Business Network 2016, (<http://www.wbea.com.au/>)
28. Regional Australia Institute 2015, Login or Logout? Online work in regional WA (<http://www.regionalaustralia.org.au/home/2015/11/login-or-logout-online-work-in-regional-western-australia/>)
29. Bernard Salt NBNCo 2016, Super connected lifestyle locations (http://www.nbnco.com.au/content/dam/nbnco2/documents/Super%20connected%20lifestyle%20locations_nbn%20report_FINAL.PDF)
30. Graham, P, 2006, How to Be Silicon Valley, (<http://www.paulgraham.com/siliconvalley.html>)
31. ANZ, 2012, The Global Soft Commodity Opportunity for Australia and New Zealand, (<http://www.anzbusiness.com/content/dam/anz-superregional/AgricultureInsightsGreenerPastures.pdf>)
32. Department of Agriculture 2014, Australian agricultural productivity (https://www.oecd.org/tad/events/r.%20Merrilees_Agricultural%20productivity%20growth%20reforms%20opportunities.pdf)
33. Australian Financial Review, 2016, Australia needs tools to capitalise on Asia food demand, (<http://www.afr.com/markets/commodities/agriculture/australia-needs-tools-to-capitalise-on-asia-food-demand-20140311-ixltv#ixzz4CH0rkSYp>)
34. Australia in the Asian Century, Australian Government, 2012, (http://www.defence.gov.au/whitepaper/2013/docs/australia_in_the_asian_century_white_paper.pdf)
35. Australia not the food bowl of Asia, ABC, 2016, (<http://www.abc.net.au/news/2014-08-31/australia-not-the-food-bowl-of-asia/5680282>)
36. NFF Farm Facts, National Farmers Federation, 2012
37. Smart Farming: leveraging the impact of broadband and the digital economy report, CSIRO, 2013
38. Australian farmers prepare for export future to china, ABC, 2016, (<http://www.abc.net.au/news/2015-09-23/australian-farmers-prepare-for-export-future-to-china/6799028>)
39. DAFWA 2016, (<https://www.agric.wa.gov.au/r4r/food-industry-innovation>)
40. DAFWA 2016, (<https://www.agric.wa.gov.au/r4r/asian-market-success>)
41. RDA Wheatbelt accessed 2016, (<http://www.rdwheatbelt.com.au/images/documents/latest-news/RDA%20Wheatbelt%20works%20in%20partnership%20to%20assist%20the%20Agriculture%20sector%20in%20the%20Shires%20of%20Gingin.pdf>)
42. Wheatbelt Development Commission 2016, (<http://www.wheatbelt.wa.gov.au/news/grower-groups-benefit-research-and-development-grants/>)
43. Agricultural Diversification, Wikipedia, 2016, (https://en.wikipedia.org/wiki/Agricultural_diversification)
44. Regional Queensland Startup Ecosystem Report, Boundlss, 2016
45. Kauffman report makes the case for Agtech Innovation Investment, Forbes, 2016, (<http://www.forbes.com/sites/daniellegould/2014/05/22/kauffman-report-makes-the-case-for-agtech-innovation-investment/#5948d45b3b74>)
46. Agriculture in Australia growing more than our farming future, The Conversation, 2016, (<http://theconversation.com/agriculture-in-australia-growing-more-than-our-farming-future-22843>)
47. Australia set to become global leader in Agtech innovation, AgFunder News, 2016, (<https://agfundernews.com/australia-set-become-global-leader-agtech-innovation.html>)
48. Wintergreen Research, 2014, (<http://www.wintergreenresearch.com/reports/Agricultural%20Robots%202014%20brochure.pdf>)
49. DAFWA 2016, (<https://www.agric.wa.gov.au/r4r/econnected-grainbelt>)
50. McKinsey, 2014, Compete to prosper: Improving Australia's global competitiveness, McKinsey Australia and New Zealand
51. Farming Smarter, Not Harder: Securing our agricultural economy, Centre for Policy Development, 2012
52. What is Natural Resource Management, Rangelands NRN WA website, 2016 (<http://www.rangelandswa.com.au/351/what-is-nrm/>)
53. Healthy rivers need healthy farming soils, Wheatbelt NRM website, 2016, (<http://www.wheatbeltnrm.org.au/healthy-rivers-need-healthy-farming-soils>)
54. Regenerating our landscape to transition Australia to a low carbon future, Soils for life website, 2012, (<http://sustainableagriculture.perthregionnrm.com/resource/link/regenerating-our-landscape-transition-australia-low-carbon-future?page=21>)
55. The real cost of pesticides in Australia's food boom, The Conversation, 2016, (<http://theconversation.com/the-real-cost-of-pesticides-in-australias-food-boom-20757>)
56. Soil Health, Wheatbelt NRM, 2016, (http://www.wheatbeltnrm.org.au/sites/default/files/knowledge_hub/documents/Wheatbelt%20NRM%20Soil%20Health%20Guide_standard.pdf)
57. DAFWA 2016, Dryland salinity in Western Australia - An introduction (<https://www.agric.wa.gov.au/soil-salinity/dryland-salinity-western-australia-introduction>)
58. Western Power 2016, (<https://www.westernpower.com.au/media/1431/swis-towns-locations.pdf>)
59. Shire of Cunderdin 2016, Development Application - Planning Report (http://www.cunderdin.wa.gov.au/Profiles/cunderdin/Assets/ClientData/Development_Application_-_Sun_Brilliance_Cunderdin_Solar_Farm_Final_080916.pdf)
60. Climate Council 2015, Powerful Potential: Battery storage for renewable energy and electric cars (<https://www.climatecouncil.org.au/uploads/ebdfcd89a6ce85c4c19a5f6a78989d7.pdf>)
61. Renew Economy 2016, WA looks to solar + wind + storage (<http://reneweconomy.com.au/2016/wa-looks-to-solar-wind-storage-for-largest-edge-of-grid-microgrid-88034>)
62. Western Power 2016, Stand alone power systems (<https://www.westernpower.com.au/about/electricity-innovation/stand-alone-power-systems/>)
63. Western Power 2016, Southern Wheatbelt – stand-alone energy trial (http://www.westernpower.com.au/documents/stand_alone_power_systems_pilot_brochure.pdf)
64. AFR 2016, Blockchain power trading platform to rival batteries (<http://www.afr.com/news/blockchain-power-trading-platform-to-rival-batteries-20160812-qgr6if>)
65. One Step Off The Grid 2016, CEFC-Westpac scheme to help business adopt solar, battery storage, Evs (<https://fitthegrid.com.au/cefc-westpac-scheme-to-help-business-adopt-solar-battery-storage-evs/>)
66. Renew Economy 2016, Boost for WA solar uptake as government cuts red tape (<http://reneweconomy.com.au/2016/boost-for-wa-solar-uptake-as-government-cuts-red-tape-80064>)
67. Perdaman Advanced Energy 2016, The Sun Comes Up on Commercial Solar (<http://perdamanadvancedenergy.com.au/2016/06/30/the-sun-comes-up-on-commercial-solar/>)
68. The West Australian 2013, Energy cost savings too good to ignore (<https://au.news.yahoo.com/thewest/countryman/a/18753712/energy-cost-savings-too-good-to-ignore/#page1>)

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