THE FUTURE OF REGIONAL JOBS

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REGIONAL AUSTRALIA INSTITUTE

KNOWLEDGE POLICY PRACTICE

ABOUT THE REGIONAL AUSTRALIA INSTITUTE

Independent and informed by both research and ongoing dialogue with the community, the Regional Australia Institute (RAI) develops policy and advocates for change to build a stronger economy and better quality of life in regional Australia – for the benefit of all Australians. The RAI was established with support from the Australian Government.

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REFERENCE

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EXECUTIVE SUMMARY

This report looks into the implications of both the opportunities and challenges of the future of work in Australia's regions. It examines how regional areas can take advantage of movements away from primary and secondary industries to the service industries. It examines what is needed to facilitate shifts in the local skills base to enable local workers to benefit from the jobs to come in the industries projected to grow.

The report started from concern across Australia about the big drivers of change to the future of work — drivers like automation and the surge in digital technologies, the dynamics of regional labour markets, questions of how to help match local skills with emerging local job opportunities, and competition between regions for the same sorts of workers. Regional policy makers in all jurisdictions are currently considering and reflecting on what this situation means for regional jobs and potential policy responses.

The RAI's research has found that the impacts of the next phase of digital automation will vary considerably across different regions in Australia. For instance, jobs in agricultural production in regional areas are expected to decrease in coming years, while jobs in healthcare and social assistance are projected to have the largest increase, and the impacts of these will vary considerably across different parts of regional Australia.

In the medium term, the healthcare and social assistance industry is expected to require another 85,000 workers in regions through to 2023, and in education (28,019). With long lead times on professionals in these industries it is vital that action starts now to create the skills development pathways. Evidence from regions shows that it can be hard to fill available jobs due to perceptions of poor infrastructure, services and amenity — so action on improving the stock and capability of these key assets is in fact vital to regions being able to attract and retain the people they need to grow.

While the drivers of these changes are national and international, local responses can have a big impact. There are examples emerging around Australia of community-led efforts to influence and improve local and regional labour markets and learning systems. These are places that have taken action themselves to improve the way the employment, education and training systems work, connecting the important contributors and getting better outcomes for their residents.

This report looks at the nature of regional and local learning systems, measures of human capital across regional Australia, current regional labour market needs, projections for the next five years, and regional occupational vulnerability to automation. Each of these is reviewed in some detail in this report, with clear implications for regions and policymakers. RAI research in 2016 showed that future skills need a mix of high tech, personal contact (high touch) and high care capabilities as flexibility and creativity become increasingly important in a more dynamic labour market. Case studies of interventions driven by communities show that there is great potential for communities to influence the outcomes for their residents. A core aim of many of these has been to support the young people who

are becoming increasingly vulnerable to the disappearance of entry level jobs due to technology changes, to help them respond to the needs of the future labour market.

Aligning skill supply with skill demand requires proactive and innovative education and training practices that involve a wide range of participants such as employers, young people, educators, trainers, older job seekers and even families and communities more broadly. It also requires that regional development actors and agencies assist with regeneration and job stimulus. This more inclusive, systemic approach to targeted skills development needs to monitor and forecast trends within the labour market (particularly the need for replacement workers), the education and training market as well as how skills are being used and sourced. This comprehensive approach to regional workforce development we have conceptualised here as the Regional Learning Systems approach.

This approach facilitates interventions and policy recommendations to take into account both the aspirations of workers and the potential and actual employment prospects arising in local industry. The focus on demand and the use of skills is of note, as in recent decades the focus has been mainly on employment supply. A feature of the Regional Learning Systems approach is that it extends the analysis beyond the skills gap as determined by business interests, to include an understanding of skill formation and transition challenges as a result of structural change in regional economies. The result is an education and training led model of business growth and job creation for our regions.

Regional Learning Systems are multifaceted and the systemic nature of these relationships is important – stretching across the local scale, regional scale and state scale and setting the 'tone' for regional labour market participation. Gaps in capability and performance across any one of the participants can impede the performance of the system as a whole in a particular place. The converse of this inter-dependency is that local interventions can be highly influential. Consistent themes include:

- Alignment of school and community/local government goals and priorities
- Close connections with community/employers/industry/education and training providers
- Availability of infrastructure to access facilities/services if not able to be provided locally
- Providing students with a sense of 'what's next', be it pathways to continue schooling or pathways beyond schooling (further study or employment)
- Equipping students with multiple skillsets to be able to pursue various pathways (rather than become single-tracked).

These local and regional scale interventions are critical as the state and national systems are slow to change, and there are huge variations in the quality of human capital across Australia's regions. While the general pattern is well known – human capital on all measures decreases with distance from capital cities – a closer look at patterns for young people shows significant progress is being made.

Younger age cohorts of regional residents have narrowed the gap on metropolitan measures of Year 12 completion, though the gap is still wide and is persisting. School completion is considerably higher among 20-24 year olds compared with all those aged 20 years or higher, for both Metropolitan (79%, compared with 61% for those aged 20+) and regional Australia (63%, compared with 41% for those aged 20+). In some cases the changes are built on actions that regions themselves have devised

and resourced. That said, young adults in regional Australia are still twice as likely (28%) to be early school leavers compared with young adults in Metropolitan Areas (14%).

Vocational and Education and Training (VET) completion rates are generally higher for regional Australians, and regional cities with universities have much higher rates of tertiary qualifications amongst 20-29 year olds. A regional base to high quality and high level education is vital. Research by the Regional Universities Network (RUN) shows that between 2013 and 2016, 69 percent of employed undergraduates and 55 percent of employed postgraduate level graduates from RUN member universities ended up working in regional areas upon graduation. By comparison, only 23 percent of employed graduates – either undergraduate or postgraduate level – from non-RUN universities worked in regional Australia.

The quality of Regional Learning Systems will determine how able regional residents are to tap into current and future job opportunities in regions. While it is a common perception that there are few job opportunities in regions, and most of the jobs that are available are low skilled, the reality in late 2018 is very different. Internet vacancies have been growing faster in regional Australia compared to capital cities since 2017, and in January 2019 there were some 42,000 vacancies outside the mainland state capitals, across a range of occupation and skill levels. In fact there are signs of the re-emergence of skills shortages in some regions where the number of vacancies has grown by over 16 percent in just two years. A closer look at the mix of occupations in demand shows that there are great similarities across regions. This will mean intensifying competition across regions to secure the people that each region needs in order to grow.

In an increasingly competitive market across regions, supporters of regional development will need to foster Regional Learning Systems as much as fostering business and infrastructure investment, as it is the quality and capability of these systems that will determine which regions do well from changes coming to the labour market.

CONTENTS

INTRODUCTION

The future of regional jobs was a major theme of the Regional Australia Institute's (RAI) Intergovernmental Shared Inquiry Program in 2018. This research provides a foundation to an ongoing work program on this topic. The foundation makes a significant contribution to our understanding of the three key policy considerations that will contribute to shaping the future of our regional workforce:

- Building an approach to skills development that aligns with expected job growth
- Identifying and defining regional vulnerabilities to automation
- Monitoring and supporting community-led responses to strengthening our future labour market.

The changes to the future of work due to automation and the surge in digital technologies has been a topic of great interest in recent years, particularly the challenges for regions regarding job creation and reducing unemployment. Regional policy makers in all jurisdictions are currently considering and reflecting on what this means for regional jobs and potential policy responses.

Analysis in different countries, such as the United States, has found that 47 percent of current jobs are at risk of automation[i]. Similarly, for Australia, previous reports estimated around 40 percent to 44 percent of jobs being highly susceptible to automation.[ii,iii] While jobs may be lost to automation, technology change also brings new jobs, changes to current tasks or roles within jobs, and requires learning of new skills. Work by the RAI presented in this report has shown that impacts on automation will vary considerably across different regions in Australia.

At the same time, some jobs in certain industries have been growing at a slower pace or declining, while others are seeing rapid growth. For instance, the net number of jobs in agricultural production in regional areas is expected to decrease in the coming years, while jobs in health care and social assistance are projected to have the largest increase. Once again the impacts of these seem to vary considerably across different parts of regional Australia. This is partly due to the ongoing gap in learning outcomes between regional and metropolitan areas, with regional areas having lower high school completion rates, university level qualifications, young adult engagement and rates of adults enrolled in education.

An important influence on the impacts of labour market changes on regions has been community-led efforts to address these persistent human capital gaps and improve local and regional labour market systems. There are outstanding examples around Australia of places that have taken action themselves to improve the way the employment, education and training sub-systems work, connecting the important contributors and getting better outcomes for their residents.

This report looks into options to respond to changing regional labour markets and how to best prepare the regional workforce for future jobs. Facilitating shifts in the local skills base and improving Regional Learning Systems will help enable local workers to benefit from the jobs to come in the industries projected to grow.

SCOPE OF RESEARCH

The purpose of this research is to provide support for regions navigating big changes in workforce needs. This project:

- Examines variations in measures of human capital across regional Australia;
- Analyses regions' current and future skills needs including identifying predicted changes to work due to automation and digitalisation; and
- Presents case studies of local interventions which put into practice new approaches to education, training and pathways to work.

This overarching synthesis report is part of a larger research package conducted into the Future of Regional Jobs under the 2018 Intergovernmental Shared Inquiry program. Other research outputs comprise:

- Regional Job Automation Pack including
  - an interactive Job Vulnerability Data Tool — national LGA scale mapping of regional vulnerability to automation; and
  - report 2.1.1 *Job Vulnerability in Australia* — provides background information on where the jobs most vulnerable to automation are located, as well as suggesting how they can best adapt to the changing workforce;
- Regional Jobs Vacancy Map with ongoing updates of online job vacancies in regional Australia;
- The Missing Workers work including
  - policy paper 2.2.1 *The Missing Workers* — assesses locally-led migration strategies to better meet rural labour needs; and
  - 13 community case studies that tell the stories of successful local-scale interventions;
- Discussion paper 2.2.2 *Riding the Next Wave of Automation in Rural Australia* — safeguarding agriculture and rural labour markets through migration and skills development;
- Report 2.2.3 *Evidence of Migrant Business Ownership and Entrepreneurship in Regions* — analysis on the role of migrants as job creators in regions, not just as job fillers; and
- Report 2.3.1 *Growth Prospects in Regional Australia* — detailed analysis of the prospects of job generation in regions from the four growth industries agribusiness, advanced manufacturing, tourism, and creative industries (to be released).

INTERGOVERNMENTAL
SHARED INQUIRY
THEME #2

**FUTURE OF
REGIONAL JOBS**

PROJECTS	**2.1** Future Jobs & Regional Workforce Development	**2.2** Rural Migration	**2.3** Growth Prospects — Agribusiness, Tourism, Creative Industries & Manufacturing
OUTPUTS	**Regional Job Automation Pack:** » 2.1.1 *Job Vulnerability in Australia* report » Methodology paper » Job Vulnerability Data Tool » Occupations List **2.1.2 *Future of Regional Jobs* report** **Regional Jobs Vacancy Map**	**The Missing Workers:** » 2.2.1 *The Missing Workers* policy paper » 13 community narratives about locally-led migration initiatives **2.2.2 *Riding a Wave of Automation* discussion paper** **2.2.3 *Evidence of Migrant Business Ownership & Entrepreneurship in Regions* report**	**2.3.1 *Growth Prospects in Regional Australia* report** » *To be released in Q2 2019*

The research has been undertaken as a partnership between the RAI research team, Southern Cross University's (SCU) Associate Professor Michael Kortt, and a research team at RMIT led by Professor Peter Fairbrother. The RAI team contributed analysis of regional human capital and employment trends, regional job vulnerability to automation, regional job prospects in growth industries, and mapping Department of Jobs and Small Business internet vacancy data. SCU contributed analysis of migrant entrepreneurship and their role as employment creators in regional businesses. The RMIT team contributed assessments of regional learning systems, community-led responses and case studies of effective local interventions.

This research inquiry will continue in 2019 with further examination of the implications of the changing nature of work in regional Australia. The 2019 Intergovernmental Shared Inquiry program will build on the findings presented in this report to further examine local and regional responses to workforce challenges. The latest iteration of this research program will take a deep dive into key industries which are expected to see major job growth across our regions including the health care and social assistance sectors. Our research will not duplicate workforce development planning that is currently underway in many sectors, but will instead focus on actions that are being taken to improve outcomes and job creation in regional Australia.

REGIONAL LEARNING SYSTEMS

INTRODUCTION

The topic of the future of work is highly complex, with many different factors at play, and much of the contemporary research has focused on the issue at a global or national level. The RAI believes that the real impact of automation and changing labour market conditions is situated at the regional level and that, until this is clearly understood, the national implications cannot be effectively addressed.

The RAI has therefore chosen to focus on a few of the factors in depth, rather than trying to address all of them at a shallow level. The *Future of Regional Jobs* project sets the scene by examining the impact of new technologies on regional labour markets as well as analysing factors which contribute to the education capability and labour market health of regions, and the skills needs for future workforces.

The intent of the project is to provide regional leaders and stakeholders with a range of data and tools to better understand their own unique labour market mix and structure, and to use this knowledge to compare themselves to like regions throughout Australia. In doing this, a particular region can learn from the strategies, successes and/or failures of their contemporaries, share their own experiences and perhaps make connections in these other regions which can advantage both communities. Without adequate and current knowledge, it is increasingly difficult for regional leaders to make appropriate decisions with regard to the future of their economies. This focus on regional locations and their structure is one of the contributions of the project which is not replicated elsewhere.

The issue of future work is inextricably connected to regional economies, the health and wellbeing of regional residents, the growth and/or decline of industries and occupations, the resulting changes which occur in the mix of regional labour markets, and the ways in which national, state and regional education and training systems respond to these changes. In turn, each of these components contains its own 'wicked' problems, and these combine to further exacerbate an already complex issue.

THE REGIONAL LEARNING PUZZLE

This project investigates how regions navigate big changes in workforce needs. This includes recommendations to government and stakeholders on how to best respond to the future of work in regions, considering where jobs are vulnerable to automation and increasing the capacity within regions for the workforce to adapt to future jobs. The research identifies, sources and collates data, which demonstrates the strengths and weaknesses in existing regional education and training related to employment, including secondary, vocational education and training (VET) and higher education levels.

The problem seen clearly in many regions is that the occupational and employment requirements and developments in regions do not necessarily dovetail with opportunities, shortages in labour and the specific requirements of employers in those regions. Hence, there is often a disjunction between the supply and demand for labour at the regional level. This puzzle is addressed in this study, which seeks

to analyse how skill supply can be aligned with skill demand, a challenge, which education and training providers are trying to address.

The notion that education and training providers can simply provide skills and qualifications, without considering the demand for and use of these skills, is no longer credible.[iv] With increases in the cost of education and training, job outcomes are becoming much more critical for many students. This is particularly true in regional areas. Research by Universities Australia has shown that a higher proportion of regional students in 2017 were experiencing financial hardship during their studies when compared with major cities' students.[v] Regional students are placing a high financial and often personal cost on completing their studies and job outcomes on graduation are crucially important.

SKILLS

Aligning skill supply with skill demand requires proactive and innovative education and training practices that involve a wide range of actors (e.g. employers, industry associations, unions). It also requires that regional development actors and agencies assist with regeneration and job stimulus. This more inclusive, systemic approach to targeted skills development needs to monitor and forecast trends within the labour market (particularly the need for replacement workers), the education and training market as well as how skills are being used and sourced.

Skills are the product of social and material processes involving three principal players: education and training providers, employers and trainees. A fourth factor shapes each of these and that is 'place' or geographical, environmental and historical context. Defining 'skills' means understanding these local social contexts *alongside* broader changes that are taking place in work and employment relations including technological change, managerial reorganisation and the internationalisation of product chains and markets.[vi,vii,viii,ix] Bringing together the ambitions of individuals and households, local community and government trajectories and broader social changes is necessary to adequately plan and anticipate skills development with reference to recruitment, retention and work output.

Analysis needs to consider changes that are occurring within the education and training sector which impact on how skills are developed and training occurs. Over the past two decades, the education and training sector has focused not only those working within the sector but also how skills are delivered, standards are maintained, and qualifications are issued. The changes that are taking place in work and employment have implications for skills deficits and requirements, and the changes occurring within the education and training sector also have implications for skill quality and supply.

The degree of match between skills supply and demand is a spatial question that depends upon scale and mobility of students/employees. The region is a suitable focus for such analysis because it represents a scale at which individuals can remain in place while travelling to some extent to access training and employment, helping retain people in regions. This mobility contributes to a positive spiral of ongoing regional renewal. In considering training and employment provision within a region, it is therefore important to understand current employer requirements across sectors within a given region.

At the same time, it is important to do this in a future-oriented way. It is necessary to review and analyse possible and plausible changes in regional employment profiles, in part due to cross-regional processes such as those mediated by the global economy. A region's vulnerability can be increased if foreign investors decide to move their operations away from the region at some point in the future. International evidence also shows that addressing regional regeneration via an employer-driven approach can have negative implications if done at a distance. Research indicates that Foreign Direct Investment (FDI) led regional regeneration has resulted in the underdevelopment of local skills in the past.[x]

All of this underlines the importance of understanding not just the needs and aspirations of employers, but the skills and aspirations of workers in a situation where jobs can disappear, drastically reduce or change significantly. It is thus important to engage workers and their communities who are likely to be affected by changes in the regional economy in the process of planning for the future. Such an approach will result in a comprehensive and focused analysis of the skills needs of industry alongside the capacity of the education and training sector. This Regional Learning Systems approach makes possible informed policy to support positive regional transitions.

TRAINING PROVIDERS AND REGIONAL DEVELOPMENT

Regional VET institutions are key players in promoting regional development. Such activity includes addressing skills shortages, replacement workforce, developing ways to assist displaced and disadvantaged workers, and seeking to promote the entry of young people into the labour market. For example, TAFEs and other VET providers play an important role in regional training. They promote investment in regional human capital by identifying skills needs and improving the supply of appropriate training. VET institutions assist employers dealing with regional skill shortages from deficiencies in suitable skilled and qualified applicants for in-demand occupations, and can also help with skill mismatches and deficiencies in particular skills required due to new technology or work processes.[xi] These institutions play an important social and economic role in regional communities. For example, a recent focus has been on improving the response of regional VET institutions to disadvantaged learners in transitioning from school to VET.[xii]

Skills can be perceived as a key driver of regional prosperity and as a means to address social and economic change. In such circumstances, regions often face significant skills challenges associated with an ageing workforce, displaced workers, youth unemployment, disadvantaged communities, and the need to cater for the demands from new and emerging industries. In addressing these matters, regional and industrial planning should be carried out in conjunction with targeted skills programs. In this context, some form of partnership approach to skills development and implementation is necessary for successful outcomes. This partnership approach is what we term the 'Regional Learning Systems' approach.

REGIONAL LEARNING SYSTEMS APPROACH

Regional Learning Systems are multifaceted and reflect the activities of participants such as employers, young people, educators, trainers, older job seekers and even families and communities who often set the 'tone' for regional labour market participation. The systemic nature of these relationships is important – stretching across the local, state and regional scales. Gaps in capability and performance across any of these participants can impede the performance of the system as a whole in a particular place. The converse of this inter-dependency is that local interventions can be highly influential, and examples are included later in this report.

A Regional Learning Systems approach places attention on supply and demand *and* the present and future. That is, interventions and policy recommendations need to take into account both the aspirations of workers and the potential and actual employment prospects arising in local industry. The focus on demand and the use of skills is of note, as in recent decades the focus has mainly been on employee supply.[xiii,xiv] It is also necessary to consider the ways working lives are changing and the diverse challenges that those living and working in regional areas face.

This approach extends the analysis beyond the skills gap as determined by business interests, to include an understanding of skill formation and transition challenges as a result of structural change in regional economies. The Regional Learning Systems approach addresses the specific socio-economic contexts in which skills are embedded and the dynamics that underpin them. Such factors include the economic, social and regulatory pressures that influence training providers and their delivery of training and skills. This approach also considers external factors that may impact on skills development, including the influence of a training provider's relationship with employers, industry associations and policy-makers. The result of this approach is broader than the outcomes of a skills gap approach. Instead, the Regional Learning Systems approach underpins the development of "an education and training led model of business growth and job creation".[xv]

The Regional Learning Systems approach considers the following when designing policy and programs to build regional jobs prosperity:
- Current education and training conditions and capacity across the regions
- Current and projected future skills needs of industry
- Structural and regulatory environments
- Local contexts, histories and local leadership

This emphasis on understanding the multiple actors involved in developing successful regions allows policy makers to seek avenues for greater coordination. Building on the collaborative relations that are evident between the schools, VET and the Higher Education sectors it is possible that the basis for an alignment of education and training with industry's skills needs and requirements can be laid. Such an achievement will require an understanding of the employment trajectories underway in relation to sectors and sub-sectors, the skills profiles of residents and localised factors that shape career paths, aspirations and access to education and training.

BUILDING HUMAN CAPITAL

This section presents a national picture of variations in regional human capital in terms of Year 12 completion, VET qualifications and tertiary qualifications, drawing on Census data for 2006, 2011 and 2016. The general picture is well known – the further a place is from a capital city the poorer it rates on these measures. Though in many regions there are higher shares of people with VET qualifications than in the cities. But beyond this general picture, once we look at the levels of these human capital elements by age group, and look in more detail over time, it is clear that some regions are performing remarkably well while others are falling further behind. The case studies included here begin to explain why this variance exists and provide important considerations for policymakers.

HIGHLIGHTS

- There is a clear trend that the younger you are, even if you live in regional Australia, the more likely you are to have completed Year 12.
- The gap in Year 12 completion rates between regional and metropolitan age groups is persisting.
- VET completion rates are generally higher for regional Australians than for metropolitan Australians.
- Some regions have seen big increases in key measures like Year 12 completions. These regions have devised and resourced initiatives themselves that contribute to this increase.
- Regional cities with universities have much higher rates of tertiary qualifications amongst 20-29 year olds compared with other regional places.
- Research by the Regional Universities Network (RUN) shows that between 2013 and 2016, 69 percent of employed undergraduates and 55 percent of employed postgraduate level graduates from RUN member universities ended up working in regional areas upon graduation. By comparison, only 23 percent of employed graduates – either undergraduate or postgraduate level – from non-RUN universities worked in regional Australia.

SCHOOL COMPLETION RATES

Across Australia, the more remote the area you live in, the less likely you are to have completed Year 12. This fact is quite well known, and reflects the poorer education pathways available to people living in regional areas, especially those living in more remote regional areas, over the last 50 years. The chart below shows that of all people living in regional Australia in 2016 aged over 20, 41 percent had completed Year 12, compared with 61 percent for metropolitan places. The more remote the region the lower the completion rate – in Regional Cities[1] the rate was 45 percent and in Heartland Regions it was 34 percent.

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[1] The RAI partitions regional Australia into four types: Regional Cities; Connected Lifestyle Regions; Industry and Service Hubs; and Heartland Regions. See Appendix 3: Foundations of Regional Australia.
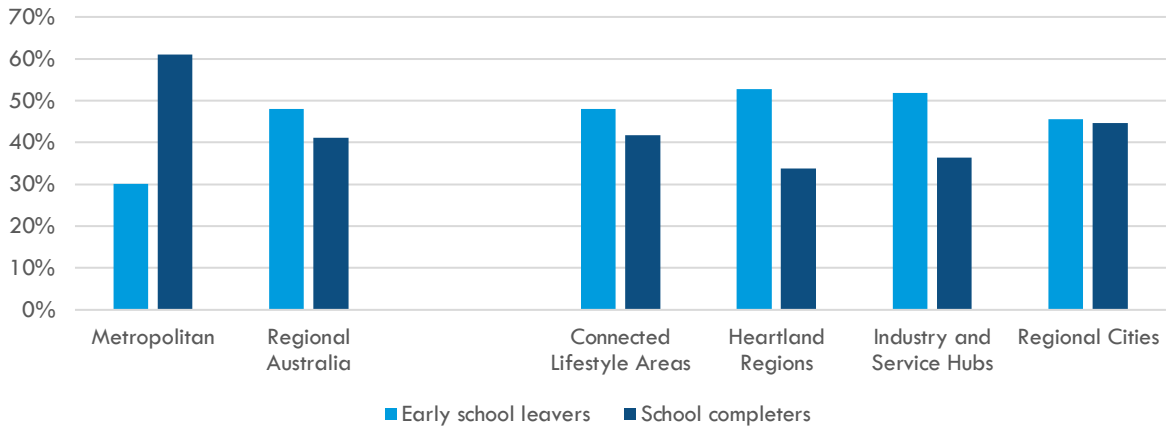
School completion, 20yo+, 2016

Figure 1: School completion rates for people over 20 years old

There is considerable generational bias present in these 20 years plus figures, which comes from the tendency for older people to have lower levels of educational attainment. In fact, the differences are less when we compare school completion rates of a younger age bracket. This provides a clearer reflection of how policy and individual aspirations have changed over the years, and how the effectiveness of the education system is currently reflected across the country. Figure 2 shows that there was a rapid increase in school completion rates for people aged in their early 40s and early 50s in 2016 – jumping from around 30 percent of the older cohort to over 50 percent for the younger cohort. This corresponds to a significant increase in school completions during the decade of the 1980s.
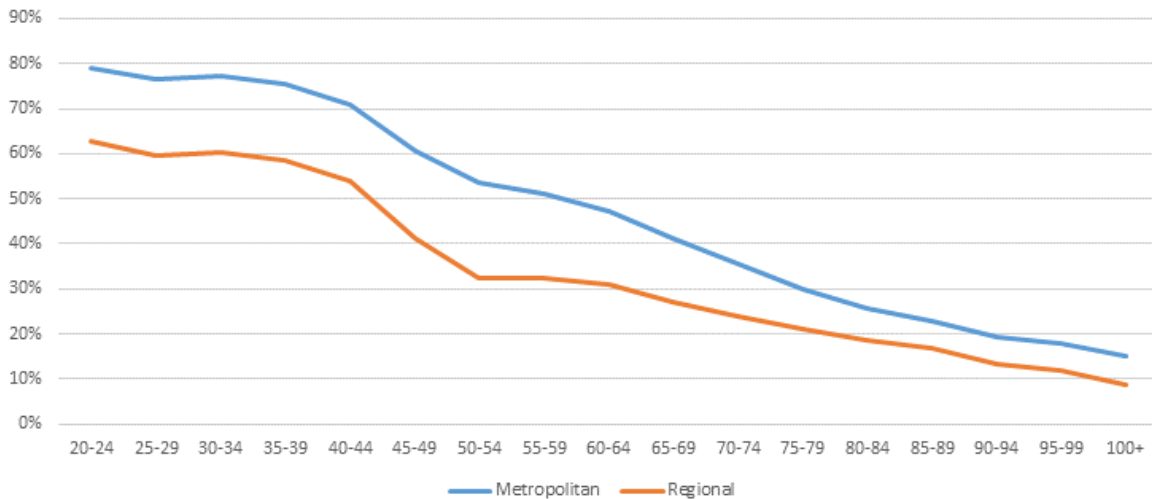
Rates of school completion by age in years

Figure 2: School completion by age cohort

Most importantly, the gap in Year 12 completions between metro and regional residents seems to be stuck at a level around 16 percentage points. For those aged 20-24, 63 percent of regional residents in 2016 had completed Year 12, compared with 79 percent of metro residents. This is the same percentage point gap as for those aged 60-64.

There is a clear trend that the younger you are, even if you live in regional Australia, the more likely you are to have completed Year 12. Completion rates for regional city residents have increased the most in recent years, closing the gap on metropolitan areas and starting to diverge from the metro-linked connected lifestyle regions from the early 1990s onwards.
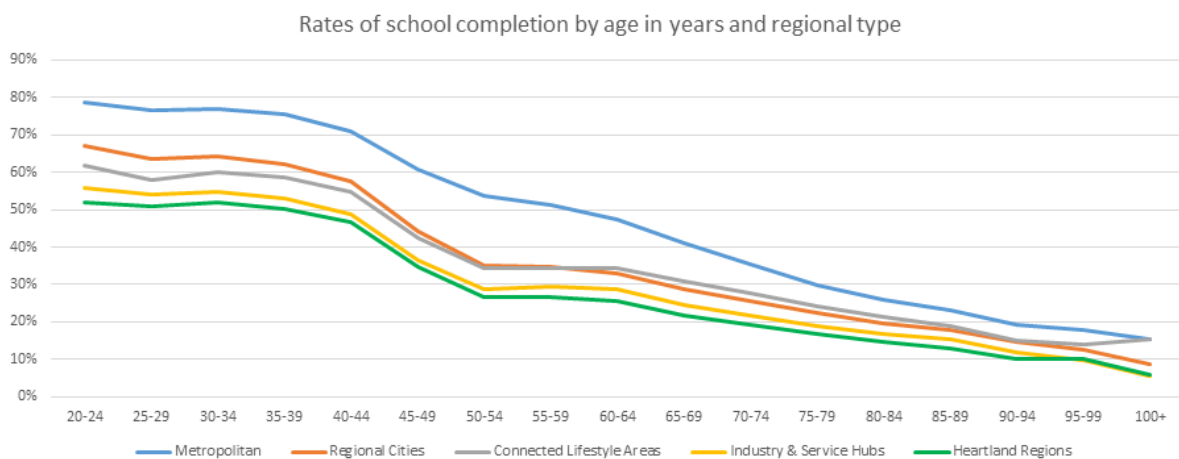

Figure 3: School completion by age cohort and regional type

Examining variations in school completion rates for young adults 20-24 years old shows considerable regional variation in both the rate of Year 12 completions for this age cohort, and the way this rate has changed in the last decade. To understand the trends, we have investigated some of the places that have seen the biggest improvements – looking to find reasons behind such significant changes in this foundational layer of human capital (see the example of the Barossa Valley, and the case study of North West Tasmania).

SCHOOL COMPLETION AMONG YOUNG ADULTS (20-24YO) BY REGIONAL TYPE

School completion is considerably higher among 20-24 year olds compared with those aged 20 years or higher, for both Metropolitan (78.9%, compared with 60.9% for those aged 20+) and regional Australia (62.7%, compared with 41.1% for those aged 20+). But the gap is smaller for the young adult cohort – 16 percentage points compared with 20 percentage points.

That said, young adults in regional Australia are twice as likely (28.3%) to be early school leavers compared with young adults in Metropolitan Areas (14.1%). Heartland Regions and Industry and Service Hubs have the greatest proportion of early school leavers (35.7% and 34.5% respectively) and lowest proportion of school completers (52.0% and 55.7% respectively).

Regional Cities are the 'best performing' non-metropolitan regional type, with 24.8 percent of 20-24 year olds leaving school early and 67.2 percent completing Year 12. For young adults this Year 12 completion rate in Regional Cities at 67.2 percent is closer to the metropolitan average rate of 78.9 percent.

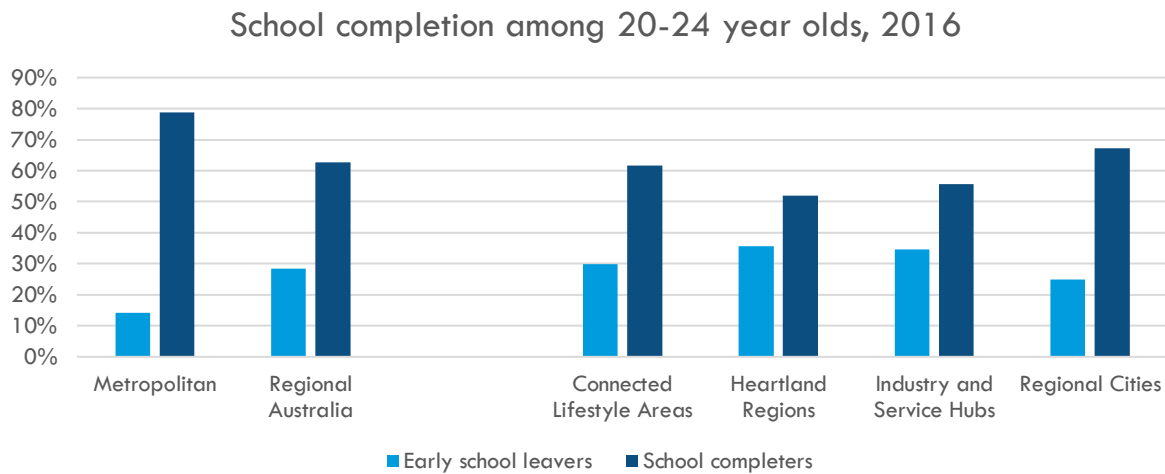## School completion among 20-24 year olds, 2016

Figure 4: School completion 20-24yo only

Deeper analysis shows that school completion rates change over time. Comparing data from the three censuses in 2006, 2011 and 2016 shows five small population places where school completion rates for this age cohort have increased by over 20 percentage points (Appendix 1). These increases can be associated with locally-led and driven interventions that seek to establish productive partnerships between industry and secondary education.

SCHOOLS-INDUSTRY PARTNERSHIPS: WINE-MAKING IN THE BAROSSA VALLEY

A great example of industry partnered schools is found in the Barossa, South Australia. The region was consistently above the average of all Connected Lifestyle Areas when it came to the proportion of 20-24 year olds who completed school. It also recorded consistent increases in the proportion of 20-24 year old school completers between 2006 (54.9%), 2011 (63.8%) and 2016 (68.2%).

As a region renowned for winemaking, it is unsurprising that schools in Barossa have developed strong connections with the wine industry, with both Nuriootpa High School and Faith Lutheran College in Tanunda incorporating various aspects of winemaking into the curriculum. From Year 10, students learn about winemaking from the point of growing the grapes to designing the wine labels and hosting dinners to showcase food and wine created and paired by students. As well as cultivating specialist agriculture skills to produce a high-quality, commercial-grade product, students involved in the program also develop industry skills and awareness of career opportunities presented by the wine and viticulture industry.

Contrary to criticism that winemaking in high school promotes alcohol to minors, Nuriootpa High School principal Neil White says 'It's not about drinking – it's about the potential of a variety of employment opportunities. And it helps make connections between the school and the community.[xvi] Since many students at both schools come from winemaking families, the opportunity to engage with a curriculum that provides tangible and industry-relevant experience in a school setting is a great motivator for students to remain engaged in education.[xvii]

This example highlights the importance of the alignment of schools with community and local government goals and priorities. It demonstrates the effectiveness of taking a local approach to building connections between employers and industry with education and training providers to increase the employability of local students and to build the potential for regional workforce retention.

VET QUALIFICATIONS IN REGIONAL AUSTRALIA

Part of the difference in Year 12 completion rates lies in the fact that more regional students complete VET programs – and in many places this is an alternative to completing Year 12 rather than a complementary qualification.

The percentage of 20-24 year olds with VET qualifications has increased in regional Australia. While there was a steady increase between 2011 and 2016 (up one percentage point to 27.6%), there was a bigger increase between 2006 and 2011 (up three percentage points). Over the same periods, Metropolitan Areas had a slight decrease in the percentage of population with VET qualifications from 21.4 percent in 2011 to 20.3 percent in 2016, and an increase of two percentage points from 2006 to 2011.
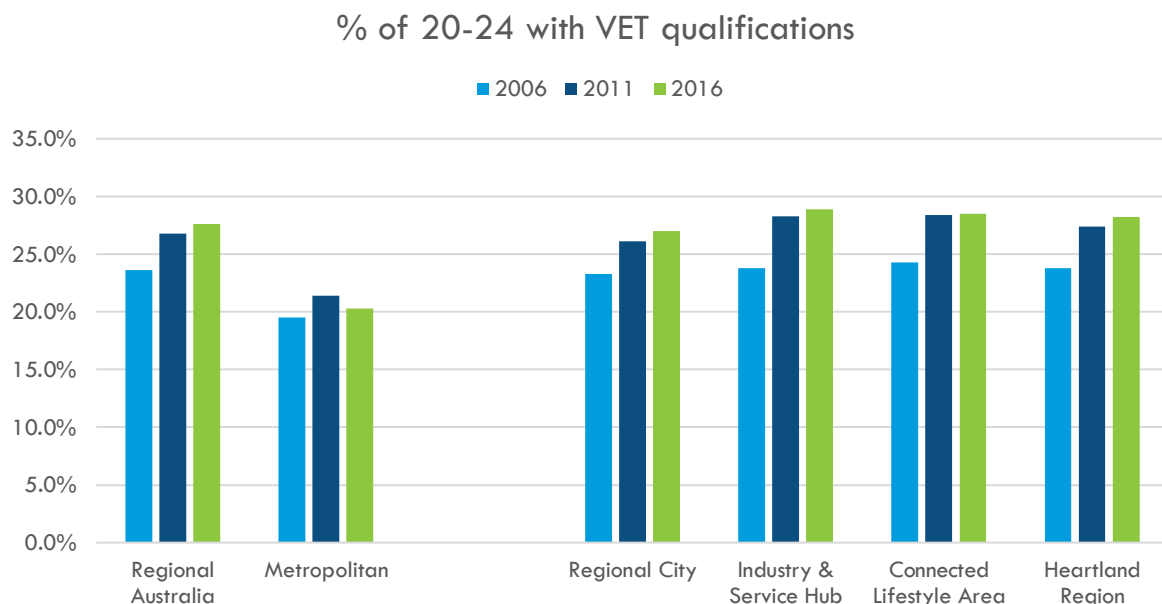
% of 20-24 with VET qualifications

■ 2006 ■ 2011 ■ 2016

Figure 5: 20-24 year old age cohort with VET qualifications (2016)

In contrast to the wide variation in Year 12 completion rates across regional types, there is much less variation for 20-24 year old VET completion rates. This age cohort had a VET qualification completion rate in 2016 of 27 percent in Regional Cities, while in the other regional types it was a little higher at 28-29 percent.

Looking at changes over time, the percentage of 20-24 year olds with VET qualifications has increased in regional Australia, though 2006-2011 saw greater increase than the period 2011-16. In 2006 the percentage of 20-24 year olds with VET qualifications was 23.6 percent, increasing to 26.8 percent in 2011 and then to 27.6 percent in 2016. Metropolitan Areas had a slight decrease in the percentage from 21.4 percent in 2011 to 20.3 percent in 2016.

% of 20-24 with VET qualifications
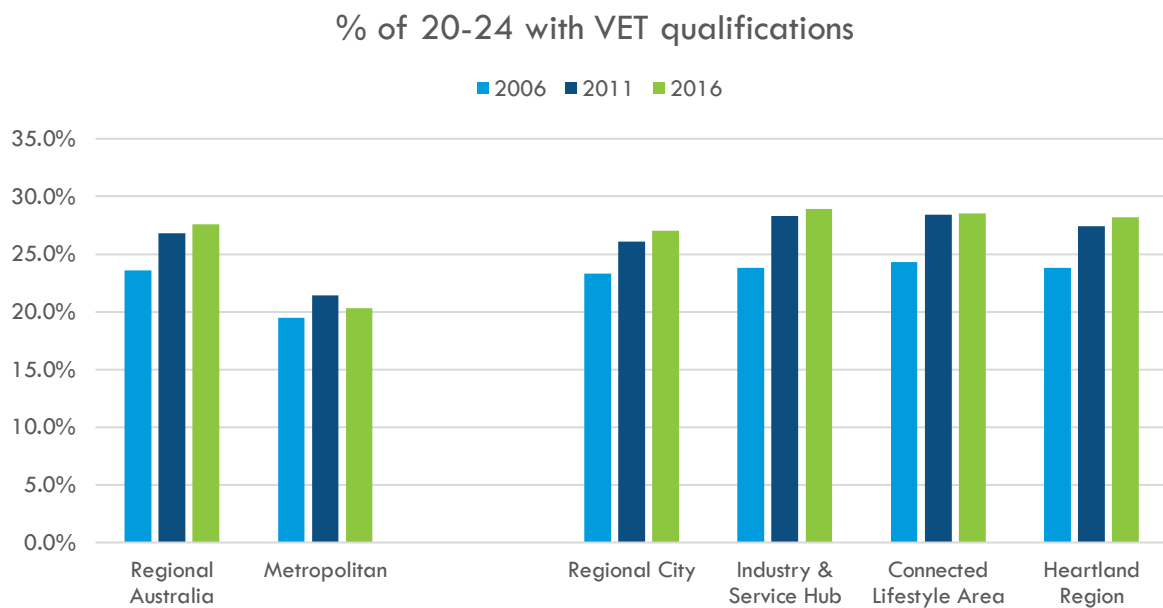
Figure 6: Percentage of 20-24yo with VET qualifications 2006-16

The greatest changes in the proportion of 20-24 year old population with VET qualifications were mostly in Heartland Regions, with the exception of some Connected Lifestyle areas and Burwood (Sydney) which is a metro area but saw the largest decrease (2011, 20% had VET qualifications compared to 11% in 2016).

TRAINING AND PATHWAYS TO EMPLOYMENT IN REMOTE AUSTRALIA: THE BIG RIVERS REGION

Remote and very remote regions of Australia face a complex set of challenges with regards to the provision of training and pathways to employment. Higher levels of unemployment, lower levels of education attainment and extreme distances between towns and cities can present significant hurdles for local governments, communities and employers. Industry, education, community and local indigenous stakeholders in the Big Rivers Region in Northern Australia have together implemented a range of

initiatives aimed at addressing the particular context of their region to improve education and employment outcomes.

The Big Rivers Region (population 22,199) is disadvantaged and very remote. It is principally serviced by the town of Katherine (population 10,500), 320 km south east of Darwin. The towns and communities in the Big Rivers Region have been subject not only to the volatility of the resources boom, but the impact of significant and ongoing restructure of all levels of government. The region is predominantly Indigenous. Only 34 percent of the region's residents indicated they were non-Indigenous in the 2016 census. The Big Rivers Region has a low employment participation rate at 35 percent and a high unemployment rate at 12 percent. These factors are difficult to disentangle from each other and combine with the challenges of remote training and connecting people to employment.

The initiatives taken locally to improve education and pathways to employment have been designed to increase Aboriginal engagement. These programs take the understanding that pathways to employment need to foster, rather than fragment, an individual's sense of local identity and belonging. In this context, access to education and training needs additional support and a clearer definition of success. The Big Rivers region approach expands the definition of the success of education and pathways programs to include parental involvement and community engagement. Experience in remote areas of Australia have demonstrated that approaches that work give power to families and communities – along with the individual – to build local capacity. This expanded definition of success requires a partnership approach which takes into account the Regional Learning System of the local area.

An example of an initiative in the Big Rivers region which is facilitated through collaboration between industry, the VET sector, community and Indigenous leadership, is the Real Jobs Program (RJP). The Northern Territory Cattlemen's association operates the RJP in partnership with the Indigenous Land and Sea Cooperation (ILSC). This program began in 2008 with the aim of increasing Indigenous participation in Australia's northern pastoral industry. Up to 20 young Indigenous people aged 18 to 26 are recruited annually, then trained and placed in jobs under the program. The RJP runs for two years – the first concentrates on training and placements and the second in sustainable, independent employment. Currently, there are 15 contracts with 10 stations. All participants in traineeships are employed by Group Training NT and undertake a Certificate II in Rural Operations and 90 hours of literacy and numeracy with Charles Darwin University. Field officers provide mentorship, help deal with family issues and work to retain students in the program. The focus is on team goals, and graduates from the program are positioned as emerging leaders, acting as mentors for new participants.

The RJP is a collaboration between the VET sector, industry and the Indigenous community and is linked to the needs and priorities of families and local communities. This example demonstrates the need for pathways programs to target and provide for different populations in distinct ways, reflecting the social context and experience that define various communities.

THE FUTURE OF REGIONAL JOBS

TERTIARY QUALIFICATIONS

The share of residents (all ages) with tertiary qualifications also decreases with remoteness. But as with the other measures of human capital, looking at younger age cohorts rather than the whole population shows that the differences are smaller, and in this case the gap is increasing not narrowing. The spatial patterns of university qualifications do not reflect local conditions as much as the school completions patterns as tertiary students are more mobile and have fewer locations where they can pursue their tertiary studies.

Looking at changes over time, for the whole of Australia the percentage of 20-24 year olds with university qualifications increased from 13.7 percent in 2006 to 14.1 percent in 2011 and then to 16.2 percent in 2016. Between 2006 -2016, for the 25-29 year old Australian population university qualifications also increased from 27 percent to 31.2 percent and then 33.8 percent.

Some improvements were also seen in regions. Metropolitan Areas have the highest percentage of the population with university qualifications and this has increased across the years. Between 2011 and 2016, the percentage increased from 16.9 percent to 19.5 percent. Regional Australia as a whole saw a small decrease from 2006-11 before a small increase from 8.2 percent in 2011 to 9 percent in 2016 – much less than the growth in Metropolitan Areas. The more remote Heartland Regions saw a net decrease in the share of this age group with university qualifications. The pattern for the next age cohort (25-29yo) showed less dispersion – metro university qualification rates went up from 31.8 percent to 39.4 percent while across all regions the percentage also went up substantially from 16 percent to 20 percent. This may be a sign that people who live in regions are taking longer to finish their degrees or that they are entering into tertiary education later.
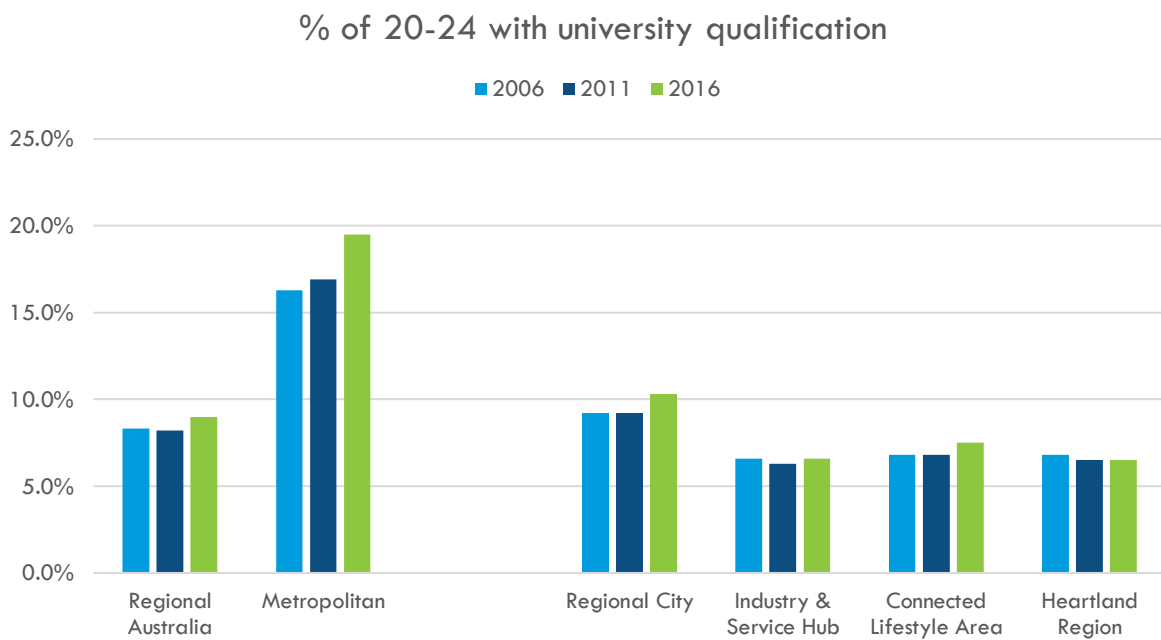
% of 20-24 with university qualification

■ 2006 ■ 2011 ■ 2016

Figure 7: 20-24yo with tertiary qualifications

19 /43

*Levels are lower among the 20-24 compared to 25-29 year olds, which is expected since most people are unlikely to finish a university qualification before 21, depending on the degree. 25-29 would also have more people who would have finished a post-grad degree.
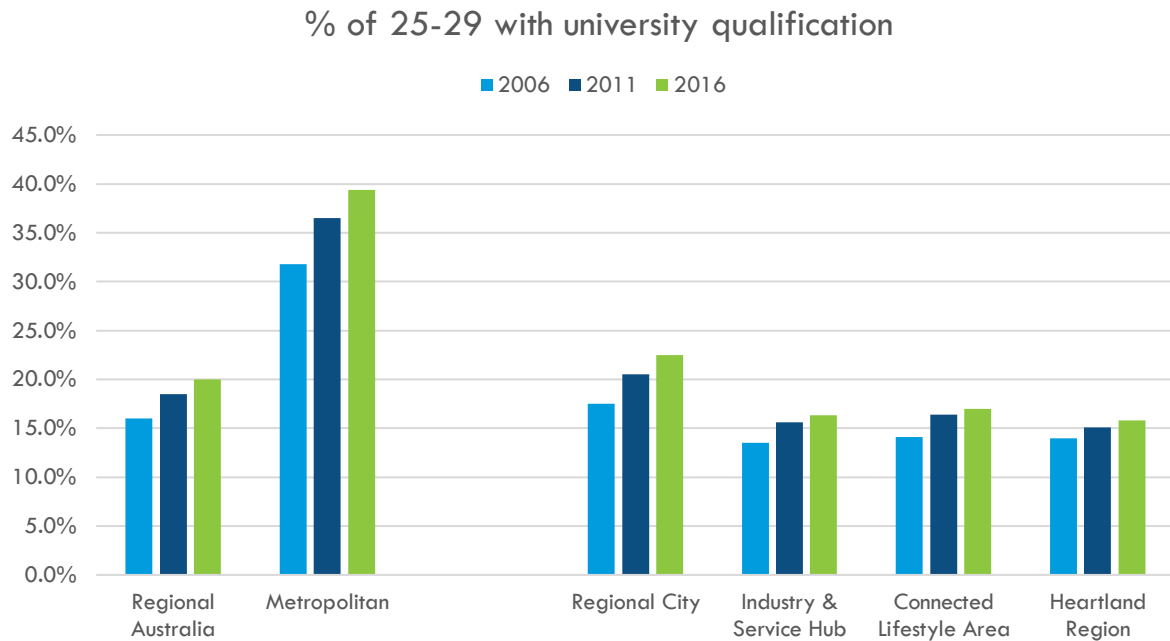
% of 25-29 with university qualification

■ 2006 ■ 2011 ■ 2016

Figure 8: 25-29yo with tertiary qualifications

The regional Local Government Associations (LGAs) with the highest shares of 20-29 year old residents with tertiary qualifications are all places with universities or adjoining universities (Appendix 2).

Overall, the regional LGAs showing the biggest increases in the share of population with tertiary qualifications were a mix of places strong in either gentrification or mining (see Appendix 2). The increases are therefore less likely to reflect evidence of a major change like the emergence of the first graduates from families in disadvantaged regions. Some regional cities are doing very well to increase tertiary qualifications – Wollongong, Geelong, Orange and Gold Coast in particular.

The importance of regional universities is underscored by research published by the Regional Universities Network (RUN).[xviii] This showed that between 2013 and 2016, 69 percent of employed undergraduates and 55 percent of employed postgraduate level graduates from RUN member universities ended up working in regional areas upon graduation. By comparison, only 23 percent of employed graduates – either undergraduate or postgraduate level – from non-RUN universities worked in regional Australia.

IMPLICATIONS

This assessment has found that there is considerable variation across Australia, even across regional Australia, in terms of the rate of students completing Year 12 – especially when looking at the recent cohort of those aged 20-24. Trends in VET qualifications are more variable, reflecting the variations in trade skills needs and training provision in regions. And while regional areas are showing increasing percentages of younger residents with tertiary qualifications, the growth is greatest in places with a university, and does not seem to reflect increasing tertiary qualifications from disadvantaged families.

The descriptive case studies presented throughout this report describe the locally-driven initiatives that seek to improve human capital in regions. The case studies show how determined regions can be in dealing with a system that they see as not delivering adequate outcomes for them, and that local action can be effective.

These case studies showcase how a Regional Learning Systems approach – or an education-led approach to the future of work in regional Australia – is a valuable conceptual tool for designing flexible, place-based interventions to shape the future economic prosperity of regional communities.

CURRENT REGIONAL JOBS

HIGHLIGHTS

- Internet vacancies have been growing faster in regional Australia compared to capital cities since 2017.
- In January 2019 there were around 42,000 vacancies outside the mainland state capitals, across a range of occupation and skill levels.
- There are signs of the re-emergence of skills shortages in some regions where the number of vacancies has grown by over 16 percent in just two years. A closer look at the mix of occupations in demand shows that there are great similarities across regions. This will mean intensifying competition across regions to secure the people that each region needs in order to grow – and there is nothing in the education pipeline that shows it is prepared.
- Evidence from regions shows that it can be hard to fill available jobs due to perceptions of poor infrastructure, services and amenity – so action on improving the stock and capability of these key assets is in fact vital to regions being able to attract and retain the people they need to grow.
- Longer term, healthcare and social assistance is expected to require another 85,000 workers in regions through to 2023 and 28,000 in education. With long lead times on professionals in these industries it is vital that action starts now to create the skills development pathways.
- Automation creates opportunities as well as removing some jobs. The next wave of technology change will threaten low skilled service jobs as digital tech and apps are marketed to employers and service providers as ways of reducing their staffing costs. The extent to which regional business owners take up these technologies and pursue these cost savings, as well as the extent to which regional consumers download the apps and contribute to saving labour, remains to be seen. Anecdotally, the experience of most regions in seeing improvements in productivity as code for job losses – especially in agribusiness – is bringing some scepticism and caution to the next round of digital technological change.

CURRENT RECRUITMENT NEEDS

Current data from the Commonwealth Government's Internet Vacancy Index shows that vacancy growth is higher in regional Australia than in capital cities, when comparing vacancy data from January 2017 to January 2019.

12 month average Internet vacancies	Australia	Mainland state capitals	Rest of Australia
Jan-17	165,020	126,564	38,456
Jan-19	182,736	138,068	44,668
Percentage Change	10.7%	9.1%	16.2%

In January 2019 there were around 42,000 job vacancies advertised outside of the mainland state capital cities. The trend is now up for regional Australia, with the average over the 12 months to January 2017 increasing by 16 percent on the average for the 12 months to January 2019. Vacancies in Metropolitan Areas only went up 9 percent over the same period.
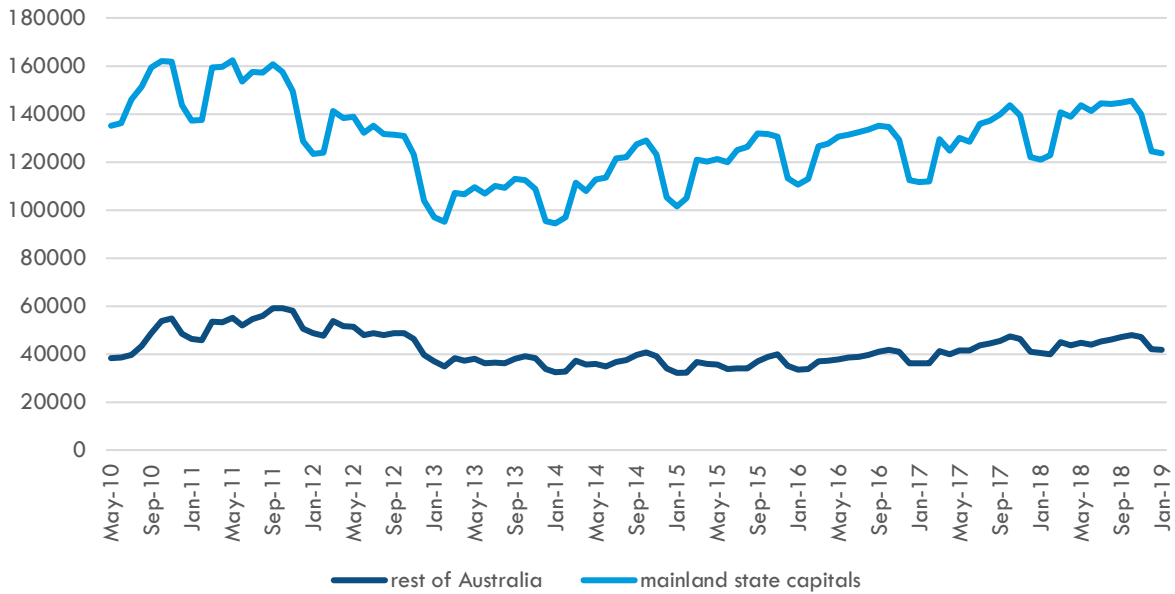

Figure 9: Internet vacancy trends 2010-19

Since May 2010, internet vacancies peaked in both metro Australia in early 2011 and in regional Australia in late 2011. Vacancy growth bottomed in metro areas in mid 2013 and has been climbing at around 10,000 additional vacancies per year since then. The trough for regional Australia lasted longer, with the end of the mining construction boom drawing out the low point, but growth rates have been higher since late 2016. This peak-tough-peak pattern indicates the trends are more about varying vacancy numbers than about increasing take-up of the internet as a vacancy advertising medium.

The data also reveals the regions with the greatest growth rate of vacancies from January 2017 to January 2019.

- Launceston and Northeast Tasmania and Outback Queensland had the highest percentage increase with 65 percent over the period. This is followed by the Pilbara and Kimberley regions, which increased by 41 percent, Hobart and Southeast Tasmania saw a vacancy increase of 40 percent, while Goldfields and Southern WA also experienced a 33 percent increase.

The emphasis on our resource regions indicates that the post mining bust has bottomed out and serious skills needs are again emerging in these places. The internet vacancy index shows that the types of vacancies that regional Australia is currently experiencing are a mix of high skill and low skill jobs. Everything from labouring, through to sales, trades and professions.

- In Far North Queensland, there are around 3,745 vacancies including 795 trades (mainly automotive), 862 professionals (mostly medical), 469 clerical, 348 machinery operators, 362 labourers and 367 community and personal service workers.
- In the Riverina there are 1,035 vacancies, including 352 professionals (many medical), 138 trades (mainly automotive), 122 clerical and 106 labourers.
- In Newcastle and Hunter there are 3,151 vacancies, with 780 professionals, 646 trades (mainly automotive) and 433 clerical staff.

IMPLICATIONS

The current internet vacancy trends data shows that the waves of job change washing over the whole country are making a splash in regions too. There is a mix of trades, technical and labouring jobs, alongside the steady rise in demand for professional, managerial and other service jobs which reflects the national structural change towards services as the main employing industries. Vacancy growth rates of 40 to 50 percent indicate emerging serious shortages in some regions, as the post mining boom 'bust' is proving short-lived in many places.

LOCAL APPROACHES TO DISAVDANTAGE: THE NORTH WEST COAST OF TASMANIA

The North West coast of Tasmania is one of the poorest regions in Australia's most disadvantaged State. The region has seen a concentration of heavy industry which provided opportunity and growth from the 1930s to the 1980s, but which subsequently led to concentrated unemployment and out-migration as businesses in these industries entered decline and, in many cases, stopped operating.

Today, North West coast contributes 21 percent of Tasmania's GDP. However, it has low levels of labour force participation, fewer full-time and lower-skilled jobs, high-levels of long-term unemployment and jobless families, and low levels of educational attainment. The loss of significant numbers of traditional manufacturing jobs, as well as low rates of secondary and tertiary education completion, pose a significant challenge for the region as it refocusses to a changed future.

Part of this challenge is addressing the socio-cultural reasons behind low education attainment rates. The impact of poverty and unemployment on family priorities effects educational aspirations. Education can be afforded a low priority and some families view education beyond Year 10 as being of little value. In these cases, staying on beyond Year 10 can be seen as the exception, rather than the norm. Structural reasons, such as isolation of some students from schools and colleges, also impact on attainment levels.

Locally-led interventions are already proving effective in improving Year 12 completion rates in the region. Working partnerships have been established with family support services, employers, high schools and Year 11 and 12 educators such as Hellyer and Don Colleges. Recent enrolment data is showing that school retention and completion rates on the North West coast are improving and are superior to the rest of Tasmania, with 83 percent of Year 10s in the 2014 cohort going on to finish Year 11 in 2015 and 75 percent of those completing Year 12 in 2016.

Currently, the sectors that employ the most people in the region are health care and social assistance, education and training and retail and manufacturing. There appear to be new opportunities emerging in some revitalised 'old' industries, namely, advanced manufacturing, agribusiness, aquaculture, forestry and renewable energy. A number of these sectors require a highly-skilled workforce with higher educational levels. At present, these sectors are needing to largely recruit from outside the region to maintain their staffing requirements.

If the North West coast is to address this skills shortage then it needs to raise its levels of educational attainment. The region's development agency, the Cradle Coast Authority (CCA), has prioritised improving the educational attainment of the local workforce to ensure they have the skills to fill local jobs. Given the depth of deindustrialisation and the challenges facing the region in terms of social disadvantage and low educational attainment, a long-term community-focused approach is required. Some innovative and cross-participant activities are already proving effective. One example is the Children's University, which "enhances student's academic achievements and increases their ambition to learn". Under this program, students aged between 7 and 14 are issued with a *Passport to Learning* by their school, and then undertake a number of hours of validated activities that range from participation in sporting clubs, cultural activities and school clubs, with all of the activities linked in some way to a university course.

The community and businesses in the second-largest city in the region, Burnie (population 19,000) have worked collectively to engage with families and children to increase educational retention and completion through improving the relationship between industry and schools. The Burnie City Council has taken a lead role in this with *Burnie Works*, which aims to create a new culture of working collectively to create change in the community. The program has a number of aspects:

- *The 10 Families Project* works with entire families to ensure students attend school and remain connected to education.
- *Dream Big* aims to expose year 5 students from jobless households to the world of work by visiting workplaces and educational institutions. The aim is to open the door to broader possibilities than they may currently see for themselves. This project involves 100 local businesses and four local primary schools.
- *BIG* is a community-led industry and education group that aims to support young people on their pathway to a vocation and develop a strong regional skills base to support emerging opportunities.

The North West coast, in its transition away from its industrial past, is taking a Regional Learning Systems approach. That is, it is taking a long-term perspective and is including community, the training sector and industry in aiming to build effective and sustainable pathways. The local government is engaging with families and the community to overcome long-term and entrenched attitudes towards education and training and reorient the community and its aspirations towards the jobs of the future, as well as the current employment needs in the growing advanced manufacturing and health sectors.

The case of the North West coast of Tasmania recognises that there is not a simple, one-stop solution to these issues and that when industry, educational institutions and communities work together young people can be provided with the aspirations, education and jobs to lift the regional economy.

FUTURE REGIONAL JOBS

CHANGING EMPLOYMENT NEEDS

The future of work offers a heady mixture of excitement and promise as new ways of working become embedded in the economy, along with the worry of how and if regional residents will be able to make their way in a rapidly changing work landscape.

HIGH DEMAND JOBS IN 2030

The future job market places high demand on jobs with a mixture of high tech, touch, and care activities.

High tech jobs
Know-how and specialists, from designing the next drone to teaching, e.g. electrical engineer, primary school teacher.

High touch jobs
Do and deliver, from house renovations to creatively pursing a passion, e.g. plumbers, personal assistant, photographer.

High care jobs
Personal and emotionally engaged, from looking after young people to taking care of the household, e.g. childcare worker, fitness instructor.

The messages are many – "hundreds of jobs to go", "automation making workers redundant", "most of 2030s jobs aren't even thought of yet". It is the impact of the mix of global megatrends trends and the outcomes of the interactions between them[xix,xx,xxi], which makes this round of changes in the world of work different from the other rounds. Work by the RAI and NBN in 2016[xxii] identified three key points needed for success in future job markets:

- The in-demand jobs will be mixing high tech, personal contact ('touch') and care activities;
- Today's seven year olds will need a mix of both technical and soft personal skills for success in the 2030 job market; and
- Future jobs will be flexible, entrepreneurial and dynamic.

SOME JOBS WILL GROW AND OTHERS FADE AWAY

Fading jobs will be those replaced by automation. So far these have been low skill labour intensive jobs, but technological change will mean that many medium and some high skill jobs and tasks will be systematised and automated. New jobs are being created around technical specialisations while high demand jobs are focused around high touch, education and care occupations and activities.

NEW SKILLS ARE NEEDED FOR THE FUTURE JOB MARKET

A more digital world means that future jobs will need more high technology digital skills, as well as entrepreneurial training to make the most of opportunities. In addition to these technical skills, jobs of the future will require soft skills in communication, collaboration, creativity and problem solving.

JOBS ARE CHANGING

As our society changes, so do the nature of our working lives. Today's worker is older, more likely to be female, globally mobile and digitally connected than ever before. In this context, more people will be running their own businesses, more people will be contracting independently, working part time and working later in life. Flexibility will be a hallmark of work in the future.

POTENTIAL FOR REGIONAL JOB GROWTH

This new context raises new areas of potential for regional job growth. Growing digitisation means that new jobs do not have to be housed in big city office blocks, they can occur where people want to live and work. This flexibility of location means future jobs can be anywhere — but is regional Australia ready to house a new wave of future jobs?

Health care professionals, carers and aides, and business, human resources and marketing professionals are projected to see some of the largest employment gains in Australia in the short term — through to 2021.[xxiii] Each of these jobs involves complex situations and requires creative problem solving skills. They also require high levels of contact with clients. These new areas of job growth require a policy focus on ensuring our region's young people are ready and equipped with the right skills, knowledge and aspiration to successfully engage in and drive forth these growth areas in their local communities.

The high demand jobs of the future are all about occupations that 'connect'. NBN's *Super Connected Jobs* research[xxiv] found that the highest demand future jobs share a high level of personal interaction: creatives, doers and technocrats, care givers and high skilled specialist professions (Figure 10). These jobs are shaped by our changing needs as consumers. But there are other jobs emerging being shaped by technology — the jobs that don't exist yet. New jobs may well include robot polishers, but are more likely to focus on attributes of specialised digital skills development such as big data analytics, complex decision support and remote controlled vehicle operators. Specialised personal experiences such as customer experience experts, personalised preventative health helpers, and online chaperones may also emerge.[xxv]

The task ahead is to ensure community awareness of the jobs that will be needed in the future, the skills that they require and the particular needs and aims of Australia's diverse regional communities.
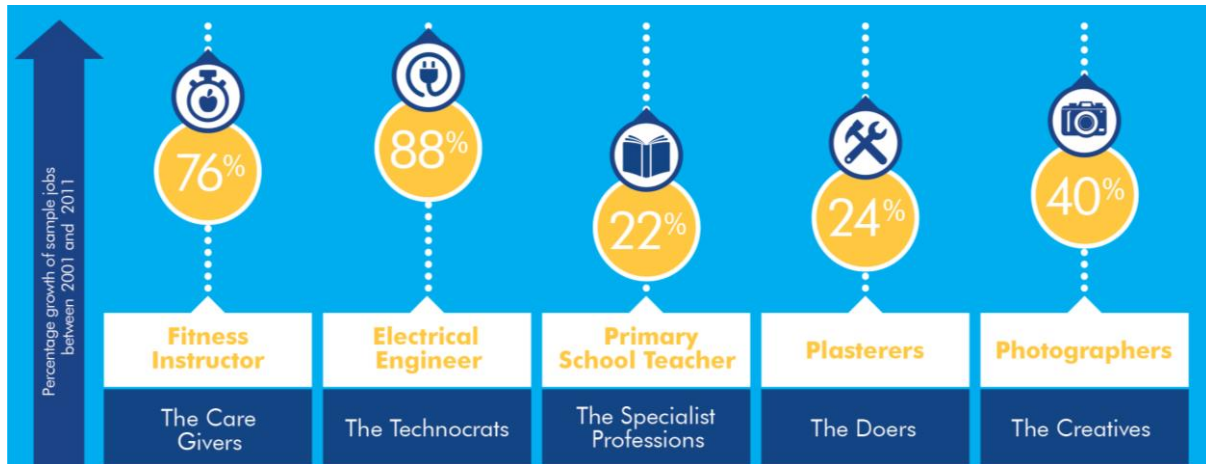
Figure 10: Example occupations that have experienced high growth
Source: Super Connected Jobs 2015 (NBN)

EMPLOYMENT PROJECTIONS TO 2023

Australia's biggest cities have often been generalised to be the places where job opportunities and growth are concentrated. Certainly the large share of population that they hold means they host the largest number of jobs and vacancies. But while job projections show that overall job growth will be the largest in the metropolitan areas like Sydney and Melbourne, employment in regional Australia is expected to grow as well.

Data from the Department of Jobs and Small Business shows that by May 2023, job numbers for Australia are projected to reach 13,450,149. This would be an increase of 886,129 jobs over 2018. Of these jobs, 26 percent (229,152) are expected to be regional areas. Broadly, these job growth numbers are in line with current and projected populations for these places. Currently regional areas are home to around 35 percent of Australia's population and these areas are expected to grow at rates lower than metropolitan areas. Regional areas which have larger populations now also tend to have higher projected job growth numbers.

The SA4 regions that the projections cover are shown in the map below. They are quite large and generally combine some large regional towns and cities along with more rural areas as illustrated in the map. In terms of the rate of job growth, the top 10 areas are mostly in metropolitan areas, with the exception of the Gold Coast (around 2.1% annually). The average annual job growth rate for regional areas is approximately 1.1 percent.
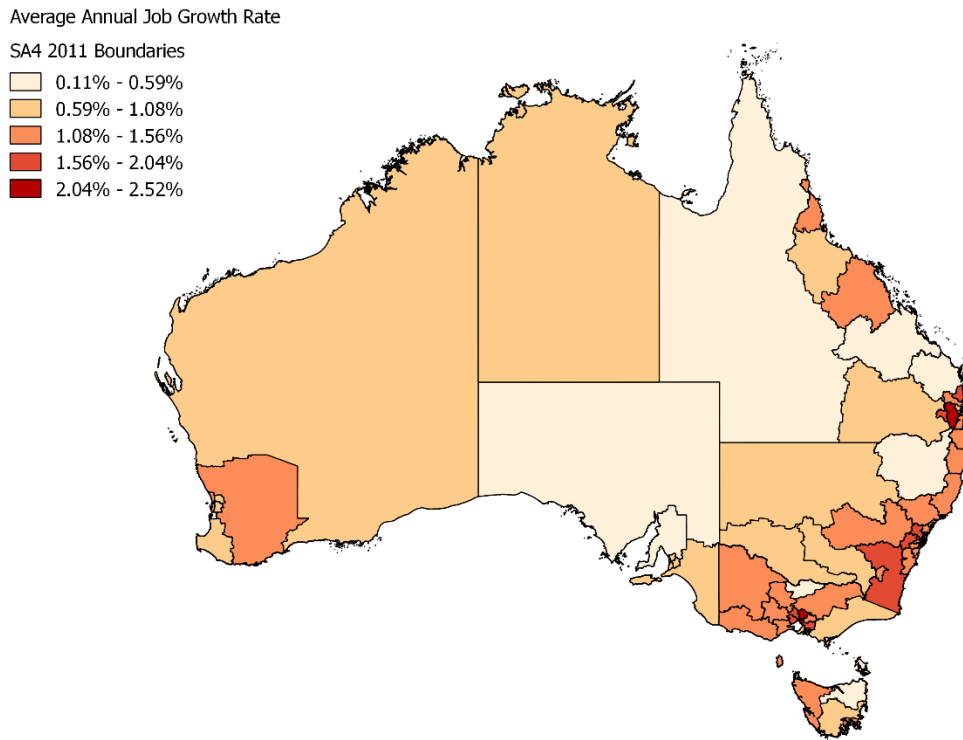
Figure 11: Annual job growth projected 2018-2023

In outright numbers terms, our regions with the greatest projected increase in jobs are:

Gold Coast	36,094
Sunshine Coast	15,976
Newcastle and Lake Macquarie	13,607
Capital Region (NSW)	8,399
Geelong	7,865
Richmond - Tweed	7,727
Hunter Valley exc Newcastle	7,460
Illawarra	7,361
Cairns	6,570
Mackay	6,450

On the whole, all regions are expected to have some increases in job numbers, though Queensland – Outback, which is the second smallest SA4 with a population of 79,702, is projected to have the smallest increase of approximately 186 jobs.

In most of these top regions, job numbers are expected to be driven mainly by the health care and social assistance industry, which will contribute a total of 85,894 regional jobs. Newcastle and Lake Macquarie is projected to have the most growth in health care and social assistance jobs in regional Australia. It is expected to grow by 13,607 jobs by 2023, driven largely by around 6,584 health care and social assistance industry jobs.

In outright numbers terms, our regions with the greatest increase in health care and social assistance jobs are

Newcastle and Lake Macquarie	6,584
Sunshine Coast	5,853
Gold Coast	5,802
Capital Region (NSW)	4,997
New South Wales - Central West	4,594

Of these top five regions, four of them are within the top 10 regions where overall job growth is expected to be. New South Wales - Central West's growth is also driven by health care and social assistance and just falls outside of the top 10 regions for overall job growth. Other regions in the top 10 such as the Hunter Valley exc Newcastle and Mackay also have high job growth projections, but is driven mainly by construction and mining respectively.

While significantly lower than the numbers for the health care and social assistance industry, education and training is the second largest industry projected to grow, projected to increase by 28,019 jobs in regional areas. The Gold Coast is expected to lead with the greatest projected increase of 5,186 jobs, followed by the Sunshine Coast (3,021) and Newcastle and Lake Macquarie (1,994).

The construction industry is likely to grow by around similar numbers (28,956 jobs) due to the increasing infrastructure demands in these regional areas to support population and other industries' growth. In outright numbers terms, our regions with the greatest increase in construction jobs are:

Gold Coast	5,692
Sunshine Coast	3,888
Geelong	2,468
Hunter Valley exc Newcastle	2,025
Richmond - Tweed	1,559

On the other hand, regional wholesale trade numbers are expected to decrease by the largest amount (2,998 jobs). This is followed by agriculture, forestry and fishing industry. Despite the overall decrease in number of jobs in these industries, regional areas like Newcastle and Lake Macquarie, Richmond – Tweed, Ballarat, Logan-Beaudesert, Townsville, Toowoomba, and Greater Hobart are among the top 15 regions for projected employment *growth* in the wholesale trade industry. These areas are projected to have around 100-200 new wholesale trade jobs. Similarly, agriculture, forestry and fishing industry are also expected to grow in some regional areas, with the greatest growth in Warrnambool and South West (2,328 jobs), Mackay (1,504 jobs) and WA Wheat Belt (1,331 jobs).

Agribusiness is one of four industries examined in more detail in companion research undertaken by the RAI into regional growth prospects in the agrifood processing, advanced manufacturing, tourism and creative industries. This work identifies specific regions which specialise in each growth industry and are therefore where industry growth is most important for local job creation. It also points to shifts in regional employment across the four industries. For example in food and agribusiness, jobs in the processing sub-industry have shifted towards metropolitan and surrounding areas, rather than the place

where the products are grown and the number of *processing* jobs has overtaken the number of *production* jobs nationally. In tourism, popular or well-known sites are not necessarily those which will benefit most from industry growth. Advanced manufacturing and creative industries are more strongly represented in metropolitan areas, however there are a number of tight concentrations of jobs in these industries in regional Australia.

IMPLICATIONS

The vacancy trends and future job projections show that there are jobs in our regions, across a range of industries that have a need for a mix of high skill and low skill workers. While regions may not experience a similar scale of jobs growth to metro areas, the health care and social assistance industry is expected to be the major contributor in most regional areas. Meeting the job demand in regions with suitable skilled workers will be fundamental to the ability of regions to take on these job growth opportunities.

Given rapid growth in demand for similar types of workers in different regions, it is very likely that there will be intense competition for similar sorts of skills over the next five years. Especially with vacancy rates increasing sharply already in some regions, just to meet current demand for skilled labour. And there is the additional consideration of replacement for people who leave these industries – either to work somewhere else or through retirement.

The projected net increases of over 80,000 health and social assistance workers and over 28,000 education workers in the next five years will be a significant challenge for regions to meet. The net additional new jobs will be filled through a mix of relocations by Australian workers, new migrants and training and re-entry of workers new to the in-demand industries. The challenge for regional leaders and policy makers is to ensure that regional residents get a reasonable chance at these new jobs. And that regions themselves build and retain the attractiveness (in work, services and amenity) to support the flows of new workers (and their families) needed.

A COORDINATED APPROACH TO REGIONAL JOBS:
VICTORIA'S LOCAL LEARNING AND EMPLOYMENT NETWORKS (LLENS)

Ensuring that young people not only aspire to careers that align with projected regional jobs growth but that they are ready and prepared to participate requires a coordinated effort. The Victorian Local Learning and Employment Networks (LLENs) bring together students, teachers, employers, training providers and support workers for locally-led initiatives that are designed to connect people to training and employment opportunities in their region.

The LLENs were initiated in 2001 by the Victorian Department of Education and Training following a recommendation from the Ministerial Review of Post Compulsory Education and Training Pathways in Victoria chaired by Peter Kirby. The LLENs have two primary objectives:

1. To engage in community building through cooperative approaches to community renewal and by coordinating service delivery

2. To support and build shared responsibility and ownership for post-compulsory education and training for 15 – 19 year olds.

The aim is to achieve employment and education outcomes for young people within their geographic boundaries.

LLENs serve as facilitators, brokering partnerships with key stakeholders in their local communities. These stakeholders include education and training providers, businesses, community agencies, and parent and family organisations. These are the key participants in Regional Learning Systems, and the experiences of LLENs provide useful insight into the range and effectiveness of local and regional priorities in improving these systems.

LLENs provide strategic guidance for their partners and their initiatives, as well as developing their own targeted activities to address the needs of young people in their communities. Thirty-one LLENs operate across Victoria in both metropolitan and regional and rural areas. They are particularly relevant in regional Victoria as the intention of the LLEN program is to address employment and education pathways within the specific context of the local community through acting as a facilitator to coordinate appropriate networks and partnerships.

There are four general kinds of activities of LLENs:

1. *Networks and community groups.* LLENs act as a facilitator or 'broker' and provide crucial administrative support to various networks and organisations involving schools, teachers, parents and other invested community groups.

2. *Capacity building for teachers, careers professionals and others.* LLEN activities focus on training and capacity-building for teachers and careers professionals so they can better serve young people in their community.

3. *Professional development of young people.* Activities are designed to directly impact on a young person's ability to enter the workforce. Examples include targeted work-experience programs and work-readiness programs which focus on skills such as performing well at job interviews and writing an effective resume.

4. *Personal development of young people.* Activities promote life skills, confidence and other traits that may indirectly contribute to or enable success in the workforce. Examples include mentorship from community members and opportunities to meet potential role models.

All LLENs share a number of common programs that have positive and tangible outcomes. Some LLENs in regional communities elect to then adapt these programs to better suit the needs of their local communities and thus produce greater impact. For example, the Campaspe Cohuna LLEN teamed up with local health providers and organised a number of events that introduced young people to the broad range of health services in the Campaspe region. Students visited a local hospital and spoke with hospital personnel about the range of jobs available in the health sector including hospital-based roles and community-based services, such as social work, pathology, paramedics and speech pathology.

The LLENs take an innovative, localised approach to engaging young people and connecting them with potential employers and education opportunities. The Inspiring Young People program provided by the South Gippsland Bass Coast and Baw Baw LLENs has had a particular focus on providing examples of how people have overcome adversity. The successful MATES Mentoring program in the Wimmera is another example of how mentoring programs can be effective within regional communities by providing aspirational career role models and connecting the young person with an achievable career goal.

There is diversity among Victoria's LLENs in terms of funding, programs offered and tangible outputs. However, overall reviews of the program have indicated that they have been successful in improving training in the regions as well as providing an 'ear-to-the-ground'. LLENs illustrate the importance of being local in approaches to innovations in regional skills and employment. These networks are place-based and they display the strengths and possibilities of such engagement. At the core of the LLENs work is a regional learning systems approach. The LLENs are responding to the specific conditions within their community and labour markets, joining up the participants using innovation, partnerships and mentorship.

AUTOMATION VULNERABILITY

The last section of this research into the future of regional jobs continues the 'over the horizon' theme to model vulnerability to automation across regional Australia.

The RAI has calculated a job vulnerability index to determine the proportion of jobs susceptible to automation in each LGA across Australia. The RAI index builds on Frey and Obsorne's 2013 article, *The future of employment: How susceptible are jobs to computerisation as a basis*[xxvi], and automation scores from Edmonds and Bradley's 2015 report, *Mechanical boon: will automation advance Australia?*.[xxvii]
This index has been applied to data from the 2016 Census to determine the percentage of people with jobs of low, moderate and high vulnerability in each Australian LGA. The number of people is counted by Place of Work according to the Australia New Zealand Standard Classification of Occupations (ANZSCO) 3 digit level divided by total known jobs[xxviii] in each LGA.

For 2016, most LGAs have around 20-30 percent of jobs that are considered highly vulnerable to automation. As Figure 12 shows, areas with a larger proportion of jobs highly vulnerable to automation are concentrated around major capital cities and along the coastline. This is indicative of where economic development has been taking place.

Legend

High vulnerability jobs (QGIS file)_2016

LGA_2016_AUST

- ☐ 0.0% - 10.0%
- ☐ 10.0% - 20.0%
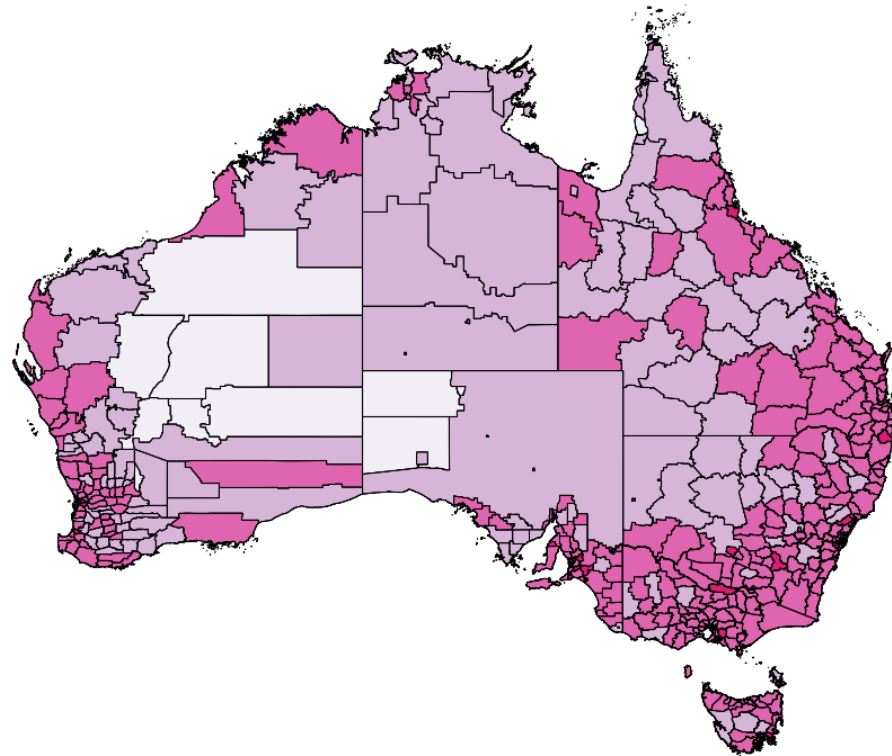- ☐ 20.0% - 30.0%
- ☐ 30.0% - 40.0%
- ☐ 40.0% - 65.5%
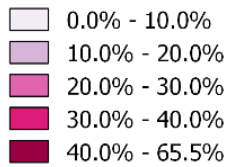
Figure 12: Proportion of high vulnerability jobs in all Local Government Areas across Australia, 2016

The different regional types have different characteristics, hence they also have different capacities to cope with future changes in jobs. The proportion of jobs vulnerable to automation by regional type are shown in Figure 13.
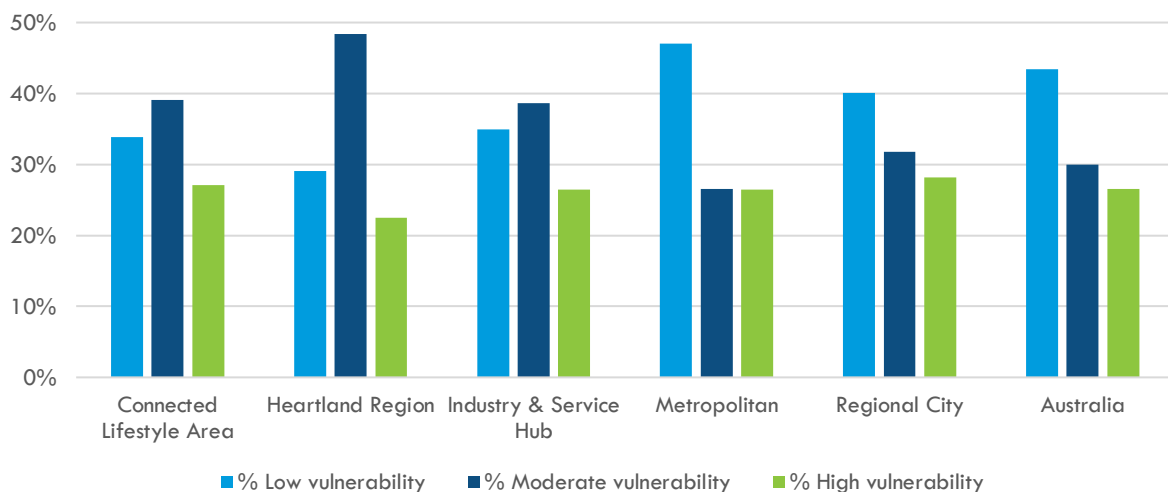

Figure 13: Proportion of jobs vulnerable to automation by regional type and vulnerability classification, 2016

Overall, Regional Cities have the greatest proportion of jobs that are considered highly vulnerable to automation (28.1%), which is more than the Australian average[xxix] (26.5%). Regional Cities have diverse economies and often provide support services to metropolitan areas. As such, there is a large proportion of people working in clerical and administrative jobs, technical and trade jobs, as well as jobs in factory processing, all of which are highly susceptible to automation. Fortunately, Regional Cities on average have one of the highest innovation index scores in measures like new business start-ups and presence of Knowledge Intensive Business Services (KIBS)[xxx], according to the RAI's [In]Sight tool.[xxxi] The strong performance on these innovation measures is important as new job markets will require innovative and entrepreneurial skills. As such, while Regional Cities have a large proportion of jobs highly vulnerable to automation, they are also positioned to be able to adapt to the changing nature of work and create new job opportunities.

Metropolitan Areas and Industry and Service Hubs have around the same proportion of jobs that are considered highly vulnerable to automation (26.5%). Metropolitan Areas also have more jobs that are of low vulnerability (47%) than any other regional type. This is due to the fact that Metropolitan Areas often have the highest concentration of professionals (e.g. medical, legal, and education), managers, and community and personal service workers (e.g. childcare or health and welfare support). These three occupation groups are some of the least susceptible to automation as they require specific skills expected to be in demand in the future – high tech, high touch, and high care. At the same time, Metropolitan Areas have the least moderately vulnerable jobs compared with the other regional types (around 26.5%). This further emphasises the relatively low overall vulnerability of Metropolitan Areas to the impacts of automation.

Another protective factor for Metropolitan Areas is that technological readiness and connectivity will be increasingly important for accessing the future job market. Metropolitan Areas are often the best connected, whereas more remote areas have comparatively lower access and use of technology. Therefore, while some remote areas may have a relatively small proportion of jobs that are highly vulnerable to automation, they may have relatively limited connectivity. As such, remote areas may also be less ready to take on future jobs than non-remote areas.

Heartland Regions have around twice the proportion of jobs with moderate vulnerability (48.4%) compared with Metropolitan Areas. This is also significantly greater than the Australian average (30%). Although the proportion of Heartland Region jobs considered highly vulnerable to automation is comparatively small (22.5%), Heartland Regions may still be negatively impacted by the general technological disruption facing Australia's workforce because they often do not have the same level of infrastructure and technological readiness (mobile and internet coverage) as other regional types. Consequently, Heartland Regions may not see the same level of growth in digital jobs or be able to react as quickly to changes in the nature of work as other regions.

Importantly, as the list of top 10 LGAs with the greatest proportion of highly vulnerable jobs shows (see table below), vulnerability to automation is about the occupation mix in a given LGA; it is not universal to a particular regional type. Moreover, vulnerability to automation is by no means a total 'doom and gloom' scenario. Even the LGAs with the greatest proportions of highly vulnerable jobs have a greater

proportion of 'low vulnerability' jobs than they do 'high vulnerability jobs', the exceptions being Sorrell (TAS) and Griffith (NSW). The LGA with the greatest proportion of highly vulnerable jobs is Mount Gambier, which is an Industry and Service Hub that has a diverse economy but a large number of clerical and administrative workers (i.e. people jobs susceptible to automation). Two of the top 10 LGAs in terms of high vulnerability jobs are Metropolitan Areas: Tea Tree Gully and Moonee Valley. In both of these LGAs, the largest employer is retail trade, with many people working as sales assistants and salespersons, both jobs that are highly susceptible to automation.

Top 10 LGAs with the greatest proportion of high vulnerability jobs, 2016

LGA Name_2016	Regional Type	% Low vulnerability	% Moderate vulnerability	% High vulnerability
Mount Gambier (C)	Industry & Service Hub	34.6%	31.8%	**33.5%**
Gawler (T)	Connected Lifestyle Area	38.7%	28.4%	**32.8%**
Sorell (M)	Connected Lifestyle Area	30.8%	37.1%	**32.1%**
Griffith (C)	Industry & Service Hub	30.8%	37.1%	**32.0%**
Warrnambool (C)	Industry & Service Hub	39.5%	28.5%	**31.9%**
Albury (C)	Regional City	39.3%	28.8%	**31.8%**
Victor Harbor (C)	Connected Lifestyle Area	36.3%	31.9%	**31.8%**
Shellharbour (C)	Regional City	38.1%	30.2%	**31.7%**
Tea Tree Gully (C)	Metropolitan	38.9%	29.4%	**31.7%**
Moonee Valley (C)	Metropolitan	42.4%	25.9%	**31.6%**

LGAs with the greatest proportion of low vulnerability jobs are predominantly Metropolitan Areas, which is expected given this is where more specialised and highly skilled jobs that are difficult to automate are located. The highest performing LGA is North Sydney which, apart from having a large number of people working in low vulnerability jobs, also performs well in terms of the number of trademark applications it produces. North Sydney also has a strong presence of KIBS, which require specific and professional knowledge to provide knowledge-intensive support to other organisations' business processes, and often contributes to innovation. Overall, this suggests North Sydney has an innovative and skilled workforce able to cope with future changes to the nature of work.

Top 10 LGAs with the greatest proportion of low vulnerability jobs, 2016

LGA Name_2016	Regional Type	% Low vulnerability	% Moderate vulnerability	% High vulnerability
North Sydney (A)	Metropolitan	**65.7**%	14.3%	19.9%
Nedlands (C)	Metropolitan	**61.2**%	20.9%	17.9%
Subiaco (C)	Metropolitan	**60.3**%	16.8%	22.8%
Sydney (C)	Metropolitan	**59.3**%	15.1%	25.6%
Ryde (C)	Metropolitan	**58.6**%	19.9%	21.4%
Canberra	Metropolitan	**58.3**%	17.5%	24.2%
Melbourne (C)	Metropolitan	**58.2**%	16.1%	25.6%
Lane Cove (A)	Metropolitan	**57.6**%	22.0%	20.3%
Yarra (C)	Metropolitan	**57.3**%	20.5%	22.2%
Port Phillip (C)	Metropolitan	**57.0**%	20.3%	22.7%

IMPLICATIONS

Because of the existing occupation makeup and technological readiness and connectivity of Metropolitan Areas, they seem less likely to be impacted by the increasing automation of work than other regional types. Although Regional Cities have the highest proportion of jobs vulnerable to automation, Connected Lifestyle Regions and Industry and Service Hubs are also quite vulnerable. Industry and Service Hubs in particular may not have similar levels of technological readiness or innovation levels compared to Metropolitan Areas. As such, they may not be well positioned to adapt to future work changes. However, ongoing workforce development will be crucial for ensuring all regions (metropolitan or otherwise) are able to address both the technical and soft skill needs of future jobs.

CONCLUSION

The Future of Regional Jobs theme of the RAI's 2018 Intergovernmental Shared Inquiry Program sought to provide a foundation for ongoing research into the regional implications of the anticipated opportunities and challenges of the future of work. It aims to show what is needed to facilitate shifts in the local skills base to enable local workers to benefit from the jobs to come in the industries projected to grow.

The extent of variation in regional human capital and labour market performance has shown that a critical ingredient in the impacts of labour market changes on regions has been community-led efforts to influence and improve local and regional labour market systems. Regional Learning Systems work within the state and national systems which are slow to change. The extent of variation in local and regional job outcomes shows that locally-led efforts can and do make significant differences, even within the constraints of slow-changing state and national systems.

In this work we have explored the variations in human capital across regional Australia, and highlight the divergences in current and future employment needs in regions. We have shown that there is an emerging skills crisis in many regions – not just mining regions – and that many regions will be competing for the same kinds of people with a similar mix of skills across low to high skill levels. In this increasingly competitive environment, regions will have to demonstrate high levels of attractiveness to secure the people they need to do the work required – meaning a blending of the strength of the regional learning system with regional socio-economic vitality.

Further work currently in development for 2019 will take this analysis further. The next round of research will look in more detail at the examples emerging around Australia of places that have taken action themselves to improve the way the employment, education and training sub-systems work to understand what works in which circumstances. Work in 2019 will also see a particular focus on the healthcare and social assistance industry as the driver of the largest number of projected new jobs through to 2023 in almost all regions. This crucial industry impacts on worker performance as well as underpinning regional liveability, and is an unusual mix of public and private sector employment, with both low skilled and high skilled workforce components.

The future of work in regional Australia is a multifaceted challenge, but one within which systemic responses at the state and national level can lead to significant improvements when well designed and targeted. Beneath the need for systemic responses, examples from communities around Australia show the scale of impact that well-structured local initiatives can have in helping regional residents get the most from the opportunities that the future labour market will present.

END NOTES

i Frey, C.B. and Osborne, M.A. (2013). *The future of employment: How susceptible are jobs to computerisation?*. Available at http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

ii Durrant-Whyte, H., McCalman, L., O'Callaghan, S., Reid, A. and Steinberg, D. (2015). The impact of computerisation and automation on future employment. In *Australia's future workforce?*, Melbourne: Committee for Economic Development of Australia, pp. 56-64.

iii PwC Australia (2015). *A Smart move: Future-proofing Australia's workforce by growing skills in science, technology, engineering and maths*. Available at: https://www.pwc.com.au/pdf/a-smart-move-pwc-stem-report-april-2015.pdf.

iv Buchanan, J., Scott, L., Yu, S., Schutz, H. and Jakubauskas, M. (2010). *Skills demand and utilization*, OECD Local Economic and Employment Development (LEED) Working Papers, OECD Publishing.

v Universities Australia (2017). *Student Finance Survey*. Available at: https://www.universitiesaustralia.edu.au/Media-and-Events/submissions-and-reports/Students-Finances-Survey-2017.

vi Holmes, L. (2017). Graduate employability: Future directions and debate. In *Graduate employability in context*, Springer, pp. 359-369.

vii Stasz, C. (2001). *Assessing skills for work: two perspectives*, Oxford economic papers, vol. 53, no. 3, pp. 385-405.

viii Tholen, G. (2017). *Graduate Work: Skills, Credentials, Careers, and Labour Markets*, Oxford University Press.

ix Toner, P. (2005). *Keeping Up with Technology: A Pilot Study of TAFE and The Manufacturing Sector*, ERIC.

x Evans, C., Stroud, D. and Fairbrother, P. (2013). *An International Study of Comparator Cases, Skilling the Bay Geelong – Regional Labour Market Profile*, Centre for Sustainable Organisations and Work, Melbourne.

xi Fox, T. and Gelade, S. (2008). *Reality check: matching training to the needs of regional Australia*, National Centre for Vocational Education Research.

xii Lamb, S., Maire, Q., Walstab, A., Newman, G., Doecke, E. and Davies, M. (2018). *Improving participation and success in VET for disadvantaged learners*, NCVER, Adelaide.

xiii Buchanan, J., Scott, L., Yu, S., Schutz, H. and Jakubauskas, M. (2010). *Skills demand and utilisation*, OECD Local Economic and Employment Development (LEED) Working Papers, OECD Publishing.

xiv Payne, J. and Keep, E. (2011). *One step forward, two steps back? Skills policy in England under the coalition government*, ESRC Centre on Skills, Knowledge and Organisational Performance, Oxford.

xv Fairbrother, P., Snell, D., Bamberry, L., Vega, DC., Homsey, C., Toome, E., Cairns, G., Stroud, D., Evans, C. and Gekara, V. (2013). *Skilling the Bay-Geelong regional labour market profile, final report*, Centre for Sustainable Organisations and Work, Melbourne, pp. 43.

xvi Barossa Herald (2014). *Grape theory quashed*. Available at https://www.barossaherald.com.au/story/2356402/grape-theory-squashed/

xvii Barossa Herald (2014). *Grape theory quashed*. Available at https://www.barossaherald.com.au/story/2356402/grape-theory-squashed/

xviii Regional Universities Network (2018). *Jobs and productivity effects of the Regional Universities Network*, Nous Group, Canberra. Available at http://www.run.edu.au/resources/RUN%20Jobs%20and%20productivity%20report%20final.pdf

xix CSIRO (2012). *Our future world: global megatrends that will change the way we live*, 2012 revision. Available at http://www.csiro.au/en/Do-business/Futures/Reports/Our-Future-World

xx Watson, R. (2010). *What's next?*. Available at http://nowandnext.com/

xxi PwC (2015), *Global Megatrends: Demographic and social change*. Available at http://www.pwc.com/gx/en/issues/megatrends.html

xxii Regional Australia Institute (2016). *The Future of Work: Setting kids up for success*. Available at http://www.regionalaustralia.org.au/home/wp-content/uploads/2016/11/The-Future-of-Work_report.pdf

xxiii Department of Employment (2015). *Australian Jobs 2016*. Available at
https://docs.employment.gov.au/documents/australian-jobs-2015-publication
xxiv NBN Co (2015). *Super Connected Jobs: Understanding Australia's Future Workforce*. Available at
www.nbnco.com.au/content/dam/nbnco2/documents/super-connected-jobs-report.pdf
xxv CSIRO (2016). *Tomorrow's Digitally Enabled Workforce*. Available at
http://www.csiro.au/en/Research/D61/Areas/Data-for-decisions/Strategic-Foresight/Tomorrows-
Digitally-Enabled-Workforce
xxvi Frey, C.B. and Osborne, M.A. (2013). *The future of employment: How susceptible are jobs to
computerisation?*. Available at
http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf
xxvii Edmonds, D. and Bradley, T. (2015). *Mechanical boon: will automation advance Australia?*,
Department of Industry, Innovation and Science, Canberra.
xxviii Total known jobs excludes 'inadequately described', 'not stated' and 'not applicable' categories.
xxix The Australia average was calculated based on the sum of LGAs excluding 'no usual address' and
'migratory offshore'.
xxx KIBS are services and business operations heavily reliant on professional knowledge, such as finance,
law, engineering and science.
xxxi Regional Australia Institute. *[In]Sight Australia's Regional Competitiveness Index*. Available at
http://www.regionalaustralia.org.au/home/tools-and-products/insight/

Appendix 1: Top 20 LGAs with consistent increases in percentage of school completers

LGA_CODE_2016	LGA_NAME_2016_other	Regional Type	06-11	11-16	Total change (06-16)
36150	Quilpie (S)	Heartland Region	22.3%	19.3%	**41.6%**
79399	Unincorporated NT	Heartland Region	27.7%	5.7%	**33.4%**
44830	Mount Remarkable (DC)	Heartland Region	17.9%	9.7%	**27.6%**
48750	Yankalilla (DC)	Connected Lifestyle Area	12.1%	12.7%	**24.7%**
52730	Denmark (S)	Heartland Region	13.0%	10.4%	**23.5%**
35670	Napranum (S)	Heartland Region	13.9%	8.0%	**21.9%**
54060	Irwin (S)	Heartland Region	12.7%	7.1%	**19.7%**
40520	Berri and Barmera (DC)	Heartland Region	4.3%	15.0%	**19.3%**
61810	Dorset (M)	Heartland Region	8.0%	11.1%	**19.1%**
53570	Gingin (S)	Connected Lifestyle Area	4.4%	14.4%	**18.8%**
15800	Narrandera (A)	Heartland Region	7.9%	9.9%	**17.8%**
46450	Port Pirie City and Dists (M)	Industry & Service Hub	4.8%	13.0%	**17.8%**
44620	Mount Gambier (C)	Industry & Service Hub	6.2%	11.5%	**17.8%**
37400	Winton (S)	Heartland Region	3.0%	14.3%	**17.3%**
41010	Ceduna (DC)	Heartland Region	6.0%	10.9%	**16.9%**
43650	Light (RegC)	Connected Lifestyle Area	8.9%	7.9%	**16.8%**
74050	Tiwi Islands (R)	Heartland Region	8.4%	8.4%	**16.8%**
30410	Barcaldine (R)	Heartland Region	15.4%	1.3%	**16.7%**
45040	Murray Bridge (RC)	Connected Lifestyle Area	6.5%	9.6%	**16.1%**
50280	Augusta-Margaret River (S)	Heartland Region	4.5%	11.5%	**16.0%**

Appendix 2: Regional Australia top higher education performers in 2016

Regional Australia Top Performers in 2016

LGA Name	% University Qualification 20-24	LGA Name	% University Qualification 25-29
Hobart (C)	22.55%	Hobart (C)	52.46%
Wollongong (C)	15.47%	Newcastle (C)	35.87%
Meekatharra* (S)	15.09%	Wollongong (C)	34.61%
Longreach* (R)	14.80%	Surf Coast (S)	34.23%
Darwin (C)	14.72%	Kiama (A)	32.85%
Gold Coast (C)	14.49%	Darwin (C)	32.50%
Greater Geelong (C)	13.50%	Kingborough (M)	31.72%
Newcastle (C)	13.24%	Armidale Regional (A)	31.34%
Queenscliffe* (B)	13.24%	Greater Geelong (C)	29.91%
Kiama (A)	13.21%	West Wimmera* (S)	28.24%

* small number, under 50 with university qualifications.

Appendix 3: Foundations of Regional Australia

FOUNDATIONS OF REGIONAL AUSTRALIA

REGIONAL CITIES

population of over **50,000** persons

diverse economies

size & diversity create future opportunities

CONNECTED LIFESTYLE REGIONS

do not have city population size

are close to major metropolitan regions

influenced by their connection

INDUSTRY AND SERVICE HUBS

more than **15,000** residents

located further from major metropolitan areas

performance linked to industry outcomes

HEARTLAND REGIONS

smaller regional areas

isolated from major metropolitan or Regional Cities

shaped by local ingenuity