Queensland Rural/Regional Workforce Policy Analysis

Policy Working Paper

June 2019

Hurriyet Babacan, Allan Dale & Jennifer McHugh

Rural Economies Centre of Excellence

James Cook University Australia

The Cairns Institute
Research in tropical societies

Contents

ACRONYMS

ABS	Australian Bureau of Statistics
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ANZCO	Australian and New Zealand Standard Classification of Occupations
BTRE	Bureau of Transport and Resource Economics
CEDA	Committee for Economic Development of Australia
COAG	Council of Australian Governments
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAF	Department of Agriculture and Fisheries
DAFF	Department of Agriculture, Fisheries and Forestry
DAMA	Designated Area Migration Agreement
DET	Department of Employment and Training
DESBT	Department of Employment, Small Business and Training
DPM&C	Department of Prime Minister and Cabinet
FIFO	Fly-in-fly-out
ISSR	Institute for Social Science Research
NCVER	National Centre for Vocational Education Research
NDIS	National Disability Insurance Scheme
NDS	National Disability Services
NFF	National Farmers Federation
NRAC	National Rural Advisory Council
OECD	Organisation for Economic Development and Cooperation
QPC	Queensland Productivity Commission
RDA	Regional Development Australia
RAI	Regional Australia Institute
RET	Regional Employment Trial
RJSA	Rural Jobs and Skills Alliance
RTO	Registered Training Organisation
TAFE	Technical and Further Education
QATC	Queensland Agricultural Training Colleges
RSIS	Regional Skills Investment Strategy
VET	Vocational Education and Training
WEF	World Economic Forum

LIST OF TABLES AND FIGURES

List of Tables

List of Diagrams

EXECUTIVE SUMMARY

Queensland's rural economies have undergone significant structural change and adjustment in the last three decades. A number of factors have driven these major structural shifts, including increasing and rapid exposure to global markets, poor terms of trade and fluctuations in financial markets, technological change, environmental concerns and changing consumer demands. Economies going through transition often also experience the reallocation of the key components of production such as land, labour and capital. These changes in turn alter where and how businesses are conducted. Queensland rural economies also have distinct characteristics and diverse strengths and needs. The economies of rural Queensland have a large proportion of small businesses, a lower ratio of educational qualifications, a lower ratio of professional occupations, ageing populations, a lower ratio of digital literacy and slower technology up-take. Increasingly, there is emphasis in the regions in shifting to enhanced competitiveness and productivity.

Labour and skills shortages in rural communities can strongly impinge on their competitiveness, adaptive capacity and resilience in the face of change. In 2018, employers in rural and regional Queensland had the most difficulty in the hiring of Technicians and Trades Workers (65%), Professionals (64%) and Machinery Operators and Drivers (55%). Employer surveys and vacancy data reveal that for every advertised position, employers in rural Queensland had less number of candidates, less suitable applicants and significant difficulty in recruitment compared to their metropolitan counterparts. Industries such as Agriculture, Forestry and Fishing (60%); Manufacturing (47%); Construction (48%); and Health Care and Social Assistance (48%) also had a large proportion of employers who experienced difficulty with recruiting. The agricultural sector had significant workforce shortages around harvest times but also in processing (e.g. meat industry), with rural industry peak bodies identifying significant workforce shortages across different occupational levels.

Significant workforce disruptions and change to industries are also anticipated in the near future due to new technologies, (automation and artificial intelligence), global competition for workers, ageing population, shift towards service industries and improved productivity gains. Advancements in technology in industry will be posing challenges to existing business models and practices, including workforce practices. Change is expected in the work tasks and locations to being undertaken, redefining the concept of work. New growth industries will require higher level of qualifications and skills. Given the lower ratio of educational qualifications in rural Queensland, retraining and reskilling are major considerations for future workforce scenarios.

Consultations with key stakeholders across rural Queensland identified a range of issues and concerns relating to workforce shortages, difficulties of attracting and retaining workforce in rural areas, barriers to vocational education and training, higher education and school transitions to work. Barriers to career pathways for rural industries via school, education and small employers were also identified. Problems were also noted with employer and industry recruitment processes in areas such as retention, and management of workforce. Growth of industries such as the social services sector were identified but also experienced major recruitment difficulties with appropriately qualified staff. Given the ageing demographics, alternative sources of workforce need consideration, including the retention of older workers in the workforce, women, international migrants and under-employed youth. This will need nuanced policy strategies to attract, train and retain in the workforce.

Primarily, the consultations and the literature identified the need for place based integrated approaches to workforce development. Policy processes were identified as needing to provide a facilitative environment; one that was flexible, tailored to local needs and co-ordinated across the three tiers of government and other regional bodies. What emerges from our consultation is a strong sense of policy fragmentation, duplication and a lack of coherence. There is also a lack of evidence about the localised needs of industry in each region and sector, and our evidence base was broad-based, drew on aggregated sectoral or state-wide trends.

Overall, we find that workforce issues in rural Queensland pose a complex societal problem, with significant strategic policy and program implications. Four key policy focus areas for action emerge, including regional workforce and skills shortages; workforce education and training; disruption and new workforce models for transitioning economies; and policy and program coordination. Vibrant and prosperous regional communities rely on industries that can meet their workforce needs and citizens that can find and retain employment and remain in the regions. It is argued that “that all places can grow when policymaking is attuned to spatial particularities” (Pugalis & Gray 2016:181). The challenge for policy makers is how to ensure that workforce needs are identified at the local level and that policy innovations in education and training, workforce supply and workforce planning can meet the needs of rural Queensland industries and communities.

INTRODUCTION

Australia has significant periods of consecutive economic growth, expanding by 2.8 % in 2015-16 and currently at 1.8% (RBA 2019). However, as noted by the Chief Economist, “underneath the headline indicator lie risks to the Australian economy, such as uncertain international conditions, continuing poor business investment, slow wages growth and mixed labour market conditions” (Department of Industry, Innovation and Science 2016:i). Rural economies have undergone significant structural change and adjustment in the last three decades. A number of factors have driven these major structural shifts, including government policies of deregulation, quick exposure to global markets, poor terms of trade and fluctuations in financial markets, withdrawal of industry protection and supports, technological change, environmental concerns and changing consumer demands/ perceptions (Productivity Commission 2017, Beer 2015, Wibrow & Circelli 2016, Argent and Tonts 2015). Figure 1 below demonstrates the factors that impact on structural economic change.

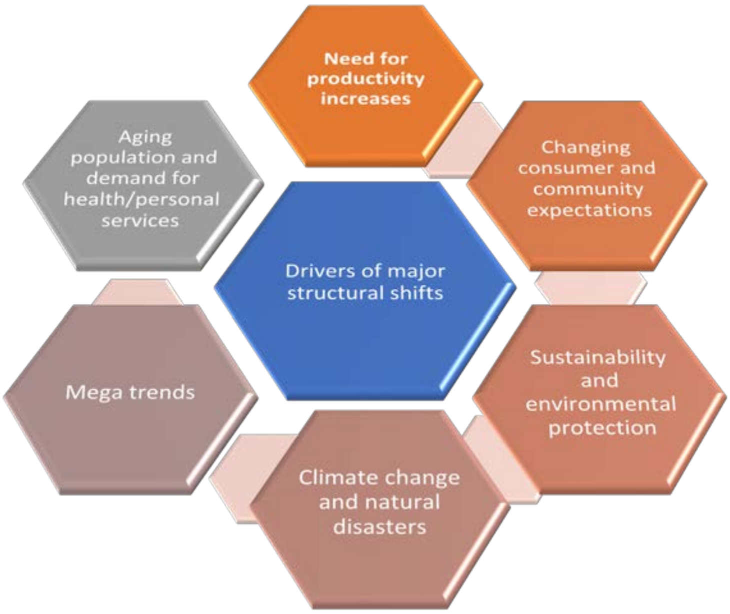


Figure 1: Factors For Structural Economic Shift
Source: Productivity Commission 2017, Beer 2015, Wibrow & Circelli 2016, Argent and Tonts 2015).

Structural adjustments in the economy often result in the reallocation of the key components of production such as land, labour and capital (Beer 2015, Productivity Commission 2013) and alter where and how businesses are conducted (Schwartz et al. 2019). A 2016 *Australian Industry Report* outlined how the workforce in industries facing structural change, need transitional adjustments to develop skills that allow them to adapt to improvements in technology, knowledge and innovation needed for the restructured industry (Australian Department of Industry, Innovation and Science 2016).

Since 2006, the rural and regional areas of Queensland have witnessed substantial structural change. As noted by Jobs Queensland, “Queensland industries, enterprises, individuals and regions are all being affected by industry transition”, with varying “speed, magnitude and severity” across different industries (Jobs Queensland 2018: 7). A study into the adaptive capacity of regions showed a strong correlation between low levels adaptive capacity and remoteness (Productivity Commission 2017). Factors that contribute to adaptive capacity is linked to education, skills, levels of income, employment, health, access to infrastructure and services, and natural resources. Alarmingly, most of rural and regional Queensland falls below average adaptive capacity, please refer to the map in Appendix 1. The resultant change has been variable in impacts on communities; the nature of labour markets and workforce needs in different rural locations in Queensland. For example, in transitioning economies, employment growth in the regions varied within the sector and in some industries such as Mining underwent boom and bust cycles. Those regions with strong Mining and services industries witnessed high employment growth while those regions predominantly based on Agricultural, Pastoral and Manufacturing industries saw a decline in employment. Between 2006 to 2016, manufacturing has decreased around 27% or around 21,500 persons and Agriculture has decreased around 5% or around 3,000 persons (ABS 2016). On the other hand, services industries such as Health

Care and Social Assistance and Accommodation and Food Services have had strong gains with 52% and 16 % respectively (ABS 2016).

Increasingly, there is emphasis in the regions in shifting to enhanced competitiveness and productivity (Australian Department of Industry, Innovation and Science 2016). State and Federal Governments have developed a range of programs to support industry competitiveness and productivity. There are a number of ways in which State and Federal governments have assisted industry and community including industry restructuring programs, enterprise assistance programs, investment attraction strategies and labour market programs (Beer 2015). Labour and skills shortages in rural communities can strongly impinge on their competitiveness, adaptive capacity and resilience. There is an emerging focus on workforce development, with particular emphasis on skills development for new industries, re-skilling workers and facilitating transferability of existing skills (Jobs Queensland 2017, Wibrow & Circelli 20160.

Australia has an ageing population profile, with Australian Government projections highlighting that approximately 23% of the population will be in the post-retirement demographic by 2050 (Australian Government 2010). Different ageing characteristics and dynamics operate at regional levels with variable impacts on rural economies based on their growth and economic development trajectories. Rural/regional Queensland has 21 % of its employed population currently over the age of 55 years of age (ABS 2016). With many young people leaving the regions for work and education opportunities and an ageing workforce profile, employers in the regions are likely to face challenging prospect of meeting workforce needs.

This paper examines workforce considerations for rural Queensland and reviews the key issues in relation to workforce needs, the alignment between industry needs and the current and future skills demand and workforce supply. The data for this paper was collected using the following methodology:

- A literature review of grey and academic literature
- A desktop review of relevant government documents (policies and strategies)
- Consultation with a range of stakeholders including government, industry and education and training providers. Approximately 27 consultations were conducted with key questions relating to workforce issues in rural Queensland. Please refer to Appendix 2 for a list of agencies consulted.

The findings from the data collection were analysed and triangulated. A wide range of data was collected across many workforce related themes. However, the overall purpose of paper is to give consideration to how policy interventions and investments can support rural skills development and workforce needs and this will form the primary focus of this working paper.

1. RURAL QUEENSLAND WORKFORCE CHARACTERISTICS

2,499,800 people were employed in Queensland in May 2019, of which 1,719,600 (69%) worked full time while 780,200 (31%) were in part time jobs (Department of Employment, Skills, and Small and Family Business 2019b). Over the last year, employment grew steadily by 1.9 % (Queensland Treasury 2019). Although the State unemployment rate was 6.2%, the workforce characteristics across rural Queensland shows considerable variability. Table 1 below provides a summary of working age, participation rates and unemployment levels (adult and youth) for Queensland regions as at May 2019:

Regional Queensland Workforce Summary Profile

Region	Working Age (15-64)	Participation Rate (%)	Unemployment Rate (%)	Youth Unemployment (%)
Cairns	157,900	63.5	4.7	9.1
Darling Downs -Maranoa	78,500	66.5	5.9	12.6
Fitzroy	151,500	69.0	5.3	13.0
Mackay	114,000	68.1	4.8	10.9
Queensland-Outback	54,600	65.9	14.5	24.1
Toowoomba	91,700	61.5	4.8	10.9
Townsville	140,100	62.1	7.1	16.8
Wide Bay	168,700	49.5	7.5	18.1
Queensland	3,288,700	65.9	6.2	12.7
Australia	16,529,300	66.0	5.2	11.9

Table 1: Regional Queensland Workforce Summary, May 2019
Source: Department of Employment, Skills, Small and Family Business

While there has been significant growth in jobs in Queensland over the last 5 years, the impacts of growth are not distributed evenly. There are disparities across regions in terms of labour force participation, unemployment and youth employment. Outback Queensland, Townsville, Wide Bay in particular demonstrate lower levels of participation, higher levels of unemployment for adults and young people than the Queensland and Australian average. The average unemployment levels across all rural Queensland (excluding Greater Brisbane, Ipswich, Gold and Sunshine Coasts) was 6.6% compared to a Queensland average of 6% in 2019 (Queensland Treasury 2019).

At a nationwide level, the number of regions located outside capital cities across Australia with an unemployment rate below 5% rose to an eight year high by March 2019. The Department of Employment, Skills and Small and Family Business profiles of the labour market at the Statistical Area Level 2 (SA2) reported that majority of SA2s, 477 of the 897, (i.e. 53%) SA2s outside capital cities had an unemployment rate less than 5%. On the other hand, more than 60% of capital city SA2s had unemployment rate of less than 5%, a 7% difference between metropolitan and regional areas, indicating higher levels of unemployment between urban and rural Australia (Department of Employment, Skills and Small and Family Business 2019a). Only 55 % of young people in very remote communities engaged in full time work, training or study, compared to 76 % in major cities (Mitchell Institute 2015).

1.1 School Completion

The benefits of educational success for personal, social and economic wellbeing both for students and for society as a whole are well-established (te Riele 2018) .The *Melbourne Declaration on Educational Goals for Young Australians* agreed to by all State Ministers of Education in December 2008, committed to overcoming educational disadvantage including disadvantage faced by students in rural and remote areas. Despite this high level commitment and numerous initiatives, the *Independent Review into Regional, Rural and Remote Education (2018)* concluded that there are key challenges for regional, rural and remote education in ensuring that every young person has access to high quality schooling and educational/training opportunities (Halsey, 2018:.6).

Over half of all state schools in Queensland are located in rural locations, with approximately one-quarter of state school students enrolled in these schools (Education Queensland 2019). The school completion rates for rural Queensland are outlined in Table 2.

Custom region / SA4 / State	Did not go to school, or Year 8 or below	Year 9 or 10 or equivalent	Year 11 or 12 or equivalent	Total[(a)]
	number %	number %	number %	number
Rural Qld region	**7.2**	**32.1**	**49.4**	**1,154,352**
Cairns	5.9	27.4	54.7	185,062
Central Queensland	6.7	32.3	49.9	166,017
Darling Downs - Maranoa	9.2	35.2	43.7	96,519
Mackay - Isaac - Whitsunday	5.9	32.4	49.1	129,434
Queensland - Outback	8.6	30.6	46.3	59,211
Toowoomba	7.1	29.6	54.1	113,933
Townsville	6.0	28.6	55.3	175,740
Wide Bay	9.1	38.6	41.3	228,436
Queensland	**5.4**	**26.5**	**58.9**	**3,643,834**

Table 2: School Completion in Rural Queensland
Source: *Qld Treasury Tool, with using ABS Census of Population and Housing 2016 data*

As can be seen from the above table, the percentage of students in Year 8 or less (or did not go school) in rural Queensland was higher than the State average, i.e. 7.2 % compared to 5.4%. The completion rates for Year 11 and 12 were significantly less with an average of 49.4% compared to a State average of 58.9%. The lack of school completion impacts into the lives of students and has flow on impacts into post school education and employment options.

Research shows a clear relationship between location and educational outcomes in Australia (Mitchell Institute 2015). The Organisation for Economic Development and Cooperation (OECD) points out the nature of educational disadvantage in Australia "children from poor households, ethnic minorities or rural areas are significantly less likely to make the transition from primary to lower secondary school and from lower to upper secondary school and are more likely to be delayed in their progression through the grade levels" (OECD: 2016:210). The Mitchell Institute identified that the proportion of very remote students who meet the requirements at each milestone (from early childhood to post school education) is between 19 and 48 percentage points lower than for the Australian population as a whole. The outcomes of Aboriginal and Torres Strait Islander students, while showing small improvements, have not 'closed the gap' between Indigenous and non-Indigenous students (see below).

1.2 Education and Training

The education and training field is a complex terrain involving public and private providers. The purpose of this section is providing a broad level snapshot of education and training issues rather than a complete review of the education system.

The future of work and the nature of disruptions to industry and workforce skills needs, has been the subject of much debate and policy concern. The Education Council of Ministers agreed, in 2019, to a review of senior secondary pathways into work, further education and training. The review will provide Ministers with advice and recommendations on how senior secondary students can better understand and be empowered to choose the most appropriate pathway to support their transition into work, further education and/or training. It will also take account of the barriers faced by some students in pursuing certain pathways, including students with disability, those in regional, rural and remote areas, and Aboriginal and Torres Strait Islander students (Education Council 2019). At the same time, the Australian Government commissioned a review of Australia's vocational education and training system. The Joyce Review considered ways to make the vocational education system more effective in providing Australians with the skills they need while examining the changing nature of industry skills needs and the ability of VET providers and flexibility of systems to be responsive.

Vocational Education and Training (VET) has been a key pillar of the education system, providing both trades and other skills. Australia (including Queensland uses) a unified, competency based system for VET and is "is best known as the sector which trains people for jobs' (Joyce 2019: 26). The VET sector provides workplace skills and knowledge-based competencies for a wide range of occupations, through a variety of training institutions and enterprises A training package is a set of nationally endorsed standards and qualifications for recognising and assessing peoples' skills in a specific industry, industry sector or enterprise. (Department of Education 2019a). In response to feedback from industry regarding the adequacy of training packages the Queensland Government has introduced a pilot for micro-credentialing in the 2019-20 State Budget. *The Micro-Credentialing Pilot* is a $5.5 mil program to support industry-led skills development designed to address emerging workforce skills requirements. The pilot will match industry skill needs with focused training for employees, and include options to develop skills, skill sets or knowledge that is required by industry, professional associations, or the community.

A total of 773,325 students participated in vocational and higher education including TAFE, private providers, community based providers and schools Queensland (NCVER 2017). The diagram below provides a breakdown of the students based on remoteness:

		State or territory Qld *Students* *2017*
Remoteness	Major cities	438 520
	Inner regional	152 545
	Outer regional	102 605
	Remote	16 720
	Very remote	13 085
	Overseas	23 405
	Not known	26 440
Total	Total	773 325

Figure 2: Regional distribution of VET Students in Queensland, 2017
Source: NCVER Data Slicer 2017

257,833 Queensland students participated in publicly funded vocational education and training in 2016-2017.

Region	2012-13	2013-14	2014-15	2015-16	2016-17
Central Queensland	24,188	21,769	21,708	23,515	21,341
Darling Downs South West	23,579	20,135	21,256	21,675	20,626
Far North Queensland	17,179	15,009	15,505	17,620	17,514
Metropolitan	64,475	61,972	64,482	66,120	62,717
North Coast	46,236	44,832	46,305	49,187	49,220
North Queensland	19,346	16,968	17,775	18,258	17,573
South East	51,481	54,078	59,884	62,916	60,423
Interstate/Unknown	8,242	12,850	10,240	10,200	9,442
Queensland	**253,778**	**246,671**	**256,302**	**268,582**	**257,833**

Table 3: Qld VET Publicly Funded VET Participation
Source: DESBT 2017

In 2016-2017 there were 37,934 apprenticeships and trainees in Queensland, provided by TAFE and other providers: 9,085 by TAFE and Government providers and 28, 849 by other providers (DESBT 2017a). Of these, 16,002 were new commencements. The regional breakdown over the last five years, based on employer address, is as presented in the following table:

A&T - Apprenticeship new commencements

Financial Year	2012-13	2013-14	2014-15	2015-16	2016-17	% Total 2016-17
Central Queensland	2,375	1,977	1,904	1,456	1,456	9%
Darling Downs South West	1,857	1,910	2,081	1,426	1,330	8%
Far North Queensland	1,025	1,132	1,235	959	904	6%
Metropolitan	4,266	4,181	5,099	4,372	4,118	26%
North Coast	2,673	2,968	3,522	3,023	3,070	19%
North Queensland	1,364	1,341	1,413	1,097	1,174	7%
South East	3,261	3,595	4,544	4,491	3,946	25%

Table 4 QLD VET apprenticeship and trainees
Source: DESBT 2017a

For the years 2016-17, over 51% of apprenticeships and trainees were from two locations, Metropolitan and South East Queensland. The largest number of apprenticeships and trainees were in Construction (33%) followed by Utilities (15%), and Automotive (14%). The diagram below presents a breakdown of apprenticeships and trainees by industry group:

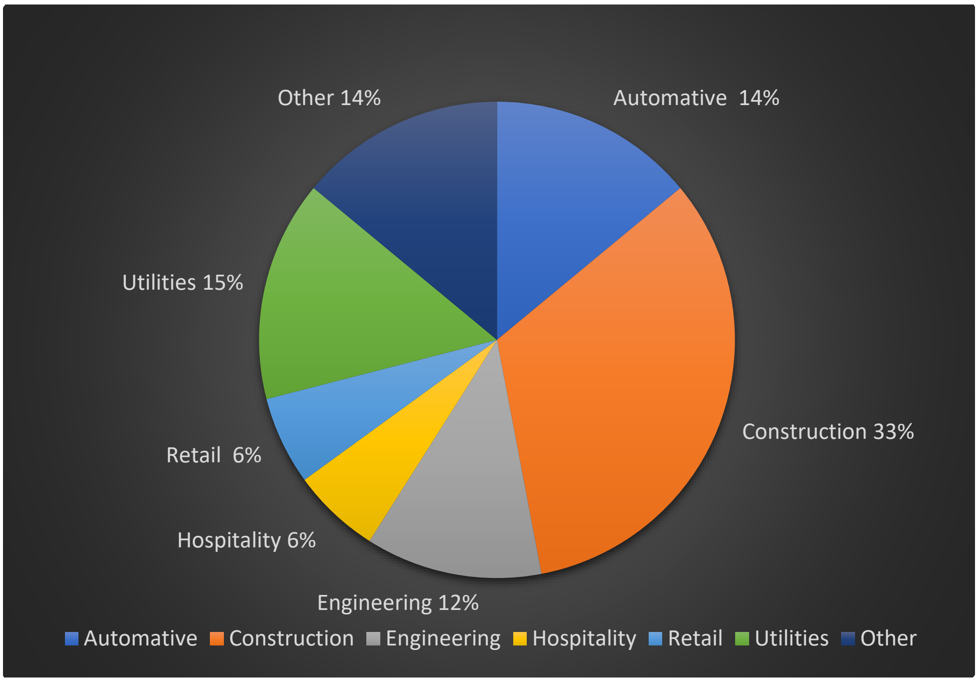


Figure 3: Apprenticeships and Trainees by Industry Group in Qld
Source: DESBT 2017a

The Queensland system of apprenticeships is demand driven. Approximately $199 million has been allocated in the 2019-2020 budget for the *User Choice – Apprentice and Trainee Training Subsidy* which provides funding of between $1,150 and $50,720 to be used towards the costs of training and assessment for eligible Queensland apprentices and trainees. (Qld Government 2019a).

The Joyce Review of Vocational Education and Training (2019:1) found that employer and community confidence in the sector was declining and that there is emerging a trend towards less students seeking VET qualifications. The issues of concern included slow qualification development, complex and confusing funding models, and ongoing quality of some providers. Careers education, VET in schools and access for disadvantaged learners were also cited as needing attention to ensure VET continues to deliver for Australians (Joyce 2019:1).

1.3 Qualifications in Rural Queensland

Rural and regional students face unique barriers and hardships in completing post school qualifications. Widening participation strategies have not significantly impacted on the university participation of students from rural areas (Universities Australia 2017). Students from rural areas are 10 % less likely to consider going to university than metropolitan students and six per % less likely to graduate from university (Cardak et al 2017: v). The higher education outcomes for rural Queensland are consistent with the national trend and an inverse relationship between spatial location and completion of higher education qualifications. For vocational education and training (VET) , the *Independent Review into Regional, Rural and Remote Education* (2018:8) found that non-metropolitan participation rates are comparable with urban rates and completion rates e.g. for Certificate III exceed rural completion rates exceeds the urban (38 % compared to 35 %), but at the diploma level the situation is reversed (10 % compared to 16 %) (Halsey 2018). Queensland rural vocational education and training completion patterns are consistent with the national trends with qualifications at Certificate level completions being at higher level than the State average in all major rural locations. Table 5 provides a summary of qualifications in rural Queensland for Bachelor or higher, advanced diploma and certificates.

Region	Bachelor degree or higher (%)	Advanced Diploma (%)	Certificates* (%)
Rural Qld region	**12.0**	**7.1**	**23.5**
Cairns	14.3	8.5	22.9
Central Queensland	11.4	6.2	24.9
Darling Downs - Maranoa	9.7	6.9	21.6
Mackay - Isaac - Whitsunday	10.3	6.5	26.4
Queensland - Outback	9.5	5.5	22.1
Toowoomba	18.1	8.0	21.8
Townsville	14.2	7.3	23.1
Wide Bay	9.0	6.8	23.6
Queensland	**18.3**	**8.7**	**21.3**

*Includes Certificate, I, II, III and IV

Table 5: Qualifications in Rural Qld

Source: Qld Treasury Tool, with using ABS Census of Population and Housing 2016 data

The data indicates a lower level of qualifications at the tertiary level with 12 % of rural Queenslanders holding Bachelors' degree or higher compared with the State average of 18.3%. The vocational education and training qualifications are higher in rural Queensland than the State average (23.5 % for rural Queensland compared to 21.3% for Queensland). Student participation and equity data for higher education indicates that in the five year period (2012-2017), remote student share has remained static at 0.8%, while regional students share has declined from – 20.9% to 20.3% at the national level, while other equity groups have seen expansion (Koshy 2018).

The participation in higher education in rural areas is impacted by a range of factors. The challenges for rural students include access to information about higher education pathways and options, financial costs (of travel and relocation to attend university), digital access problems, 'rurality' related to geography and isolation, attachment to place, aspirational differences and lack of university engagement (Gale & Parker 2015, Koshy & Seymour 2015, Zacharias 2017). Douglas et al (2018:3) recognise that circular impacts of the lack of educational options and assert that "rural people have limited social capital that can be used to craft alternative future".

1.4 Employment by Industry

Forces of globalisation, technological shifts and changing demographics have led to changes in the nature of industries in Queensland over time (Jobs Queensland 2019, Australian Industry Group 2016). The scope and impact of economic changes are never uniform across locations and have differential spatial impacts based on unique location characteristics of each area. Queensland's industries are diverse with key employment in sectors such as Mining, Agriculture, Construction, Tourism and Health and Human Services. Table 6 outlines the proportion employment by industry in Queensland regions, as a snapshot at December 2018.

Industry	*Brisbane Sth-East*	*Cairns*	*Darling Downs*	*Fitzroy*	*Gold Coast*	*Mackay*	*Somerset*	*Townsville*	*WideBay/ Sunshine Coast*
Agriculture, Forestry & Fishing	0.8	4.1	11.1	12.4	0.5	2.9	0.8	3.4	3.4
Mining	0.9	1.8	1.6	8.4	0.8	19.3	1.6	5.3	2.3
Manufacturing	8.2	5.5	8.3	6.9	6.6	5.0	6.2	7.2	5.5
Electricity, Gas, Water & Waste Services	1.2	1.7	1.5	2.2	0.8	1.4	1.3	1.0	0.9
Construction	10.0	8.9	8.9	8.9	11.0	7.3	8.5	5.2	11.5
Wholesale Trade	3.6	2.7	1.8	1.6	2.7	3.6	3.4	1.8	2.6
Retail Trade	10.4	13.0	8.7	8.4	12.0	8.3	9.1	10.3	10.9
Accommodation & Food Services	6.3	10.0	7.7	7.3	11.0	7.9	7.1	6.6	8.2
Transport, Postal & Warehousing	5.6	5.6	4.0	5.0	4.5	6.5	6.6	5.1	4.6
Information Media & Telecommunications	1.0	1.7	1.1	0.5	1.4	0.0	1.8	0.6	1.8
Financial & Insurance Services	3.4	2.1	1.8	0.4	2.9	0.6	4.1	1.5	1.4
Rental, Hiring & Real Estate Services	1.5	1.8	0.7	1.2	2.0	0.6	2.7	1.7	1.7
Professional, Scientific & Technical	7.5	4.5	4.9	2.7	6.1	4.9	10.5	2.5	5.1
Administrative & Support Services	4.1	2.7	1.5	3.0	3.8	3.0	3.8	3.0	3.0
Public Administration & Safety	8.1	6.9	5.6	5.3	4.0	4.9	7.0	8.9	6.2
Education & Training	8.1	8.2	8.4	10.9	8.7	6.4	7.4	11.4	10.6
Health Care & Social Assistance	13.3	11.2	17.2	9.2	14.4	10.0	13.9	18.4	15.1
Arts & Recreation	1.8	1.6	0.9	0.9	2.7	0.5	1.6	2.1	1,7
Other Services	4.3	6.1	4.1	4.7	4.1	6.9	2.7	4.0	3.5

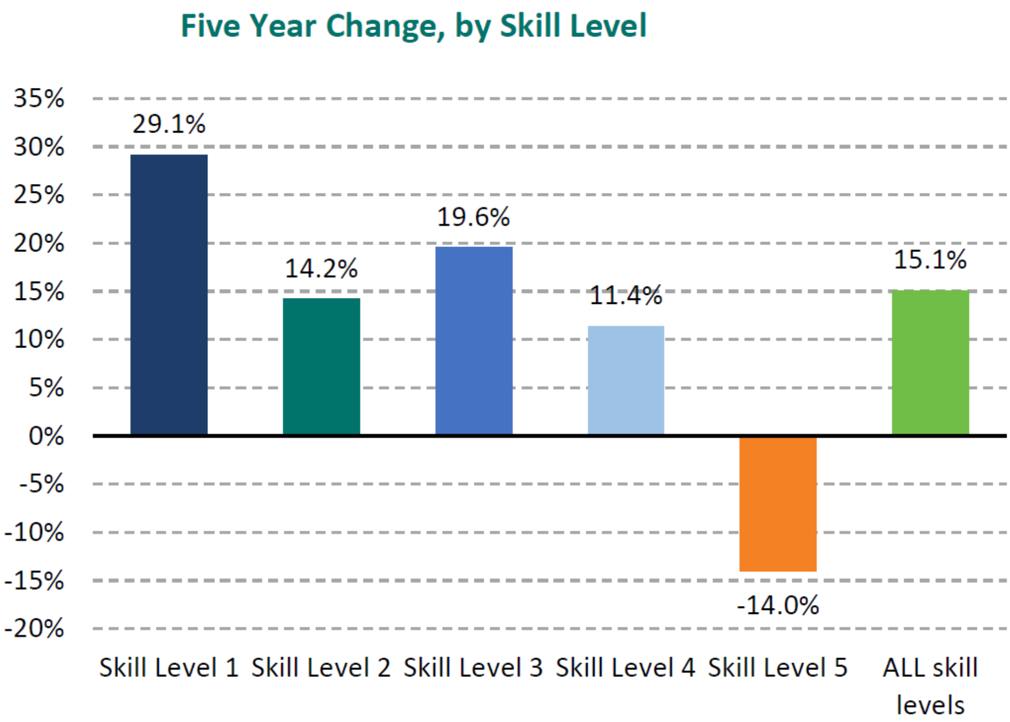
Table 6: Employment by Industry, Qld, 2018

Source: Dept of Employment, Skills, Small and Family Business, http://lmip.gov.au/default.aspx?LMIP/Downloads/ABSLabourForceRegion

The rural economies of Queensland have unique regional and social features, with foundations in historical economic and population settlements trends. Over time, these have evolved into distinctive identities, intermeshing of cultural and economic features. The employment patterns represented in Table 6 show the culmination of historical and current trends in each region.

1.5 Vacancies

In May 2019, there were 173,400 vacancies in Australia of which 31,400 were in Queensland. The following diagram indicates the five year trend in skills level.



Skill Level 1 - Bachelor degree or higher; *Skill Level 2* - Advanced Diploma or Diploma; *Skill Level 3* - Certificate IV or III; *Skill Level 4* - Certificate II or III; *Skill Level 5* - Certificate I or secondary education

Figure 4: 5 Year Trend in Skill Levels of Advertised Jobs

Source: Dept of Employment, Skills, Small and Family Business, *Vacancy Report May 2019*

Skill Level 1 accounted for 40.2% of all advertised positions in May 2019. Over the last five years it also has the strongest growth rate (29.1%) while Skills Level 5 has decreased steadily (at 14%) and in May 2019 accounted for only 10.5% of vacancies advertised (Australian Government 2019). The trend towards increased share of Skill Level 1 occupations (i.e. requiring higher level qualifications such as a bachelor degree) in employment has increased from 23 % in 1988 to 32 % in 2018 (Joyce 2019:7).

Queensland vacancies represent 18% of all vacancies (Dept of Employment, Skills, Small and Family Business 2019). Table 7 provides an outline of the distribution of vacancies across Queensland.

Region	No of Vacancies* (at May 2019)	% of Queensland Vacancies
Brisbane	18517.67	59%
Central Qld	2139.67	7%
Far North Qld	4344.67	14%
Gold Coast	3140.00	10%
Outback Qld	417.67	1.4%
Sunshine Coast	1520.00	4.8%
Toowoomba & South West	1185.00	3.8%
Queensland	31,400	18% (% of Australian vacancies)
Australia	173, 400	

*Across all occupational groups

Table 7: Queensland Vacancies at May 2019
Source: Dept of Employment, Skills, Small and Family Business
http://lmip.gov.au/default.aspx?LMIP/GainInsights/VacancyReport

Given the population distribution across the State, Brisbane region had the highest proportion of vacancies followed by Far North Queensland. There has been a 4.6% reduction in advertised positions over the last year. Some employers reported that they did not consider it worth advertising (Department of Employment, Skills, Small and Family Business 2018). The following table identifies the occupational yearly change in vacancies in Queensland in from 2018-2019.

Occupations	Yearly Change	No of jobs
Managers	-6.9	3200
Professionals	7.4	9200
Technicians and Trades Workers	-13.6	4700
Community and Personal Service Workers	5.8	3000
Clerical and Administrative Workers	-2.3	4800
Sales Workers	-9.2	2500
Machinery Operators and Drivers	-24.9	1700
Labourers	-16.6	2300

Table 8: Variance in Vacancies by Occupation in Qld
Source: Dept of Employment, Skills, Small and Family Business, *Vacancy Report May 2019*

The occupations that have experienced reduced vacancies in the last year are Technicians and Trades, Machinery Operators and Drivers and Labourers, while Professionals and Community and Service Workers demonstrated increases. These are consistent with industry trends in occupational clusters.

Not including South East Queensland, 25.6 % of the total vacancies in Queensland were in rural areas, i.e. 8,038 jobs. The vacancies were in the following occupational categories:

Region	Managers	Professionals	Technicians and Trades	Community & Personal Services	Clerical & Admin	Sales	Machinery Operators & Drivers	Labourers
Brisbane	11.77	33.60	12.38	8.02	16.76	7.71	2.21	5.55
Central Qld	7.20	25.0	19.36	8.99	11.81	6.78	7.37	13.5
Far North Qld	7.92	22.54	21.24	8.65	12.04	6.18	10.2	10.26
Gold Coast	10.5	23.77	15.15	12.07	16.79	9.96	3.92	7.83
Outback Qld	09.4	28.01	22.11	8.14	9.89	5.99	11.49	5.00
Sunshine Coast	9.12	25.59	15.88	14.43	13.33	9.93	3.22	8.49

Toowoomba & Sth West	8.38	22.62	18.14	10.86	12.41	8.44	7.12	12.04

Table 9: Regional Vacancies by Occupation, May 2019
Source: Dept of Employment, Skills, Small and Family Business, *Regional Vacancy Data*
http://lmip.gov.au/default.aspx?LMIP/GainInsights/VacancyReport

The vacancies listed here reflect regional variability. The ability to recruit these vacancies and workforce shortages are discussed below.

1.6 Indigenous Workforce and Education Profiles

At the time of the 2016 Census, 4.0% of Queensland residents identified as being of Aboriginal and/or Torres Strait Islander origin (186,482 persons). The top 10 locations where Indigenous communities live include Brisbane, Cairns, Atherton, Torres Strait, Townsville and Mackay. Over 20% of Aboriginal and Torres Strait Islanders in Queensland live in remote or very remote Queensland (as per the ABS classification) and make up approximately 27% of rural Queensland. Queensland's remote and discrete Indigenous communities account for seven of the top ten most economically and socially disadvantaged locations in Australia (ABS 2016). The Queensland Government recognises that "Aboriginal and Torres Strait Islander people living in these communities experience (relative to outcomes for non-Indigenous Queenslanders) much higher rates of unemployment, lower rates of school attendance, lower rates of home ownership and poorer health outcomes. Aboriginal and Torres Strait Islander people living in remote and very remote communities experience wellbeing outcomes in the areas of justice, child protection and domestic and family violence that are significantly below those of non-Indigenous Queenslanders" (Qld Government 2018:1).

As part of a range of Australian and Queensland Government initiatives, attempts are being made to 'Close the Gap' between Indigenous and non-Indigenous Australians with variable results across the key life cycle areas. In 2016, 37.9% of Aboriginal and Torres Strait Islander Queenslanders aged 15 years and over reported that Year 12 (or equivalent) was the highest year of school they had completed. The gap between Aboriginal and Torres Strait Islander and non-Indigenous completers narrowed from 2011 to 2016 (19.4 to 18.5 percentage points respectively. More Indigenous females than men are enrolled in university and VET courses in Queensland. Despite higher level education for women, the participation rate for Aboriginal and Torres Strait Islander males was higher than that for females across all age groups, with the rate for males peaking in the 25–34 years age group (69.0%), while the peak for females was slightly older, in the 35–44 years (61.9%) (Queensland Treasury 2017).

53.9% of Aboriginal and Torres Strait Islander Queenslanders aged 15–24 years were fully engaged in work or study, compared with 74.7% of non-Indigenous Queenslanders. Employment outcomes vary markedly across regions. In 2016, the Indigenous employment rate ranged from 54% in Major Cities to 31% in Very Remote areas. 42% of Aboriginal and Torres Strait Islanders aged 15 years and over in Queensland were not participating in the labour force. Nearly half of Aboriginal and Torres Strait Islander employed persons were working in three broad occupation groups: Community and Personal Service Workers, while for non-Indigenous Queenslanders, the highest occupation groups were Professionals, Technicians and Trades Workers and Clerical, and Administrative Workers (ABS 2016).

In 2016, the unemployment rate for Aboriginal and Torres Strait Islander people aged 15 years and over was 18 per cent. The unemployment rate was higher for Aboriginal and Torres Strait Islander in non-urban areas (21%) than in urban areas (17%) (ABS 2016a). ABS (2016b) concluded that "those who are not fully engaged in either education or employment may be at risk of becoming long-term unemployed, underemployed or marginally attached to the labour force". Indigenous disadvantage is recognised by both the Australian and Queensland Governments. The Queensland Government spends around $1.2 billion a year ($29,000 per person) on services to remote and discrete Aboriginal and Torres Strait Islander communities, reflecting high levels of need and high costs of service delivery in remote areas (QPC 2017:2). The *Closing the Gap* initiatives of the Federal Government concluded that "the target to halve the gap in employment by 2018 is not on track. Nationally, the Indigenous employment rate has not improved, and the gap has widened over the past decade" (DPM&C 2019:96), demonstrating the ongoing disadvantage and barriers facing Aboriginal and Torres Strait Islander communities in relation to employment, education and training.

In 2016, the Queensland Government announced that the Queensland Productivity Commission (QPC) would inquire into service delivery in remote and discrete Aboriginal and Torres Strait Islander communities. The Inquiry was announced in response to concerns expressed by Indigenous leaders that the level of investment in all services (Federal, State and non-government) was not delivering higher outcomes for members of their communities. The Inquiry found significant governance and coordination problems, with 'bureaucratic maze 'of providers " characterised by overlaps in roles and responsibilities, unclear lines of accountability and difficulties getting things done, particularly when the challenges associated with delivering services into remote locations are added to the mix" (QPC 2017:9). QPC made 22 recommendations for a substantial reform agenda for policy and service delivery including:

- Structural Reform to transfer accountability and decision-making closer to communities and where services users are
- Service Delivery Reform to put communities at the centre of service design
- Economic Reform to facilitate economic participation and community development.

The Queensland Government has provided a response to the recommendations and has made a commitment to work with Aboriginal and Torres Strait Islander Communities to address QPC's recommendations.

1.7 Queensland Agricultural Workforce

Agricultural land covers 53% of the Australian landmass and 88 % of Queensland (DAF 2018: ii). In 2017–18, the gross value of agricultural production in Queensland was $13 billion, which was 23 % of the total gross value of agricultural production in Australia ($59 billion) (ABARES 2019). In 2017-18 Queensland agriculture represented 3.6% of the State's economy (DAF 2018: ii). In 2015–16, there were 19,500 farm businesses in Queensland. Farm numbers have been declining at a steady rate of about 1.1% per year and average farm sizes have been increasing (DAF 2018:10).

Agricultural industries in Queensland are a major employer in some regions, employing more than 4% of Qld's workforce (DAF 2018). In 2017, there were 103, 600 people employed in Agriculture, Forestry, Fishing, Food Manufacturing and Wood Product Manufacturing in Queensland. This included 52,800 in Agriculture, 3,200 in Fisheries, 8,000 in Forestry and Wood Product Manufacturing, and 39,700 in Food Manufacturing. A further 255,500 people were employed in Food and Beverage Services, Food Retail and Grocery Wholesaling Operation and 75,000 jobs in other industries are involved in the supply of goods and services to the sector. The total supply chain of the food and agribusiness sector provides 434, 100 jobs in Queensland—18% of the total number of jobs in the State (DAF 2018:11).

In some regions, agriculture provides the largest number of jobs. Table 10 provides a breakdown of each region in Queensland as a percentage of employment in Queensland and percentage of people employed in agriculture, forestry and fisheries:

Region	% of total employment Qld	% of all people employed in agriculture, forestry and fisheries
Cairns	5	8
Darling Downs	3	13
Central Queensland	5	19
Gold Coast	14	3
Greater Brisbane	50	15
Mackay - Isaac - Whitsunday	4	6
Queensland - Outback	1	7
Sunshine Coast	7	4
Toowoomba	3	8
Townsville	4	5
Wide Bay	4	13

Table 10: Queensland Agricultural Workforce, 2019
Source: ABARES, *Regional Profiles*, http://www.agriculture.gov.au/abares/research-topics/aboutmyregion

As can be seen from Table 10, agricultural industries are particularly important in some of the regions such as Central Queensland, Darling Downs – Maranoa, Outback Queensland and Wide Bay, where they provide more than 10% of direct employment. The Queensland Government identifies that characteristics of the Queensland agricultural workforce as compared to the workforce as a whole:

- are less likely to be female (34% compared with 49%)
- are just as likely to be born overseas (25% compared with 26%)
- are just as likely as to be Aboriginal people or Torres Strait Islanders (both 2%)
- are more likely to speak a language other than English at home (16% compared with 12%)
- work longer hours (40% working more than 40 hours per week, compared with 27%)
- are less likely to be employees (69% compared with 84%), and are more likely to be self-employed, employers or contributing family workers
- are more likely to be managers or labourers, or to a lesser extent plant machinery operator, and less likely to be in other occupational groups
- have lower levels of education (11% with degrees compared with 27%) but comparable levels of trade qualifications (23% compared with 24%)
- have a diverse range of qualifications, for example agriculture and related qualifications (6%), engineering and related qualifications (13%— many would be at trade level) and management qualifications (8%)
- the workforce is slightly older than for all industries (median age 42 compared with 40), with farm managers significantly older on average (54) (DAF 2018:11-13)
- The average age of a Queensland farmer is 57 (DAF 2018a:38).

Workforce shortages in rural Queensland is well articulated, particularly the reliability of skilled managers, labour during harvest time and specialist technical knowledge (see below for a discussion on workforce shortages). Argent and Tonts (2015:141) show an impact in agriculture as "the cost/price squeeze, the capital substitution of farm labour, and the ongoing expansion of economies of scale for Australian farming, which translates into the twinned processes of increasing farm size and dwindling farm numbers". The result has been a decline in agriculture as proportion of size of the economy (Productivity Commission 2005) and a migration of people from rural regions into cities or larger centres (Argent & Tont 2015,). Rural areas now face "high rates of out-migration and net migration loss amongst young people; rising dependency ratios and accelerated structural ageing; and chronic and occasionally acute labour shortages") with the resultant "structural gaps in local and regional labour markets" (Argent & Tonts 2015:141).

The key workforce issues identified for Queensland agricultural sector includes:

- Labour and skills shortages
- Skills in demand (workplace health and safety, business, financial and risk management, mechanical and machinery maintenance, operational farm skills, digital technologies, innovation)
- Demands for practical training
- Attracting staff to agriculture
- Changes to the training environment and VET reforms
- Barriers to participation in VET in schools programs
- Decline in university graduates in the sector (DAFF 2013:2-5).

The need to increase employer capacity for workforce planning and management has been identified. Some of the key issues identified include retention and keeping employees satisfied, attraction for job vacancies, meeting seasonal and harvesting labour force requirements, attracting and retaining managers, casual workforce due to farm income securities and reluctance to offer permanent jobs, risks of workplace health and safety, competition for agricultural workers, managing career pathways in family businesses, lack of training options, and lack of information (especially with peers) about workforce planning strategies (NRAC 2012, DAFF 2013). NRAC (2012: 1) concludes that "agricultural employers require more sophisticated people management and planning capabilities than in the past. Although recognition that workforce planning and management capabilities positively influence business productivity is increasing, the benefits are difficult to quantify. Being able to demonstrate the value of more structured approaches to workforce planning was identified". Some suggestions include regional and/or industry based approaches, collaboration approaches and population approaches (NCRAC 2012).

The Commonwealth Scientific and Industrial Research Organisation (CSIRO)(2017) notes the increasing need for multidisciplinary skillsets in agribusinesses. They argue, "staff with combined deep technical knowledge complemented by an understanding of supply chains, relationship management skills and experience with digital platforms" will be required now and in the future to maintain and improve productivity (p.48). This is strongly supported by the Queensland Farmer' Federation (Perkins et al 2018) who identify the breadth of skills and education needed for agriculture today. Pointing to regional and rural location of many businesses as a disincentive to young graduates, coupled with Australia's ageing workforce, CSIRO identifies that the sector will be increasingly reliant on a flexible workforce and adoption of sophisticated automation processes and mechanisation – both requiring specific education and training (CSIRO: 2017-48).

The key skills sets identified by industry in CSIRO consultations demonstrate pathways for education and training for the future are presented in Figure 4 below:

The following skill areas were highlighted by industry as the most important areas of focus for training and recruitment over the coming decades.

General business skills – With many tertiary courses focussing on narrow elements of agricultural production or food manufacturing processes, industry noted that most graduates lack everyday business skills such as understanding cash flows, time management, running meetings, training others and writing (including developing strong grant applications).

Leadership – Innovative, high growth SMEs are typified by strong leaders with long-term visions and the ability to communicate these visions to staff, customers and collaboration partners alike. The sector would benefit from more leaders who are entrepreneurial, willing to take calculated risks, think strategically and proactively explore new technologies through engaging in R&D.

Market research – As discussed under Market intelligence and access, a global and more nuanced understanding of markets and how they are changing is required for Australian businesses to develop more effective long-term strategies and tailored products. Market research skills will be critical in identifying information and developing analysis that is tailored for any given business.

Data science – Data is relevant to all opportunities and enablers discussed in this report and is essential in the convergence of technological solutions. While the world is capturing an increasing amount of data, the gap is in the ability to analyse it and use it to effectively inform decision making. Required data science skills in the F&A sector include data matching, predictive modelling, formulation modelling, machine logic, genomics and control analytics. Businesses can also be built around the provision of digital services and data analytics.

Source: CSIRO, 2017:48

Figure 5: Training and Recruitment Needs in the Agricultural Sector
Source: CSIRO 2017:48

The Rural Jobs and Skills Alliance (RJSA) (2017:3) identifies needs in training and skilling in emerging areas such as crowd-funding, big data analytics, artificial intelligence, nutritional genomics, micro-grids, GPS and sensors as well as finance, succession planning, risk management and best practice management. They also identify skills needed with future changes to industry and in skill areas not traditionally associated with Agriculture such as Engineers, Data Analysts and Business Support Services.

The best way to provide education and training to the agricultural sector is a long debate. The RJSA and Queensland Farmer's Federation (QFF) argue that "the VET sector should be equipping students with skills that improve their prospects of employment across various agriculture sectors. To achieve this, strong industry links are essential", pointing to a disconnect between industry and training. They advocate that VET programs should shift from narrow focused qualifications to streams of broader skills that apply across industries with more flexible packages and a structured progression between qualifications (Perkins et al 2018:5).

Training and skilling and entry into agricultural industries was historically supported by agricultural training institutions. These arrangements have changed over time for a range of reasons and continue to change. For example, the Queensland Agricultural Training Colleges (QATC) was established in 2014, following a long history of agricultural technical education. QATC is a statutory authority created by the Queensland Agricultural Training Colleges Act 2005 to deliver practical, skills-based training to rural industries, regional communities and regional urban centres throughout Queensland. The Queensland Government provided support $7.6M in 2017-18 for QATC to provide a range of vocational educational and training programs. In 2017–18, QATC delivered specialist agricultural vocational training to 2129 students. Due to declining numbers and financial viability considerations, Professor Coaldrake was commissioned to provide recommendations on how to grow the vocational education, training and skills sector in central-western Queensland. The Coaldrake Report identified that factors that contributed to the operating environment of QATC included:

- the economic impact of the sustained drought, the attending social stresses on communities as a result of the loss of rural jobs
- outmigration of population
- impacts of technology on farms
- changing nature of farm ownership
- new private registered training organisations (Coaldrake 2018).

The Coaldrake Report concluded that the model of residential-based agricultural education is unsustainable in central western Queensland and made a range of recommendations, including examination of alternative delivery mechanism. The Queensland Government decided to close QATC at the end of 2019 and repurpose the colleges' facilities. Local community processes have been established to guide the training delivery in the relevant sites. The experience of QATC demonstrates the complexity of policy and program provision for training and skills development in rural Qld.

Hajkowicz and Eady (2015) identify mega trends which will have major impacts on the trajectory of Australian agricultural industries:

- a hungrier world—population growth driving global demand for food and fibre;
- a wealthier world—emergence of a new middle class increasing food consumption;
- choosy customers—information empowered consumers demanding particular ethics, provenance, sustainability or health attributes;
- transformative technologies—advances in food and fibre production and transport; and a bumpier ride—changes resulting from globalisation and a changing climate.

The criticality of the mega trends for Queensland's agricultural industry and workforce is noted by the Queensland Government as adapted in the diagram below:

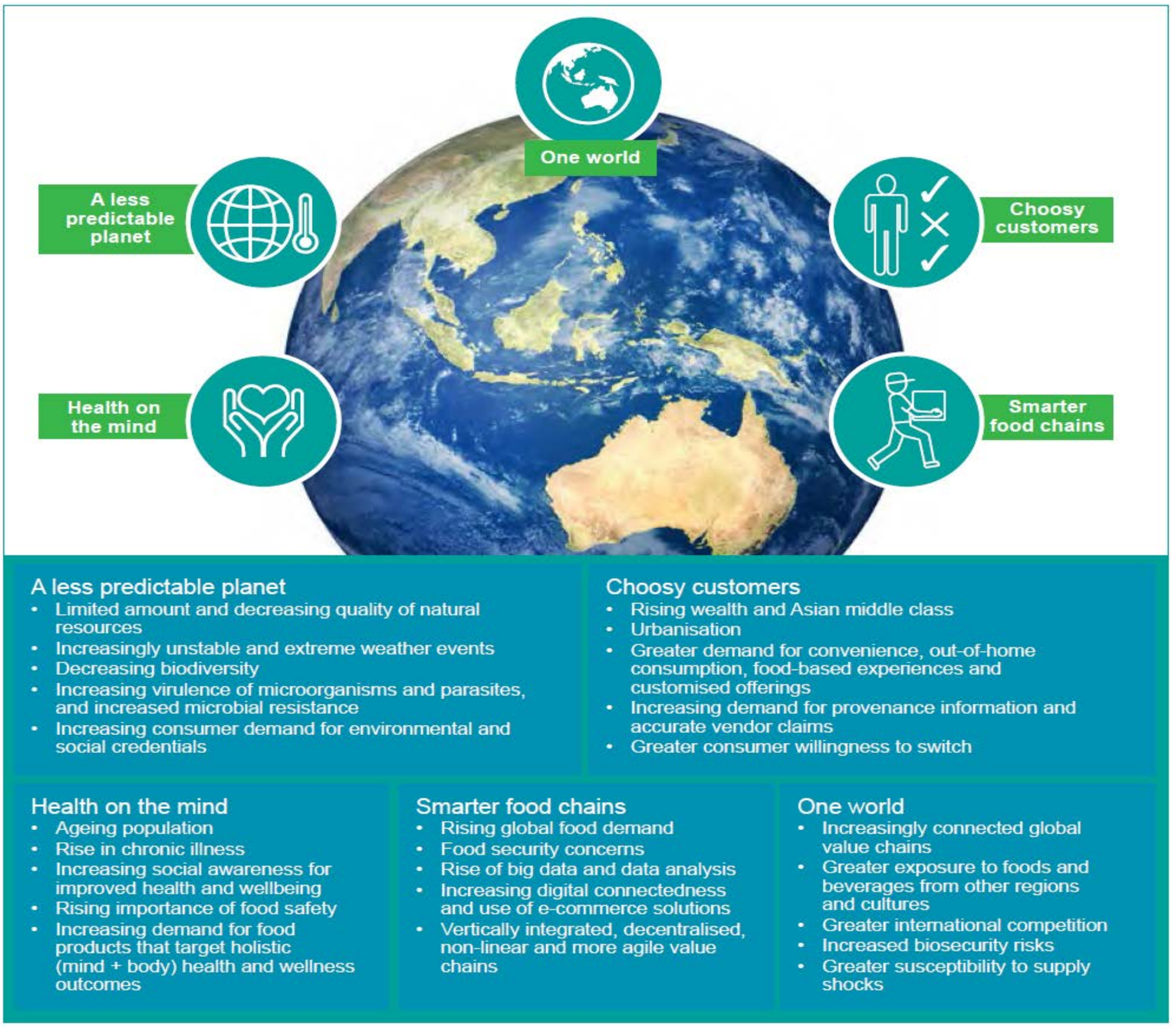


Figure 6: Mega Trends Affecting Agribusiness

Source: DAF 2018:14

Growing for Queensland: A *QLD Government Discussion Paper* (2019) affirms the State Government's focus on industry development with a clear ambition for a productive and profitable Agriculture, Fisheries and Forestry sector (DAF 2018). Acknowledging that the scale, complexity and rate of change in the sector is unprecedented, a number of drivers of change are identified: climate change, digital revolution, globalisation, sustainability and natural resource constraints, consumer demand, demographics and nature of jobs (DAF 2019). Working towards a final strategy which will determine outcomes and opportunities to

- improve business capability, productivity and profitability of the sector
- improve sustainability and resource management
- support jobs of the future
- build resilience and risk management capability
- drive innovation throughout the supply chain
- ensure Queenslanders have access to affordable, safe and nutritious food
- grow export capacity and add value to the Queensland economy
- promote regional development and communities
- enable diversification into complementary agribusiness activities
- ensure government investment is appropriate, effective and efficient (DAF 2019. 11).

The opportunities identified in the final strategy will be used to inform government priorities and investment (DAF 2019:11). Workforce development emerges as a key enabling pillar in Queensland policy discussions to drive agricultural productivity and agility. The Queensland Government notes that "the challenge is to ensure that employment in the sector is inclusive, fair and supports business competitiveness as well as regional and rural communities "(DAF 2018a: 38). The existing small to medium family-owned enterprises, have strengths in low cost operations but their traditional business models are increasingly challenged due lack of capital to increase productivity, high debt, market access and global supply chain capabilities (DAF 2018a:38). With an ageing workforce, skills development and succession planning is critical to ensure a transition to the next generation workforce. Effective training and workforce strategies is essential to ensure for efficiency, productivity and agility across the value chains and markets. With a view to these challenges, the Australian Government will provide $1.9 million over four years from 2019-20 to develop a national agricultural workforce strategy (Australian Government 2019:55).

2. RURAL QUEENSLAND WORKFORCE ISSUES IDENTIFIED VIA CONSULTATIONS

Consultations were held with 27 key informants across industry, policy makers, industry bodies businesses and regional organisations. Purposive sampling methodology was used to select individuals/agencies to inform this policy paper. The key criteria used for the selection of informants [1]for consultation included:

- Cross-industry and diverse stakeholders
- Informants with perspectives at different levels e.g. peak industry, rural and regional bodies, local organisations

[1] Also referred to as participants

- Policy informants in relevant portfolios with emphasis on Queensland but also Federal and local governments
- In different geographical locations in rural Queensland.

This section presents a summary of the main issues raised by informants in relating to rural Queensland workforce. These are views from selected discussion and aim to provide perspectives from rural and regional Queensland stakeholders.

2.1 Workforce Attraction and Retention

Attraction of workers into the region was identified by participants as being linked with perceptions of rural/regional lifestyle, both positive and negative perceptions of 'living in the country' was identified. Key factors to attract workers to rural areas that was identified included liveability, choice and career pathways. Availability of what was considered 'good services' such as schools, healthcare service, childcare and other lifestyle services were thought to be fundamental. Lack of affordable housing was seen as a barrier in some locations. Welcoming communities and communities which accepted and valued diversity of people was also seen as important.

A key point that was raised was that rural employers make individual effort to attract workers to their business. The employees decision to move or stay in a rural area took into consideration employment related factors but also other lifestyle and liveability factors. Informants identified the gap in regional areas for a 'whole of region' or 'whole of community' approach to attracting and retaining workers. It was identified that unless regions took a collaborative approach, the efforts of individual employers in offering jobs would not be as effective in attracting and retaining workers. Some suggestions included development of comprehensive regional workforce attraction and retention packages including raising awareness of the region's industry, promoting positive attributes of the area, list of services, points of contact within the region, welcome initiatives and regional ambassadors. The efficacy and cost of using recruitment agencies was questioned, with many stating that big companies used recruitment agencies based in capital cities who did not understand the nature of the jobs and life in rural Queensland and candidate preselection was not effective.

An important element of retention was satisfaction at work. Key factors that were identified included lower wage levels in some rural jobs, harder work conditions, lack of career pathways and promotion options and lack of skills in human resource and performance management. Some identified that there may be limited options for promotion and mobility in small business and small farms. It was noted that many employers were small family businesses that had never worked outside their own businesses and did not have appropriate management and career coaching skills or experience. Development of employer skills, particularly small business and farm owners, in key aspects of employment such as recruitment, performance management, occupational health and safety and career pathways was identified as an area of urgent need. Some or all of these factors cumulatively often resulted in small businesses losing their workers to other employers or regions. Suggestions for developing employer human resource and workplace culture skills were suggested.

An important issue was about retaining the local populations in regional jobs. A participant noted that many young people and upwardly mobile people did not see career options in their regions and leave. The small size of many businesses in regional Queensland prevented choice in variety of jobs, internal opportunity for different work experiences and opportunity for promotion. Such factors made it difficult to also retain local workforce. For those with major barriers of entry into the workforce in local areas, e.g. long term unemployed youth, there was a need to change perceptions of employers and their negative portrayal in the local media.

The social aspects of attracting and retaining workers were also identified as a major constraint on businesses not working at 100% capacity. Labour intensive industries identified that there were many workforce issues that caused people to leave or be terminated. These included mental health issues, drug and alcohol issues (including failing workplace drug and alcohol tests), other health issues and work injuries of an ageing workforce. The large economic cost to business of social factors was identified, noting that in order to address attraction and retention issues, societal issues that lead to poor health and wellbeing e.g. drug and alcohol dependency issues, needs to be addressed or considered.

2.2 Education and Skills Development

Key informants identified a range of issues in relation to education, training and skills development in rural Queensland. Many identified the need for new, flexible and more tailored options for education and training in rural areas. Some pointed to barriers to studying in rural areas, in accessing higher education and vocational education and training courses in their region. A number of participants drew attention to the need to recognise of the individual and family circumstances that do not enable students to move away from home (e.g. cost, contributing to family farm, confidence) and the likelihood that young people will stay in the region if they study in the region. Additionally, they identified that online and distance education options were not always possible, particularly in more remote areas with digital connectivity challenges. The concept of education as being lifelong learning has shifted responsibility and created the need for ongoing professional development. Workers have to upgrade qualifications or professional development activities to be able to keep their work, while employers are challenged with what professional development should and can provide to their workforce. The consultations identified that there were many interventions funded by government and that the focus of such interventions was in assisting job seekers and in acquiring formal educational qualifications but very little on upskilling and ongoing professional development.

The complexity of a demand driven vocational education system was pointed out by a number of providers. Local TAFEs and other providers did not offer particular courses if they did not get enough numbers in the course and sometimes the demand is not there to achieve viable student cohorts in study cycles in rural areas. The funding in VET is linked to demand so when demand (from potential students) drops off, then funding also drops, raising viability issues for the VET provider, unless they increase the price which may further reduce numbers. A VET provider identified that the funding in the sector has been steadily decreasing over the years relative to other education sectors. There are no student loans schemes as there are in higher education to contribute towards costs of provision. The complexity of such a demand driven system and accompanying funding model then has flow-on impacts on meeting employer and industry workforce skills needs.

Some employers have become registered training organisations (RTOs) but only if they were large enough to warrant undertaking the onerous measures to register and meet compliance requirements. The VET sector in rural Queensland is also experiencing workforce shortages as there is competition from larger employer human resource departments or RTOs that can provide higher wages and better conditions. Additionally, the requirement for industry experienced trainers means that the VET sector is often in competition with the Mining industry for employees.

The way in which schools developed students for careers in rural industries was identified as problematic, both in metropolitan and rural schools. Some of the issues raised included perception of rural employment, lack of information to students and parents about education, training and career options in rural industries, lack of industry profiling and lack of appropriate workforce planning at this early level were identified. There was considerable concern about the effectiveness and quality of school to work transitions and career guidance for rural students. The need for better work experience programs for young people, career pathways and options for higher education and VET programs were identified. More intensive gateway (school to rural industries) programs were suggested. Appropriate work experience and the efficacy of VET in schools emerged numerous times as areas needing greater attention to give students motivation to think of careers in rural industries and to encourage employers to trial and employ local young people. The role for industry in being proactive in schools was also identified, with the need to promote the industry and provide early experiences and career options was recommended but the challenge of schools already having an overloaded curriculum was noted.

A range of issues were raised about employers and industries in relation to education and training. A number of informants identified that local industries are not aware of education and training options and pathways available to support employees. There was limited connection between education providers and the industry sector. Many larger employers had providers they worked through. With the emergence of numerous types of providers (public and private), some noted employer confusion about the type of providers but also the various products on offer (e.g. complicated training packages). Others noted that some businesses were reluctant to invest in education and training, especially in small business, as this was an additional cost with a threat that they can lose their employee to a bigger employer after they invest in their training. Outreach to employers, effective engagement between employers and education and training providers was seen as a critical issue in addressing skills shortages.

With changes to the structure of many rural economics, informants identified that skills and training was needed not only for the workforce but also for the employers. The ability to capitalise on opportunities in overseas markets, new markets (e.g. biofuels, waste management, carbon markets) and diversified markets needed different understanding, knowledge and skills set. It was noted that the current business support programs did not deliver such skills and training. For innovation and economic resilience, the need for different types of business skills development for employers was recommended with areas such as market analysis and business planning, new product development and market feasibility analysis.

Numerous inputs were given about existing training not meeting the needs of industry. It was noted that the value of training was not promoted to employees due to employer belief that the training is not appropriate or innovative. There was call for formal vocational education and training (VET) to be more flexible to able to tailor to the needs of industry. Some industry peak bodies were delivering additional programs in response to industry needs which VET providers were not able to provide. Training packages and full degree qualifications were seen to lag behind industry needs and did not have sufficient flexibility in their structure to respond to industry needs in an agile way. There was the view that the 'big training packages' and 3-4 year degree programs s were not adjustable easily and that the model of mass training offered through VET and Universities was not responsive to the micro level training that was also required. "Tyring to match the needs of industry with providers and demand driven system is not an exact science yet" (Policy officer). An industry body suggested that vocational educational training programs do not deliver the kinds of practical training people need at work such as health and safety, business administration and people skills".

The issue of apprenticeships was also mentioned. Key issues identified included the options for apprenticeships in regional areas. Many businesses that would be in the position to offer apprenticeships were reluctant to do so, due to their reliance of government contracts and the financial insecurity that comes with the normal duration of 3 years on government contracts. An additional point that government departments historically had large number of interns, apprentices and graduate intakes which helped address skills shortages and built the capacity of the workforce. This has been dramatically scaled back and as a major provider, the government absence was seen to exacerbate the dent in skill shortages.

There were some comments about the transitions in industry and changes in the economy. As one participant stated, “we need to rethink our training system. The training system is based on the mentality that is based on trades. The skills distinction between higher and vocational education are not that distinct now. The business ecosystems are changing fast, the old way of doing education and training will not work and new options are needed”. Suggestions were focused on the need for change and reinvigorate both higher education and vocational education systems of provision, to be responsive to the needs of industry. It was noted that when economies of scale are used as a basis for funding then regional areas are always at a disadvantage for post school education and training. The review of the Australian Qualifications Framework by COAG was a good opportunity to visit how these sectors could be made more flexible. Education providers and policy officers noted that education systems were demand driven by students and while there is to be a connection between what education providers deliver and what employers want, there are often incongruencies and time lags.

The tension between training and qualifications was mentioned where training provided flexibility but were not recognised by employers, while qualifications facilitated worker mobility. Micro-credentialing was suggested by several informants to provide flexibility and responsiveness. Some welcome the Queensland government’s recent announcement of a micro-credentialing pilot. However, the views on this were mixed. Some providers and policy makers cautioned that the baseline knowledge and qualifications cannot be thrown out, that the Australian Qualifications Framework provided common standards, benchmarks and portability across the education and training landscape. These informants did not oppose micro-credentialing per se but believed it needed to be in the mix of a suite of options and that minimal standards of knowledge, skills and competencies could not be abandoned for a qualification made up totally of micro-credentialled subjects.

Issues about transferability of qualifications was raised and the difficulties this presented in finding employment as shared competencies across industries were declining where they were too occupational specific. For example, a participant stated, “someone who has been manufacturing bullbars for 3 years will have the qualification but not the experience for other manufacturing jobs” (job service agency). Some also pointed out that employees often could not identify what skills were transferrable and tended to dismiss ‘soft skills.’ It was argued that more work needs to be done to create awareness of types of skills that employees and job seekers have.

Higher education was identified as not meeting industry specific needs. An informant stated that “many of the courses teach generic skills with high theory and not enough practical aspects”. Others noted the need for new degrees were needed in areas that were relevant to the local industries in a region. A number of participants noted that, in the main, universities were not well engaged and embedded in their communities and industries and that it was hard to know where to go to connect.

2.3 Placed Based Approaches

All participants emphasized the Importance of working locally and finding local solutions. Informants pointed to national and global trends and thought that some factors were out of the sphere of influence of local communities. While recognising the broader trends, participants argued that the impacts of these trends had unique dynamics and when combined with local characteristics produced different outcomes in each location. There was an overwhelming endorsement for taking place based approaches. Some participants identified problems with delivery models that is distance based, virtual and rotational visit based. One participant said, “policy makers really do not understand the issues of distance between localities when they set funding guidelines or fund specific projects” (service provider).

Policy makers also recognised the need for place-based approaches as reflected in the following words of a senior policy officer ““Agencies need to get better at designing policies which are not from George

Street only. We are improving in relation to this and the recently adopted place based framework of the Government will help with that". There is increasing awareness by policy makers of the need to for policy to be flexible enough to adapt to local situations. Participants who were in policy making roles articulated the importance of understanding local needs and issues and that 'one size fits all' approach was no longer appropriate. The purpose of policy was seen as being facilitative and needed to be not cumbersome. One participant stated that policy needs to "get out of way" of innovation and initiative taking. Overall, the policy makers provided strong support for policy to be implemented via place based methods and demonstrated strong understanding of the benefits of such approaches.

Participants identified the fragmented approaches to workforce development at the local level. The need for an integrated, cross sectoral workforce planning process in each region was identified. Some informants believed that the absence of a strategic local workforce strategy would reduce community and economic resilience in the regions.

Several challenges were identified about place based approaches. Policy makers identified that policy consultations were often with rural peak and regional bodies which may have regional dynamics and local politics as key context. It was identified that on many occasions the policy consultation may not be reflecting local voices on the ground and different representation and participation models were needed in policy making to allow for more voices and viewpoints to be heard

Another important issue, t was the government withdrawal from support services that facilitate participation, build capacity and support the local community in planning, development and implementation. Numerous participants lamented government divesting responsibilities in some areas and the loss of extension staff in agriculture, outreach programs in schools and community development/engagement officers in human service industries. Some called for reinstatement of such roles if policy makers are serious about place based approaches. Such roles were also seen as experienced specialists who could act as conduits between industry and community and help support formal and informal processes of workforce development.

A major issue that was raised was that the philosophy towards market based delivery of job services, education and training and workforce development has led to a proliferation of providers on the ground in many locations. In a complex market environment, it was difficult for industries and policy makers to gauge what the market is delivering and what is not being picked up. Some identified that it was not clear as to how the market was responding to either industry or individual and community needs and the difficulty of finding where the residual focus for policy and program intervention needs to be. In thin markets, it was identified that in responding to local needs it was difficult to find appropriate providers (education, training, job services).

An additional consideration that was raised related to the lack of a disaggregated, place based data. The ability to make effective decisions and plan strategically at the local level relied on solid intelligence and data. Lack of granulated data was identified including the needs of industry, local economic dynamics and localised skill shortage assessments. The collection of disaggregated data and more local research was recommended.

Regional governance and leadership were identified as key issues in addressing rural workforce issues. The key issues raised included fragmentation within and across the three tiers of government, lack of connectivity across sectors and lack of appropriate collaboration by regional bodies. The absence of effective regional leadership in some regions was also identified and the need for capacity building of regional leaders was considered important.

2.4 Workforce Shortages

Workforce shortages were identified in different industries in rural areas, depending on the region. The most frequently cited industries cited as having workforce shortages were Agriculture, Tourism, Health and Human Services and Digital Technologies. Specific occupations or skills were also cited as having shortages including business management, project management, agronomy, nurses, disability workers, biogas and data analytics. It was identified that in some jobs you need to be able to do a 'bit of everything' such as station managers or farm hands. In very remote areas, it was identified that it was 'just too hard" to get people to go there. When major projects were commenced e.g. in mining, it was seen to drain neighbouring regions of the skilled work, particularly in occupations such as Electricians, Managers, Mechanics and Plumbers, as few examples.

Numerous reasons were provided as to why the shortages existed including:

- mismatch in the labour market between what industry needs and education/training provided
- educators work in demand driven systems (from students) and there is a need for better information at schools about job and career prospects
- local people not willing to do some jobs (e.g. labouring or harvesting)
- lack of employer skills (e.g. recruitment)
- problems with attracting and retention of workers in rural areas (including work satisfaction, wages and conditions and liveability factors)
- ageing workforce, limited options (for education, training)
- boom and bust cycles in rural economies causing insecurity of jobs.

The fly-in-fly-out workforce (FIFO) was seen as problematic for a range of reasons including major impacts on the employee and their families, lack of integration with the local community, lack of sustainability for the industry (due to worker burnout) and leakage from local economy of wages. Informants pointed to the increasing need in rural areas for advisors or consultants, particularly where is new technology and innovation. This requires people to retrain to gain new knowledge or skills or hire in consultants. Meeting such workforce needs was seen as a long process and that there was fierce competition for a few consultants available in rural areas and major shortages in some fields.

Strategies to address workforce and skills shortages was to look at alternative sources of employees. Women were identified as a category, but often with caring responsibilities. Supporting women to return to work, e.g. better access to child care and support for re-entry into the workforce was identified. Enabling students in regional areas on scholarships to work extra hours, and incentives for older workers to not retire were identified as some ways to address skills shortages.

2.5 Future of Work and Disruptions

Participants all believed that there are major changes happening to the future of work and a range of factors which would impacts on the economy and cause disruptions to the workforce. The key issues identified included changing consumer and community expectations, climate change, need for productivity increases, sustainability and environmental protection, natural disasters, consumer expectations, mega trends (e.g. digital technologies, globalisation, automation, artificial intelligence, population increase), aging population and changing demographics, demand for health and personal services. These factors were identified as bringing major impacts to the way we do business and affecting any return on investment. People skills, knowledge and smart workforce was identified as critical to our future. The focus on Science, Technology, Engineering and Mathematics (STEM) was questioned by participants by critical questions such as 'is the push towards STEM appropriate for workforce needs?' 'Is it a true reflection of current workforce skills gaps?'; and 'what is the evidence of where the jobs will be in the near and distant future'? These questions were also echoed by one policy maker, stating that we do not have sufficient evidence for the trends in the future of work, and certainly not at the local level.

The changing nature of industries was also commented on. There is now a greater emphasis on value adding and processing not only in production in industries such as Agriculture but also in other industries. While processing often happens in regional areas it was noted that industry is shifting to the peripheries of urban areas to minimise transport costs. Transport infrastructure was seen as an enabler of economics and workforce in rural areas through supply and value chain efficiencies.

Other comments from participants include:

> "There are major changes taking place. Some things that come to mind are climate change, digital and technological change, environmental protection and sustainability, changing consumer demand for green, ethical and traceable products including animal welfare, shifts in global market forces and change in local community demographic. There is a need to address the workforce implications of these for rural communities" (policy officer)

> "How we define work and industry is changing. Businesses are now mixed enterprises and do not fit neatly into one industry category." (policy officer)

> "The young generation do not see jobs as we see them. They want a lifestyle and are looking for ways to fund that rather than a job." (industry representative)

> "Rural communities will need to look more closely at attracting skilled immigrants, both from the needs of the industry but also in terms of strengthening rural economies and communities" (industry representative)

Several participants also commented idea that jobs are disappearing, and that new technology is taking away jobs. Industry groups who consulted their members identified that this was not a fear for many as their members realised that new jobs are being created. Rather than a fear for loss of number of jobs, the concerns were in relation to whether we will have trained and skilled staff in the regions to fill the new jobs that require different skill sets.

Overall, participants felt that rural communities in Queensland had significant opportunities but in order to capitalise on these, there was a need for change and reform in transitioning economies and the rural workforce.

3.WORKFORCE SHORTAGES

We often hear that there is 'shortage of skills or labour' in rural Australia or rural Queensland[2]. What this entails is a complex interplay of macroeconomic trends, social and demographic change and local/regional factors influencing both demand and supply side in rural/regional labour markets. It is noted there is no universally agreed definition of these terms (Storer & Connell 2013). These terms are used sometimes to refer to a shortfall in persons required in the labour force and other times to refer to the mismatch between the jobs, skills, occupations and the employees (Storer & Connell 2013, Shah & Burke 2005). Shah and Burke provide differentiated definitions which are useful in identifying and addressing workforce issues:

[2] This paper does not have scope to enter the discussions about the definitions of rural and regional. The generic term rural will be used to make a reference to areas outside the metropolitan areas.

A shortage occurs when the demand for workers for a particular occupation is greater than the supply of workers who are qualified, available and willing to work under existing market conditions, and if the supply is greater than demand then there is a surplus.

- *A skill gap* refers to a situation where employers are hiring workers whom they consider under-skilled or that their existing workforce is under-skilled relative to some desired level.

- *Recruitment difficulties* refer to the situation when employers cannot fill vacancies in spite of an adequate supply of workers. The reasons for this may be varied and can include low remuneration being offered, poor working conditions or image of the industry, unsatisfactory working hours, commuting difficulties, ineffective recruitment effort by the firm. (Shah & Burke 2005:45)

Shah and Burke (2005: 44) stress the importance of these distinctions and argue that 'the concept of a skills shortage has different meanings to different people' and the lack of a common understanding of the concept often obscures analyses of problems, their causes, and possible solutions.

Workforce shortages in rural areas results from a combination of supply and demand side factors (BTRE 2006). Becker et al (2013:343) identify that three different groups of factors influence an employee's decision to join, leave or remain with an organisation, regardless of location: outside factors (such as relocation with partner, leaving to start a family); internal push factors (such as a lack of contentment with the current job or work); or external pull factors (such as more attractive offers from other organisations). Schoo *et al.* (2005) identify three key domains that impact upon recruitment and retention in rural and remote areas: individual or personal, organisational, and community issues (cited in Becker et al. 2013:343). The following outlines the key supply and demand side issues for labour shortages in rural areas from the literature:

SUPPLY SIDE FACTORS	DEMAND SIDE FACTORS
Out-migration and net migration loss	Unstable demand for work in some sectors, e.g. seasonal workforce needs in agriculture, tourism, hospitality etc
Competition from other industries	Boom and bust cycles of certain industry, high wage mineral and energy absorbing skilled workers in boom cycles. Cyclical nature of work fragments career pathways
Ageing rural workforce and departure of mature workers from the rural labour market	New employment opportunities in coastal and urban areas
Inability of education and training providers to supply the needs of the labour market.	Globalisation impacts, changing consumer demand, productivity and competitiveness elements in rural areas and economies in transition
Liveability factors (social, infrastructure, services, and other opportunities elsewhere	Industry shifts relating to environmental sustainability measures, regulations and opportunities (e.g. environmental regulations and opportunities in the green economy)
Diminishing attractiveness of careers in some industries or lack of career pathways e.g. in agriculture	Impact of technologies, including e-commerce, digital business, and automation
Small resident populations in rural areas with no reserve workforce	Regulatory and legislative compliance e.g. work place health and safety

Low level of formally recognised skills	Increasing contract work in rural areas e.g., consultants

Figure 7: Supply and Demand Factors for Workforce Shortages
Sources: Argent and Tonts 2015:146, Jobs Queensland 2019, DAF 2012)

Consultations with key policy stakeholders revealed that we do not have enough evidence of the labour needs and skills at regional, occupational and industry levels. One informant identified that "we do not have enough knowledge about the detailed dynamics of workforce needs at the local industry level. Our predictions for the future, while based on broad trends, is less precise". This view is supported in the literature on Australia's rural workforce. For example, Davies et al (2009:1) state that "little is known about the sectoral, occupational and social dimensions of the problems. Government and industry inquiries into skilled labour shortages have tended to be broad-based, drawing on aggregated sectoral or state-wide trends".

Labour and skill shortages can challenge the profitability, economic contribution, and sustainability of businesses and industries. The Australian Government aims to track skills shortage in different states including how vacancies are filled, the number of applicants and the suitability of applicants. Some industries in the rural and regional areas of Queensland have had difficulty recruiting in their most recent recruitment round in 2018. Figure 7 provides a snapshot of the applicants per vacancy, suitable applicants per vacancy and the proportion vacancies filled in regional Queensland in 2018.

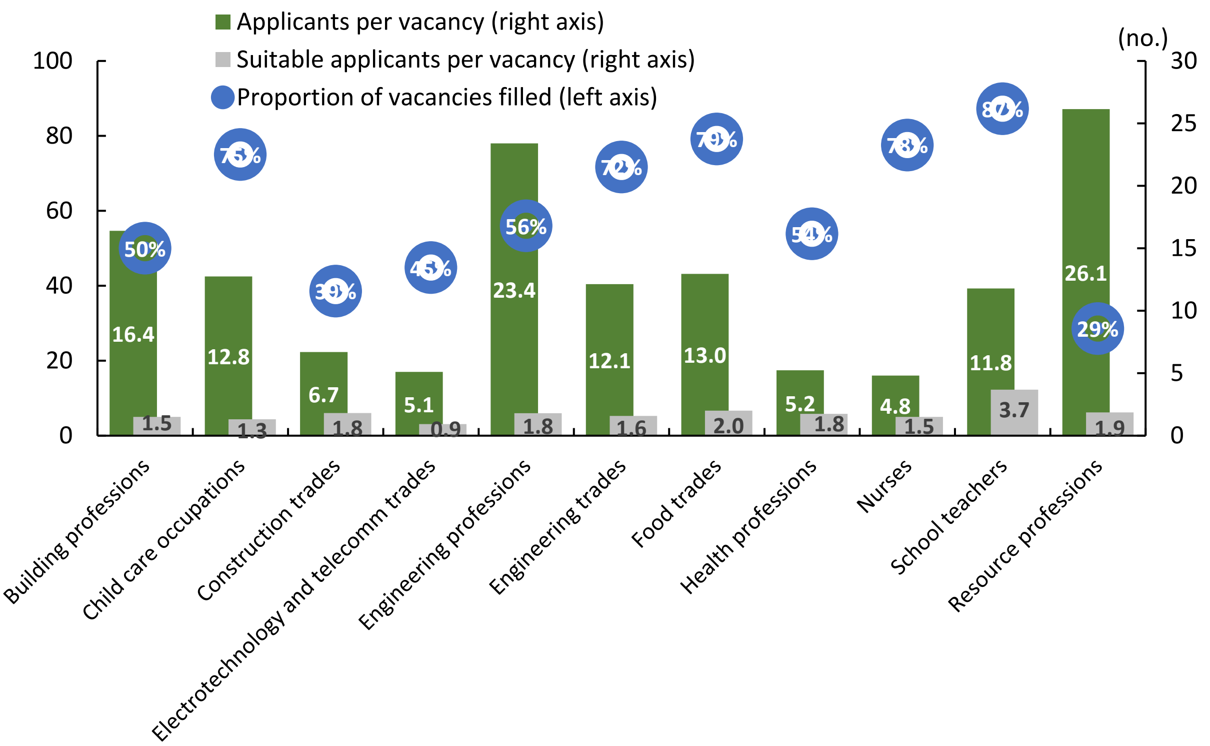


Figure 8: Applicant and Vacancy Characteristics, Rural Queensland
Source: Department of Employment, Skills, Small and Family Business 2018

Industries such as Agriculture, Forestry and Fishing (60%); Manufacturing (47%); Construction (48%); and Health Care and Social Assistance (48%) all had a large proportion of employers with difficulty recruiting (Department of Employment, Skills, Small and Family Business 2018). The reason for these difficulties was often finding people who met the technical requirements of the job and/or difficulties associated with the employer's location. In 2018, employers in rural and regional Queensland had the most difficulty in the hiring of Technicians and Trades Workers (65%), Professionals (64%) and Machinery Operators and Drivers (55%) (Department of Employment, Skills, Small and Family Business 2018). The ability to fill vacancies and the number of suitable applications vary across metropolitan and regional areas. Table 11 provides a comparison, across selected industry cluster groups or specific occupations, between metropolitan and regional areas in relation to proportion of vacancies filled, applicants per vacancy and the number of suitable applications per job in 2018.

Industry	Proportion of Vacancies Filled (%)		**Average number of applicants per vacancy**		**Average number of suitable applications**	
	Metropolitan	*Regional*	*Metropolitan*	*Regional*	*Metropolitan*	*Regional*
Construction	62	39	13.0	6.7	1.8	1.8
Health	71	54	5.5	-	2.0	-
Teachers	93	87	13.2	12.2	2.4	3.7
Nurses	80	54	11.2	4.8	2.8	1.5

Table 11: Metropolitan -Regional Vacancy Comparisons, 2018
Source: Dept of Employment, Skills, Small and Family Business,
https://docs.employment.gov.au/collections/queensland-occupational-cluster-reports

This data demonstrates that employers were less able to fill vacancies in rural areas compared to their metropolitan counterparts. The average number of applicants and their suitability was also far less in rural areas. Some occupations demonstrate chronic shortage in both metropolitan and rural areas. For example, in Nursing, there are on average 11.2 applicants per vacancy with only 2.8 being suitable. In rural Queensland the applicants on average was far less, 4.8 applicants with only 1.5 being suitable. Overall ability to fill Nursing vacancies was 80% in metropolitan areas compared to 54% in rural areas.

There is sectoral information across Queensland, e.g. Tourism, or Horticulture, although these are not comprehensive and fragmented. For example, the Department of Education and Training identified vacancy rate for Educators in Queensland is 14% in metropolitan areas compared to 20% in regional areas. The vacancy rate for Early Childhood Teachers is 27% in metropolitan areas while the comparable figure in regional Queensland was 44% (DET 2016:6). The National Farmers Federation released their *Labour Shortage Action Plan* as early as 2005. The 2008 version of the Plan makes 42 recommendations to address the labour shortfall in agriculture as part of the greater problem of regional depletion, identifying that as "farmers emerge from drought some 100,000 new employees will be needed to return to pre-drought production levels." (NFF 2008). The current NFF strategic document, *2030 Roadmap*, identifies that the job market for graduates of tertiary Agriculture qualifications is five times larger than the supply of graduates and aims for doubling of the number of tertiary and vocational agriculture graduates by 2030 (NFF 2018:27). The Roadmap also identifies that the Australian agriculture industry faces immediate labour shortfall in excess of 101,000 full time workers and aims for the increasing of the existing workforce in agriculture by 25% (NFF 2018:27). In the Health and Human Services sector, particularly in light of an ageing population, aged care services are reporting deficits for Registered Nurses (63%), Personal Care Attendants (49%), Enrolled Nurses (33%) or Allied Health Workers (20%) (King et al 2012:162). The roll out of the National Disability Insurance Scheme (NDIS) has identified key workforce challenges. For example, 63% of employers, in a national disability survey, reported extreme or moderate difficulty in recruiting Disability Support Workers, up from 42% in 2017 (NDS 2018:51). Queensland had lower rates of success in recruiting of advertised positions than other states (e.g. 70% in Qld compared to 88% in NSW). The factors for not being able to recruit included lack of suitable/qualified candidates, candidates not meeting job requirements, geographical factors, poor employment conditions and limited labour supply for the vacancies (Alcarso 2018: 20-25).

In 2018, a number of industries expected to increase their staff numbers in the next 6 to 12 months in the rural and regional areas of Queensland. Industries that expected to have sizable increases in staff were in Construction (28%) and Wholesale Trade (26%). Shortages and skills gaps in rural Queensland economies means that alternative human resources must be found if economic and jobs growth are to be maintained. These sources include older workers, women (who often accompany spouses to regional and remote areas, Indigenous people, refugees, international skilled migrants, disengaged young people**,** longer-term unemployed, school and university graduates and backpackers (DAF 2012, RAI 2019). Recruitment of these cohorts of worker will offer significant potential benefits to employers, however this will need effective multi-pronged strategies for recruitment and retention.

4. DISRUPTIONS: FUTURE OF WORK

The Australian Government identifies that the future of Australian jobs is strong, with the number of workers in most industries is expected to grow over the next five years. They predict the likely job growth to be around 886,000 more jobs by 2023 (Department of Jobs and Small Business 2019). The Committee for Economic Development of Australia (CEDA 2015: 8) states that "the next stage of the industrial revolution promises to continue this trend but in new challenging ways." The new phase of workforce changes is often referred to as the 'Fourth Industrial Revolution' (AlphaBeta 2017). The extension of computerisation into almost all aspects of human activity threatens to radically reshape the workforce of tomorrow. However, in the more globalised economy, it remains to be seen whether it will generate a net increase in employment and wealth within Australia or if the labour market benefits will be dispersed. Given the complexity of the future of labour markets, global fluctuation and dynamic nature of local economies, it will be hard to predict the direction of change While some of the changes can be anticipated from our existing knowledge base today there are likely to be jobs yet to appear in the future (AlphaBeta 2017).

The Department of Employment, Skills and Small and Family Business predicts that top industries for jobs growth in Australia over the next five years (to 2023) will be in:

- Health Care and Social Assistance
- Construction
- Education and Training
- Professional, Scientific and Technical Services.

The Australian Governments *Employment Outlook* identify that employment is projected to increase in 17 of the 19 broad industries over the five years to May 2023, with faster concentration in capital cities. Health Care and Social Assistance is projected to make the largest contribution to employment growth (increasing by 250,300), followed by Construction (118,800), Education and Training (113,000) and Professional, Scientific and Technical Services (106,600). Together, these four industries are projected to provide almost two-thirds (or 66.4 per cent) of total employment growth over the five years to May 2023. (Jobs Qld 2019). Other areas of growth include arts and recreation services, hospitality and accommodation and food services (Jobs Queensland 2019).

The following table provides a snapshot of employment by industry projections in Queensland to May 2023.

Region	Agriculture, Forestry and Fishing	Mining	Manufacturing	Electricity, Gas, Water and Waste Services	Construction	Wholesale Trade	Retail Trade	Accommodation and Food Services	Transport, Postal and Warehousing	Information Media and Telecommunications	Financial and Insurance Services	Rental, Hiring and Real Estate Services	Professional, Scientific and Technical Services	Administrative and Support Services	Public Administration and Safety	Education and Training	Health Care and Social Assistance	Arts and Recreation Services	Other Services	Total (industry)
Queensland	**66.5**	**65.9**	**177.8**	**37.8**	**259.3**	**66.1**	**267.8**	**191.4**	**144.0**	**25.6**	**64.2**	**47.3**	**190.2**	**102.8**	**160.3**	**228.0**	**412.3**	**44.4**	**103.1**	**2,649.8**
Greater Brisbane	*10.0*	*15.2*	*93.4*	*16.5*	*129.0*	*37.9*	*127.2*	*87.0*	*84.0*	*17.4*	*41.9*	*29.0*	*122.6*	*46.8*	*86.3*	*117.3*	*200.3*	*23.4*	*53.8*	*1,339.0*
Brisbane - East	0.7	1.9	10.6	2.2	19.3	4.9	11.4	6.0	7.7	1.2	2.8	2.5	9.1	4.5	6.6	7.3	17.1	2.3	4.6	122.6
Brisbane - North	0.2	2.2	6.1	1.8	8.6	3.2	11.3	7.6	7.3	2.3	8.9	2.5	15.9	3.5	9.8	8.6	25.0	1.1	4.3	130.3
Brisbane - South	0.7	1.8	11.6	2.0	16.8	4.5	21.9	15.4	14.0	3.0	8.3	4.1	22.8	6.9	17.5	21.7	35.7	3.8	8.8	221.1
Brisbane - West	0.4	1.3	4.8	1.2	4.8	2.6	9.3	5.4	2.9	1.4	3.8	2.1	13.1	3.7	6.6	12.7	14.0	1.8	3.4	95.2
Brisbane Inner City	0.4	2.8	7.1	1.5	7.8	3.3	13.7	14.4	5.4	3.0	8.5	7.6	30.7	8.1	10.0	16.9	25.4	3.6	3.6	173.9
Ipswich	2.8	2.1	17.9	3.0	19.1	4.8	17.9	12.5	14.8	1.5	3.0	2.1	7.8	4.7	14.5	16.9	23.2	1.5	8.6	178.5
Logan - Beaudesert	1.5	0.6	18.2	1.2	19.9	6.1	17.2	8.4	11.4	1.8	3.2	2.5	8.5	5.7	7.5	14.0	15.6	1.7	7.5	152.5
Moreton Bay - North	1.6	1.0	9.8	1.0	17.2	3.7	13.3	8.0	8.2	1.2	2.3	3.1	4.2	4.4	5.1	6.7	17.2	1.2	5.4	114.5
Moreton Bay - South	0.3	0.5	7.1	0.9	10.4	3.0	9.7	7.4	9.4	1.7	3.3	1.8	6.8	3.5	7.4	7.8	15.9	2.7	4.1	103.8
Rest of Qld	*51.7*	*49.5*	*75.9*	*16.7*	*134.0*	*27.1*	*135.1*	*111.5*	*63.4*	*12.9*	*20.6*	*21.6*	*73.8*	*52.8*	*78.1*	*112.7*	*196.9*	*23.8*	*50.5*	*1,308.8*
Cairns	5.4	1.3	6.2	1.2	10.3	1.6	13.4	10.8	7.0	1.1	1.5	1.8	5.3	6.6	7.9	9.9	20.9	2.5	4.7	119.2
Darling Downs - Maranoa	6.9	2.4	4.7	1.5	5.9	1.7	5.8	5.2	2.4	0.3	0.7	0.6	2.2	0.9	5.0	5.0	8.8	0.5	2.3	63.0
Fitzroy	5.3	9.9	8.5	3.9	9.9	2.7	11.2	6.7	7.5	0.5	0.8	2.2	1.3	3.6	7.0	8.7	14.0	0.7	4.9	109.4
Gold Coast	1.4	1.9	19.0	2.9	44.9	7.1	44.4	37.9	17.5	4.7	6.9	8.8	26.3	19.4	21.7	29.9	48.3	9.2	13.6	365.8
Mackay	10.2	18.6	6.0	0.8	8.1	3.2	10.0	7.6	5.4	0.2	1.0	1.4	6.0	3.4	3.1	5.8	8.3	0.8	5.3	105.1
Queensland - Outback	3.5	5.6	1.0	0.4	1.8	0.4	2.6	2.5	0.3	0.3	0.3	0.3	0.6	0.8	5.5	2.6	3.3	0.7	1.5	33.9
Sunshine Coast	2.7	2.0	8.4	1.5	26.5	3.1	16.5	17.0	6.6	1.6	6.3	3.4	13.5	6.0	10.8	18.8	35.4	3.2	5.9	189.5
Toowoomba	5.9	1.8	5.0	0.7	6.3	2.5	7.3	4.0	3.2	0.6	1.1	1.4	5.1	1.4	4.8	7.3	15.4	0.7	1.9	76.6
Townsville	1.9	3.3	6.0	1.4	9.4	2.9	11.1	7.2	5.8	1.9	1.1	1.7	4.8	3.3	7.0	9.6	20.0	1.7	4.3	104.3
Wide Bay	7.8	3.1	8.7	1.3	8.3	2.2	12.8	7.3	4.9	1.3	1.3	1.3	4.0	2.6	7.1	10.3	19.8	1.4	4.2	109.6
Capital City Australia	**55.5**	**106.1**	**657.4**	**100.8**	**880.1**	**276.4**	**905.8**	**655.3**	**470.8**	**192.0**	**382.7**	**172.7**	**953.7**	**315.1**	**558.2**	**777.3**	**1,277.9**	**195.4**	**326.8**	**9,258.1**
Regional Australia	**262.5**	**126.5**	**279.7**	**52.4**	**397.4**	**90.9**	**423.3**	**325.3**	**176.7**	**39.7**	**63.6**	**57.2**	**196.3**	**138.0**	**242.6**	**340.3**	**635.6**	**67.1**	**158.7**	**4,073.9**
AUSTRALIA	**324.1**	**239.9**	**948.8**	**156.5**	**1,301.3**	**354.7**	**1,338.1**	**978.9**	**654.5**	**237.9**	**455.6**	**233.3**	**1,156.7**	**446.7**	**792.8**	**1,126.0**	**1,931.2**	**273.7**	**485.4**	**13,450.1**

Table 12: Projected Employment Level to May 2023 ('000)

Source: Dept of Employment, Skills, Small and Family Business 2019, http://lmip.gov.au/default.aspx?LMIP/EmploymentProjections

Jobs Queensland has undertaken baseline scenario modelling which identifies that 50% of all new workers are projected to be employed in just three industries — Health Care and Social Assistance; Professional, Scientific and Technical Services; and Education and Training (Jobs Qld, 2019:32). The scenario planning identifies that between 2017-2022, the Health Care and Social Assistance sector will provide growth and be the largest employer, providing 19.8% of all Queensland employment (Jobs Queensland 2019:32). The reasons for jobs growth in these industries include an ageing population; the NDIS; growing demand for childcare and home-care based services is driving jobs growth.; investment in infrastructure (like roads, railways and airports) with strong job growth in the engineering construction sector; house construction for increasing population, continued demand for education and workers will also be needed to build home for our growing population; and demand is growing for qualified workers, especially in computer system design, and the management and consulting services sectors (Department of Jobs and Small Business 2019).

The future of work is associated with participation in lifelong learning and reskilling (Jobs Queensland 2019). Over the last several decades, there has been large changes in the skill composition of employment, with consistent growth in employment of high-skill workers, and a decline in the share of middle-skill workers and low-skill workers (CEDA 2015). This trend will continue with 90% of new jobs over the next five years predicted to need education beyond school and some jobs will need more training than they previously required (Department of Jobs and Small Business 2019). Jobs Queensland (2019) identifies that 66% the new jobs will require higher level of skills. Changes in the disruptions to the future of work are influenced by a range of factors:

- technological change
- demographic and social changes, particularly ageing population, with one in five Australians is expected to be 65 years or older by 2035, up from one in every six in 2015 (Department of Jobs and Small Business 2019:32)
- continued impacts of globalisation and global integration
- global competition for talent and skill
- environmental and sustainability challenges
- intangible assets based economic growth (e.g. services)
- legal, institutional and policy influences
- Increased productivity gains (Jobs Qld 2019, Department of Jobs and Small Business 2019, CEDA 2015).

Companies aim to harness new technologies to achieve efficiency of production and consumption, expand into new markets, and compete in a global market. The future workforce will be driven by factors such as high speed internet, internet of things, artificial intelligence, robotization adoption of big data analytics and cloud technology. These advances are likely to accelerate technology adoption across industry which in turn will change production and distribution patterns including value chains, location of businesses and nature of their workforce. The World Economic Forum (WEF 2018: viii) estimates that the human-machine composition of tasks will shift from 71% human-29% machine in 2018 to 58% human-42% machine in 2022, with some areas such as data processing the ratio for machines is expected to be as high as 62%. WEF predicts that the net outlook for jobs is a positive one. This is supported for Australia in the next five years, increasing by 250,300 jobs (Department of Employment, Skills, Small and Family Business 2019).

Advancements in technology in industry will be posing challenges to existing business models and practices, including workforce practices (WEF 2018, Jobs Queensland 2019). There are debates about the impact of new and emerging technologies on the future of work with little consensus about the possible nature of the changes. Some have suggested that major occupations will be automated with major impacts on the workforce (Frey & Osborne 2013). The Committee for Economic Development Australia (CEDA) research found that 40% of jobs in Australia are likely to be susceptible to computerisation and automation in the near future (CEDA 2015). New occupations are and will be emerging such as 3D Printing Designers, Software Engineers, Social Media Experts, Machine Learning and User Experience Specialists, Data Processing, and other internet related jobs (Berger & Frey 2017, WEF 2018). Please refer to Appendix 5 for examples of the changing nature of jobs and which ones are likely to be stable, changing and or made redundant.

The WEF survey of employers identified 50% of companies expect that automation will lead to some reduction in their full-time workforce by 2022, based on the job profiles of their employee base today. However, 38% of businesses surveyed expect to extend their workforce to new productivity-enhancing roles, and more than a quarter expect automation to lead to the creation of new roles in their enterprise (WEF 2018: viii). Other studies suggest that automation and digitalisation will not impact on whole industries but some jobs or aspects of job tasks (Arntz et al 2016). Some identify that it will change the jobs and the way we do existing jobs (AlphaBeta 2017). Referring to this concept as ‘augmentation’, the WEF (2018:10) concludes that in the near- or medium-term timeframes, their analysis suggests that work currently performed by humans will be augmented by machine rather than being replaced by total automation.

Australian workers spend 20 billion hours each year on a range of occupational tasks which have been bundled into 6 main categories of task:

- *Interpersonal tasks:* These tasks primarily involve directly engaging with other people.
- *Creative & decision-making tasks*: These tasks involve a large amount of creativity and out-of-the-box thinking
- *Information synthesis*: These tasks require workers to interpret information or extract meaning from simple data points
- *Information analysis:* These tasks involve gathering and processing of information
- *Predictable physical tasks*: These tasks include repetitive and routine physical work, such as assembly line workers packaging equipment, or agricultural workers picking fruit
- *Unpredictable physical tasks*: These tasks consist of a wider array of physical work that is not happening on a routine basis. A car mechanic repairing different types of defects undertakes a physical, yet unpredictable task. The same applies to a doctor performing various types of surgery (AlphaBeta 2017:9).

It is argued that activities in the first three tasks groups—interpersonal, creative & decision-making, and information synthesis—are generally the least likely to be rapidly replaced by machines while the last three tasks groups—information analysis, predictable physical and unpredictable physical— are expected to experience workplace change driven by automation in the near future (AlphaBeta 2017:9). The jobs of the future are expected to require human skills in areas such as problem-solving, communication, listening, interpretation, and design (Schwartz et al 2019). WEF survey of employers reveals that increasingly businesses will look to utilize the automation of some job tasks to complement and enhance the human workforces' comparative strengths. It is estimated that in the next 15 years, due to automation, the average Australian worker will spend 2 hours per week less on manual and routine tasks (AlphaBeta 2017:11).

The changing nature of the workforce raises concerns about the social contract and equity outcomes. Arntz et al (2016) argue that while automation and digitalisation are unlikely to destroy large number of jobs, the most impact will be on low skilled/qualified jobs. They note that the challenges will be in coping with rising inequality and ensuring sufficient retraining as these workers are likely to be starting from a low base of education or training. It may also affect female and male workers differently and transform the dynamics of the industry gender gap (WEF 2018). Industries predominantly staffed by men are not projected to grow as quickly as those in which women's employment is more prevalent, mainly Health and Social Services currently dominated by women (Jobs Queensland 2019). New forms of gender segmentation of the labour market may occur with men dominating STEM related industries and feminization of the caring industries. A recent survey of employer views by WEF found that employers believed that by 2022 more than half of all current employees would require significant reskilling or upskilling (WEF 2018). Which employees will be able to access these reskilling options and who are likely to be excluded will be consideration for human resource strategies of firms and government policy. Addressing similar concerns leads Greet et al (2015) to pose two critical questions; "how can we grow these new industries to provide employment opportunities either directly or through related supply chains and supporting ecosystems, and more generally generate employment in the economy as a whole? And how can we address the danger to social cohesion of a permanent underclass, without mechanisms for the fair distribution of gains from economy-wide productivity improvements?" These questions identify that the future of work may exacerbate existing barriers in labour markets but may also create new forms of exclusion and inclusion.

The nature of what work is, who and how it is done and where it will be located are among the questions that face the future of work and will redefine how we work. While the number of positions is predicted to increase (e.g. loss of 1 million jobs to be replaced by 1.75 million new jobs – WEF 2018), the concepts of job and work are likely to change. Friedman states that "what's going on is that work is being disconnected from jobs, and jobs and work are being disconnected from companies, which are increasingly becoming platforms" (Cited in Schwartz et al, 2019:3). As we step into human-machine collaborations, we will be redefining what is a 'job' and how it is done. Organisations are increasingly using different workforce models with alternative options to find skills from hiring full time workers to managed services, outsourcing, independent contractor, and gig workers (Schwartz et al 2019). Noting major changes beyond the normal employee life cycle, Schwarz et al state "Orchestrating this complex use of different workforce segments might require new models. It could fundamentally change our view of the employee life cycle from the existing "attract, develop, and retain" model to one where the key questions are how organizations should access, curate, and engage workforces of all types" (Schwartz et al 2019:4).

Foresights from industry, policy makers and education and training providers to adequately and timely prepare for challenges is called for in the literature (Green et al 2015, RAI 2015). Some of the challenges will be address by exploring opportunities for new jobs and to enable disadvantaged workers entry or to remain in the workforce e.g. utilisation of assistive technologies to expand the range of employment opportunities available to a person with disability, or use of new technologies to enable more jobs to be done remotely (Department of Jobs and Small Business 2019). AlphaBeta

(2017) identifies that that impacts of automation can be highly beneficial and include benefits such as high levels of productivity, less work related injuries and time to engage in higher order and creative elements of work, resulting in higher levels of work satisfaction. The productivity gains, it is asserted, could boost Australia's national income by $2.2 trillion between 2015 and 2030 (AlphaBeta 2017: 3).

In thinking of the future of the economy and jobs, the Queensland Government identifies the need to build on competitive strengths, diversify the economy and create the knowledge-based jobs of the future. Queensland Government's *Advance Queensland Program* has identified 6 key sectors for the future to develop 10-year road maps. These sectors are:

- Advanced manufacturing
- Aerospace
- Biofutures
- Biomedical
- Defence
- Mining equipment, technology and services (Queensland Government 2019b)

The implications of these disruptions for regional Australia are massive. Jobs Queensland conducted scenario based analysis for the future of work. One of the scenarios was a Technological Change: increasing labour productivity of all industries in Queensland so that the productivity of each is 0.25% higher than the baseline each year between 2017-18 and 2021-22. The results of this scenario for rural Queensland's regions are as follows:

Employment Numbers: All Regions

Region	2017	2022	Scenario 1: Technology
Queensland	**2,373,023**	**2,562,671**	**2,563,317**
Brisbane	685,212	734,952	735,406
Cairns	110,498	119,266	119,259
Darling Downs - Maranoa	64,207	66,509	66,488
Fitzroy	114,891	118,568	118,504
Gold Coast	311,007	344,776	345,055
Ipswich	153,908	178,911	178,898
Logan - Beaudesert	140,675	152,145	152,247
Mackay	93,639	95,647	95,598
Moreton Bay - North	109,865	120,548	120,587
Moreton Bay - South	105,436	115,385	115,404
Queensland - Outback	33,261	32,282	32,254
Sunshine Coast	169,445	183,144	183,188
Toowoomba	72,529	78,099	78,127
Townsville	94,379	101,898	101,835
Wide Bay	114,071	120,541	120,470

Table 113 Anticipating Queensland Skills, Scenario 1-Technological Change
Source*:* Jobs Queensland 2018

The impact of technological change under this scenario gives a small increase to the baseline, with 2.5 million jobs by 2022, only a 0.3% increase from the 2022 baseline. Regions and occupational groupings are affected differently. With the exception of Mining, trade-exposed industries should experience above average growth under this scenario, as should those regions with high levels of employment in trade exposed industries. The above average growth of industries such as Construction and Agriculture, Forestry and Fishing leads to above average growth in the employment of Technicians and Trade Workers, and Labourers while Health Care and Social Assistance and Retail Trade show decreases (Jobs Qld 2018a:20). Jobs Queensland conducted two other scenarios relating to migration and change in commodity prices (coal and iron ore).

These scenarios are useful in drawing attention to the possible impacts for future workforce and economic outlook. Given Queensland's regional economic profiles, with a reliance of rural economies on a natural resource base, ageing demographics, and lower levels of higher skills and qualification, timely and appropriate policy interventions are a prerequisite to economic prosperity and social wellbeing. The WEF (2018: v)) comments that to date, many employers' retraining and upskilling efforts remain focused on a narrow set of current highly-skilled, of highly-valued employees. However, WEF (2018) argues in order to truly rise to the challenge of formulating an effective workforce strategy for the Fourth Industrial Revolution, businesses will need to recognize human capital investment as an asset rather than a liability as they currently do. This is a critical consideration for rural Queensland relates to economic transitions and how investment in human capital can keep industries and jobs in the regions.

Initiatives from governments, industry and regional bodies are beginning to emerge. For example, in 2019, Regional Australia's Intergovernmental Shared Inquiry will address future workforce challenges, with a particular focus on:

- Technology change and the impact it has on the size of the regional workforce, as well as the changing skills needed to meet the workforce demand
- An examination of initiatives in which different regional communities are taking to improve the 'pathway into work' for school leavers, and job seekers
- Better approaches for delivering education and training in 'thin' markets
- An analysis of the labour market to explore why participation rate and 'employment culture' varies in different regional areas
- A review of the expectations of regional job creation through the National Disability Insurance Scheme (NDIS), and the actions regions are taking to ensure there is a capable workforce available
- An investigation of the healthcare and social assistance industry as the biggest source of job demand for regions in the future. This Inquiry will look at the mix of the public and private sector, high and low skill jobs in different places, as well as gaining an understanding of future demands in places of different socioeconomic characteristics (RAI 2019).

The Australian Government has recently announced that it will develop a national *Digital Economy Strategy* which will focus on ways that governments, businesses and the community can adjust to seize the benefits of digital transformation.

Workforce of the future is one in which workers will need a range of complex skills. Workforce strategies to address the needs of future businesses need rethinking. Reskilling is ana critical imperative. Employers anticipate a future workforce needs will be met by a combination of strategies including hiring wholly new permanent staff already possessing skills relevant to new technologies; seek to automate the work tasks where possible; and retrain existing employees (WEF 2018: ix). Disruptions to the work will bring about a fundamental shift in the way we see work, bring new job and workforce models and shift the employee lifecycle. As workforce transformations accelerate, the window of opportunity for proactive management of this change is closing fast (AlphaBeta 2017). Key stakeholders need to engage in the strategic workforce within the context of an increasingly global competition for workers and major changes to the nature of workplaces.

5. WORKFORCE AND INTERNATIONAL MIGRATION

Permanent migration to Australia has been a feature of Australia's immigration policy since Federation (Castles and Miller 2009). Australian Governments have long used immigration as a means of securing population growth, meeting labour and skills shortages and promoting economic development (Argent & Tonts 2015). Currently 28.5% of Australians identify as being born overseas or over 45% had one parent born overseas (ABS 2016). The successful settlement of immigrants is reflected in many rural and regional parts of Queensland. For example, proportion of culturally and linguistically diverse communities in agriculture for the whole of Australia is 11 % in 2016 (Binks et al. 2018.2) and in Queensland 26% in 2017 (DAF 2018:11).

Immigration is one of the sources of skilled and unskilled labour sources for Australia and will become increasingly important (Zhao et al 2018). For example, the Australian Food and Grocery Council noted that access to overseas workers is also important for agribusinesses "Improved access to overseas workers where suitably qualified staff, or an insufficient number of locals, are not available is critical to the competitiveness of the agribusiness, food and grocery manufacturing sector in Australia" (cited in Productivity Commission 2015:447). In a study conducted by Australian Bureau of Agricultural and Resource Economics and Sciences(ABARES), a horticultural employer stated that "they would not be able to meet their labour demand by relying on local Australian residents, and several said without access to seasonal workers and/or working holiday makers they would not be able to pick their crops" (cited in Zhao et al. 2018:22).

Immigrants to Australia come under a number of permanent and temporary arrangements. The permanent migration comprises the Skill Stream (focused on attracting skilled immigrants), the Family Stream (recognising family consideration given Australia's multicultural composition) and Humanitarian (focusing on refugees and humanitarian basis for migration). The Skilled Stream of the Australia's Migration Program is designed to attract migrants who can make a significant contribution to the Australian economy, and fill positions where no Australian workers are available. The Migration Program allows 160,000 places for the 2019-2020 year. Skilled migration is the largest component of the Migration Program with 108,682 places in 2019-20, i.e.69.5% of the program (Department of Home Affairs 2019a). The other components are family and special eligibility. The Refugee and Humanitarian program is separate to the Migration Program with 18,750 places allocated in 2018-19 (Department of Home Affairs 2019b).

Migration to the regions can be permanent or temporary. The following classes of visa categories are available:

- Working Holiday Visas
- Temporary Skill Shortage visa (subclass 482) – a temporary, skilled visa
- Temporary Activity visa (subclass 408) – a temporary visa for specialist work
- Regional Skilled (Provisional) (subclass 489) - a temporary, regional skilled visa
- Temporary Work (short stay specialist) visa (subclass 400) – a short-term visa for specialist work
- Employer Nomination Scheme (subclass 186) – a permanent, skilled visa.
- Seasonal Worker Programme (subclass 403) – a temporary visa for seasonal work
- Regional Sponsored Migration Scheme (subclass 187) – a permanent skilled visa
- Pacific Labour Scheme (subclass 403) – a temporary visa for low and semi-skilled, non-seasonal work (Department of Home Affairs 2019c).

A new skilled regional provisional visa was announced as part of the 2019-2020 Budget for skilled migrants, and dependent family members, who want to live and work in Australia. There will be two new skilled regional provisional visas introduced in November 2019:

- Skilled Employer Sponsored Regional (Provisional) visa: for people sponsored by an employer in regional Australia
- Skilled Work Regional (Provisional) visa: for people who are nominated by a State or Territory government or sponsored by an eligible family member to live and work in regional Australia.

Holders of the new skilled regional provisional visas will need to live and work in regional Australia. Visas will be granted with a validity period of up to five years. Holders of the new skilled regional provisional visas will be able to apply for a Permanent Residence visa. The Permanent Residence (Skilled Regional) Visa will commence in November 2022. To be eligible for permanent residence, holders of the new skilled regional provisional visas will need to demonstrate they have lived and worked in regional Australia while holding one of the new Skilled Regional Provisional visas. This new visa will replace the existing regional visa provision (Australian Government 2019). The benefits of these visas for regional Australia are articulated by the Australian Government as:

- Employers in regional Australia, as well as State and Territory governments, who sponsor regional skilled migrants will have access to more occupations than equivalent non-regional visas
- Based on current occupation lists, the Skilled Employer Sponsored Regional (Provisional) visa will have access to over 450 more occupations than closest non-regional equivalent visa, and the Skilled Work Regional (Provisional) visa will have access to over 70 more occupations than the closest non-regional equivalent visa
- Priority processing arrangements will be expanded to include all visa applications sponsored by regional employers as well as other visa applicants who will live and work in regional Australia
- Five additional points for regional nomination or sponsorship provide an extra incentive for potential migrants to consider settling in regional Australia. (Department of Home Affairs 2019d).

There are also additional options for international students who graduate from a regional institution. This initiative provides for an additional Temporary Graduate visa with allows an extra year of post-study work rights and to live in a regional area.

Skilled migration nominations are assessed against three occupation lists in demand including the Short-Term Skilled Occupation List; the Medium and Long-Term Strategic Skills List; and, the Regional Occupation List (Department of Home Affairs 2019). The list provides occupations in demand under the Australian and New Zealand Standard Classification of Occupations (ANZSCO) code and specifies the skill level of jobs, qualifications and/or experience needed to work in occupations. There are 673 occupations listed at March 2019 of which 77 are listed under the Regional Occupational List. The list of occupations in the regions is presented in Appendix 4. These occupations are consistent with skills needs in regional areas, including agricultural occupations, trade occupations and professional occupations (Department of Home Affairs 2019).

The Pacific Labour Program offers two categories of visa to selected countries from the Pacific Islands and East Timor: a Seasonal Worker Program for nine months and Pacific Labour Stream which enables stay up to three years (Department of Home Affairs 2019 e). The Australian Government introduced $2.9 million over two years from 2018-19 to implement a 12-month pilot program (the Pilot) to improve small farmers' access to workers through the existing *Seasonal Worker Programme* (SWP).

The Pilot will simplify SWP requirements to make it easier and quicker for labour hire approved employers under the SWP to recruit and move seasonal workers between smaller farms. The Pilot will be implemented in up to three regions (Australian Government 2019:151).

Many growers reported that they gained greater control over the selection of their labour supply by becoming an approved employer under the SWP and could save costs. The Australian SWP was set up in 2012 in order to contribute to the supply of low-skilled labour to Australian horticulture industries, where employers can't meet their needs with local labour, whilst also advancing the economic development of Pacific Island countries and Timor-Leste. However, growers also reported that the processes to become an approved employer and recruit seasonal workers were challenging. Several pointed to too much 'red tape', and visa changes that had caused disruptions and uncertainty about planned worker arrivals. Some regarded the recruitment process and other requirements a barrier to more growers becoming approved employers and expressed the need for clearer and simpler processes. The need to provide accommodation was a key factor that some growers identified as limiting them from employing more seasonal workers (Zhao et al 2018).

The productivity of seasonal workers was, on average, 20% higher than that of working holiday makers for the farm businesses in this study, based on fruit picking tasks. Seasonal workers who returned to the farm were on average 15% more productive than new seasonal workers. This is mainly because returned workers required minimal induction and training in subsequent seasons as they had previously acquired skills and farm knowledge. This may also reflect potential 'selection effects', such as a stronger incentive to be re-employed, or grower preferences to re-employ them because of their higher productivity. Working holiday makers were generally seen by growers as less reliable, typically working for shorter periods (on average, five weeks compared to 22 weeks for seasonal workers), and often worked for shorter hours per day (Zhao et al 2018:1). It was also found that the non-wage labour cost related to seasonal workers was 2.3 times higher per hour worked than for working holiday makers. This estimate includes costs associated with the recruitment process, some transport, training and administration, which could not be recouped from workers' wages (Zhao et al 2018).

Designated Area Migration Agreement provides flexibility for states, territories or regions to respond to their unique economic and labour market conditions through an agreement-based framework. Under the DAMA framework, employers in designated areas experiencing skills and labour shortages can sponsor skilled and semi-skilled overseas workers. Far North Queensland is the only Queensland area to have secured a 5 year agreement. Northern Territory, South Australia, Kalgoorlie-Boulder, Victoria's Great South Coast and New South Wales' Orana region is among those to enter into a five-year Designated Area Migration Agreement.

The regional visas provide opportunity to attract skills and population to rural and regional areas. In 2016, 83% of the overseas-born population were living in capital cities (Department of Home Affairs 2019f). In the period 2011-2016, 6% of all new arrivals settled in regional areas (RAI 2019:3). The conditions for attracting people to the regions including jobs, liveability, immigrant settlement and social cohesion are critical. How do migrants fare in terms of skills, qualifications and employment is a question that is asked in discussions about migration? Evidence indicates that although migrants face significant barriers in settlement and the labour market (Collins & Krivokapic-Skoko 2012, Babacan1 997,) they have positive labour market outcomes. For example, in 2016, skilled migrants were the most likely to hold a non-school qualification (79%). 62% of those in the Family Stream and 48% of the Humanitarian held a non-school qualification. The Humanitarian results are consistent with the eligibility criteria for migration this group (i.e. entry to Australia as refugee or humanitarian entrants). In 2016, the majority of Skilled migrants aged 15 years and over were in the labour force (83%). This compared with almost two thirds (64%) of Family migrants and about half (48%) of Humanitarian migrants (ABS 2016). Employers had positive views about migrant contributions to the workforce, even refugee contributions. In a survey of 3,365 employers in 2017 about their experiences and attitudes to hiring refugee job seekers, the Australian Government found that employers articulated the benefits to the workplace of refugees including bringing diversity to their business (41%), enthusiasm and work ethic (35%) and skills beneficial to their business (21%) (Dept of Jobs and Small Business 2017:2).

Permanent and temporary immigration has different impacts on rural communities. Research relating to impact of immigration in rural areas is scant. For permanent immigrants, settlement is a complex process involving the immigrant, the immigration process and the host country. The existing research highlights satisfaction by immigrants about settlement in rural areas based on lifestyle, nature and environment (Argent & Tonts 2015, Krivokapic-Skoko & Collins 2016). Many had stayed in that location 4-5 years with intention to remain there in the long term. e.g. 79% of rural migrants were in that location for 4 years or greater in a research conducted by ISSR (2010). Similarly, in other research, of the migrants who arrived between 2006-2011, 84% were still living there five years later in 2016. (RAI 2019:3). Difficulties in settlement into rural communities included geographic and social isolation, difficulty of finding programs, racism, and social exclusion, work for themselves or partners, income disadvantage, finding suitable housing, non-recognition of their overseas work experience and qualifications, lack of access to settlement and English language services (Collins & Krivokapic-Skoko 2012, Babacan 1997). Temporary migration is different with focus on recruitment, predeparture preparation, destination, and return (Hugo 2009).

Collins et al (2016:10) make a critical point that both permanent and temporary migrants play "a critical role in redressing labour shortages across the skill spectrum in regional, rural and remote Australian labour markets." Other benefits of migration to rural areas include curbing population decline and contributing to the culture and vibrancy of regional communities. Permanent and temporary migrant settlement in rural Australia demonstrate numerous benefits and needs to be facilitated effectively by immigration and settlement programs and employer services.

6. WORKFORCE POLCY & PROGRAM LANDSCAPE

The policy landscape is 'congested space' with considerable fragmentation across different jurisdictions (Babacan & Dale 2019). Evidence from around the world highlights the importance of institutional and policy arrangement for regional economic and employment growth (Beer 2015, Rodriquez-Pose 2013). Rodriquez-Pose (2013:1034) states "'institutional arrangements'…the institutional factors that represent barriers for the efficacy of other factors influencing economic development (that is, education, training and skills, innovation, infrastructure and the like)". Government policies and programs are critical in shaping regional development and addressing workforce issues in rural and regional areas. The scope of this paper does not enable a discussion and consideration of the numerous policies and programs across each portfolio that may be relevant for workforce issues. This section provides the selected highlights from key policies, programs, and relevant initiatives and does not purport to provide an exhaustive coverage of all Government programs and policies.

6.1 Queensland Government

The Queensland Government provides a wide range of programs that target employment education, training and industry support. Key areas of support have been skilling Queensland, supporting entry into the labour market and stimulating the economic development for growth including investment attraction, business support and infrastructure development. There is no specific overall rural and regional policy and program framework, however, many programs have regional components.

Queensland Government's *Our Future State: Advancing Queensland's Prioritie*s has six pillars:

- Create Jobs in a Strong Economy
- Give All Our Children a Great Start
- Keep Queenslanders Healthy
- Keep Communities Safe
  Protect the Great Barrier Reef
- Be a Responsive Government

The pillar relating to creating jobs in a strong economy targets the creation of meaningful jobs, economic growth led by private sector investment which will lead to ongoing employment. The achievement targets under this pillar is the creation of 60,000 jobs per year in the period 2018- 2021; increase private sector investment in Queensland by 15% by 2020-2021; and engage 91% young Queenslanders in education, training or work by 2022 (Qld Government 2019). Many government agencies use this framework in their strategic directions and program documents.

The Queensland Government policy objectives can be summarized as:

- Gains in qualifications
- Skills development/training to meet industry needs
- Creation of jobs via strong economies
- Breaking cycles of unemployment, disadvantage and improved workforce participation
- Addressing industry and local labour market needs.

The Queensland Plan is another overarching Plan which was developed following extensive consultation and engagement with over 80,000 people. The Plan has ten foundation areas are:

- Education
- Community/making connections
- Regions
- Economy
- Health and Wellbeing
- Environment
- People
- Infrastructure
- Governance

Two of the pillars (i.e. Regions and Economy) are directly relevant to rural workforce policy considerations. The Vision and Goals of the Plan are outlined below.

	Regions	*Economy*
Vision	In 2044, our strong and diverse regional economies will support communities where people live, work and raise families. Our regions will balance and preserve liveability with robust, sustainable economic growth. They will be centred on towns and cities with growing populations that attract new residents to their enviable lifestyles and opportunities for growth. Reliable and accessible infrastructure will connect our regions with one another, the nation and the world. We will capitalise on the unique attractions of our regions and promote the growth of niche industries and local talents. Each of our regions will discover and develop their distinctive character, culture and heritage	In 2044, Queensland will be the strongest, most diverse economy in Australia, and a key player in the Asian region. Success will come from making the most of what we have to offer, building upon our strengths and using innovation to diversify our industries. Our regions will be central to our prosperity, converting their unique strengths into opportunities that drive and sustain growth. All Queenslanders will enjoy a high standard of living, supported by a wide variety of employment opportunities. Unemployment will be at a record low and our workforce will be inclusive, making the most of local talent.

Goals	*Regions are strong* (liveability, attract highly skilled labour and drive innovation, local decision making driving regional development)	Number one performing economy in Australia (resilient, diverse and competitive economy and business sector)
	Capitalise on regional opportunities and assets (regions have strong and diverse economies, regional development and service delivery reflects the needs of the region, we are reliable and safe food bowl for Asia)	Focused on industry development and diversification
	Value and invest in local businesses and workers (range of employment choices regardless of location, career pathways and supporting business and people to locate maturing regional centres).	Qld has the best job opportunities in Australia (innovative industry practices, excellence for training, innovation and employment, education is technologically advanced, invest in research and innovation

Table 14: Queensland Plan: Vision and Goals
Source: The Queensland Plan, 2014, https://www.queenslandplan.qld.gov.au/assets/images/qld-plan.pdf

In 2019, the Queensland Government released *The Framework for Place-Based Approaches* which outlines the importance of community, industry and all levels of government working closely together to improve community wellbeing via place-based approaches. This Framework is an important recognition of Queensland Governments move towards community-driven, locally and place-based solutions to complex social problems. In the context of the workforce, this approach will enable responsiveness to the needs of rural businesses and industries, local providers, individuals and job seekers and more broadly to local labour market environments.

The following outlines some of the relevant headliner programs and where possible rural component will be identified. There will be numerous other programs or sub programs not covered here which may be relevant to the topic. They key ones identified via stakeholders and desktop policy and program review are:

The 2018-19 VET Investment Annual Plan to training places for students, supporting pathways to employment or career progression under the key investment programs. The Plan details Queensland Government's $777.9 million investment in vocational education and training (VET) in the 2018–19 financial year. The key investments in programs include Certificate 3 Guarantee, User Choice (apprenticeships and traineeships), Higher Level Skills, Skilling Queenslanders for Work, Vocational Education and Training in Schools (VETiS),,Foundation Skills, and Public provider grants (some of these are outlined in this section) A number of priority areas are identified for 2018-19 including small business needs, advanced manufacturing, roll out of the NDIS, tourism and hospitality sectors. There is strong emphasis on rural/regional areas and DESBT states that "The Plan continues to recognise that economic and labour market changes are not being experienced consistently across Queensland, and in 2018–19 maintains its focus on strategies and initiatives seeking to reinvigorate regional communities through targeted interventions that align the supply of skills with job demand" (DESBT 2019). The investment framework for VET is presented in Appendix 3

The Skilling Queenslanders for Work initiative (as part of the VET Investment Plan) represents a total funding commitment of $420 million over six years from its reintroduction in 2015–16 up until 2020–21, to support up to 54,000 Queenslanders into work. It aims to increase workforce participation, drive job growth and provide work opportunities for disadvantaged Queenslanders. Key focus is for individuals to gain qualifications, develop skills and provide direct assistance to enter and stay in the workforce. The initiative comprises the following suite of programs: Community Work Skills; Work Skills Traineeships; Get Set for Work, Ready for Work; Youth Skills; First Start; and Work Start incentives. The programs are delivered by a range of agencies including local government and community based organisations. The following table provides a regional breakdown of the funding for 2017-18:

Region	Funding amount	Target assist
Far North Queensland	$3.711 million	703
North Queensland	$4.762 million	1258
Central Queensland	$6.099 million	1034
Darling Downs South West	$4.992 million	843
North Coast	$15.368 million	2790
Metropolitan	$16.913 million	2907
South East	$12.699 million	2471
TOTAL	**$64.5 million**	**12,006**

Table 15: Skilling Queenslanders for Work Regional Allocation 2017-18
Source: DESBT, 2018-19 VET Investment Plan:20

Backing Queensland Jobs -is a program of activities to stimulate the economy and support the business ecosystem. A range of budget initiatives are included to support small to medium size businesses including payroll tax rebates, work cover premium discount and apprenticeship payroll rebate. Rural Queensland small businesses are recognised with measures for payroll tax rebates in rural and reginal areas. The 2019-20 Queensland budget identifies that **o**f the $12.941 billion allocated for infrastructure projects in this Budget, around 60% of this funding is provided to projects outside of Greater Brisbane, supporting 25,500 jobs. Major infrastructure projects are identified in Townsville, Mackay, North West Minerals Province and Far North Queensland.

Advancing Queensland Initiative is a program aimed at innovation and knowledge creations for entrepreneurship, research, commercialisation, new business development. The funding increased from $185 mil 2015 to $755 million in 2019. The purpose mentions creations of jobs for the present and future although no specific reference is made to rural Queensland although numerous projects have been funded in rural and regional Queensland.

Building our Regions is a $445 million targeted regional infrastructure program for local government projects. The program provides funding for critical infrastructure that meet the specific needs of regional communities and supports economic development, including generating jobs, in regional areas of the Queensland.

Works for Queensland is a $600 million program that supports regional Councils to undertake job-creating maintenance and minor infrastructure projects. $200 million was allocated to 65 Councils for 2016–17, $200 million for 2017–19, and $200 million has been approved to extend the W4Q program until 2020–21.

Jobs and Regional Growth Fund. The $175 million program aims to help stimulate private sector investment and creating jobs across the State. The Fund focuses on rural and regional areas to facilitate private sector projects that create employment and economic growth opportunities in regional areas. Financial assistance ranging from $100,000 to over $10 million is available, assessed on a case by case basis and requires a co-contribution.

The *Regional Skills Investment Strategy* (RSIS) is a $9 million initiative funded over four years (2019-2022) that supports selected regional communities to identify current and emerging jobs in key industries and ensure there is a supply of skilled local people to meet this demand. 18 regions have been identified. RSIS will bridge the gap between existing training opportunities provided through the Queensland Government's Annual VET Investment Plan and current workforce skill needs in targeted regions.

Bundaberg	Agriculture, Construction, Health
Burdekin	Primary industry, Manufacturing, Tourism
Cassowary Coast	Business, Primary industry, Tourism
Central Highlands	Agribusiness, Resources, Tourism
Barcaldine, Barcoo, Blackall-Tambo, Boulia, Diamantina, Longreach and Winton	Agriculture, Community services, Tourism / Hospitality
Fraser Coast	Agriculture, Health care and social assistance, Manufacturing
Goondiwindi	Food processing, Health and community services, Transport and logistics
Ipswich	Advanced manufacturing, Defence industries Food processing
Lockyer Valley	Agriculture, Construction, Hospitality
Mackay	Agriculture, Community services/Health, Mining support services
Redlands	Health care and social assistance, Manufacturing
Rockhampton	Construction, Health care and social assistance Mining
Scenic Rim	Health, Primary industry, Tourism
Southern Downs	Food manufacturing, Health and aged care, Tourism
Toowoomba	Advanced manufacturing, Health care and social assistance Transport and logistics
Townsville	Construction, Health care and social assistance Mining
Whitsunday	Agriculture, Mining, Tourism

Table 16 Regional Investment Strategy Regions and Industry
Source: Qld Department of Employment https://desbt.qld.gov.au/training/employers/funding/rsis

Jobs and Regional Growth Fund is part of the government's broader $200 million Jobs and Regional Growth Package. The $130 million fund will help facilitate private sector projects, which create employment and economic growth opportunities in regional areas outside South East Queensland facing significant economic and employment challenges.

Advance Queensland Industry Attraction Fund seeks to bring innovative new projects to Queensland and help them grow in order to drive job creation, regional growth, increased innovation and technology and supply chain development. and also supports the expansion of existing companies.

A range of other initiatives and programs exist. Some examples include:

- *RATEP* – provides support for teacher education pathway for Aboriginal and Torres Strait Islander people. It is offered in partnership with the Queensland Department of Education and Training and TAFE Queensland North. RATEP enables Indigenous people to remain within their local community whilst completing the requirements of the Bachelor of Education (Primary) at a RATEP study centre or at James Cook University's (JCU) Thursday Island study centre.

- *The Remote Area Incentive Scheme* (RAIS) provides a range of allowances and incentives for teachers appointed to state schools located in rural and remote Queensland.

- *TAFE Priority Training Program* – offers additional support to eligible Queensland residents in a specific range of diploma, certificate IV and certificate III programs. This funding is available to eligible students who commence study in applicable programs after 1 July 2018. This funding will be available from 1 July 2018 to 30 June 2020. Eligible programs include a wide range of study areas such as agriculture, manufacturing, and community services.

- *Just Transition Group*: The Queensland Government has established the Just Transition Group to help workers and communities to help create new jobs, drive economic diversification and encourage new investment. The group will work towards future industries and jobs of the future.

Consultations with policy makers identified that the Queensland Government has variable practice on evaluation of the effectiveness of programs. Some stated that no /little program evaluations or reviews are conducted while others identified different practices of review including:

- Feedback from staff in regions, generating new learnings
- Community consultations and feedback
- Internal review
- Formal evaluation with external evaluators

These reviews provided for iterative planning, policy and program making. Much of the reviews are not public documents but are internal departmental processes or papers. One example, where results are publicly available is the evaluation and iteration process of the *Skilling Queenslanders for Work* which was introduced in 2007 by the Queensland Government. In 2012, Deloitte Access Economics evaluated the program and identified that significant positive impacts on job creation and supporting entry into the workforce. The findings included:

- The employment of an additional 8,500 people who would not otherwise have gained employment
- Major benefits to people who faced labour market disadvantage e.g. Indigenous, non-English speaking, rural (particularly Far North Queensland), over 45 year old
- The net present value of the direct benefits over 5, 10 and 40 years is $740 million, $2.2 billion and $9.6 billion respectively. This translates to (direct) benefit to cost ratios of 3.2, 7.6 and 29.9 respectively.

- Net present value of the direct benefits over 5, 10 and 40 years is $740 million, $2.2 billion and $9.6 billion respectively. This translates to (direct) benefit to cost ratios of 3.2, 7.6 and 29.9 respectively.
- Flow on effects of over $9.5 bil. to the Queensland economy in GDP and consumption
- Broader social impacts in wellbeing, social participation resilience and other social capital development (Deloitte Access Economics 2012).

The factors that led to the success of the program included overarching program flexibility, innovative funding approach, strong regional/community focus, commitment to participant needs, and transparency and accountability. The report identifies the need to focus on improved cross jurisdictional coordination between the State and Commonwealth to effectively skill and workforce outcomes. The current version of the program has been able refined based on this evaluation and is a strengthened and responsive policy/program outcome. While it is costly to undertake such evaluations, iterative policy making is a critical process that involves the development of an evidence base relating to impact.

6.2 Australian Government

Australian Government elections took place in in May 2019. At the time of writing of this paper, the Machinery of Government changes were in place with departments in the process of change with new Ministers and reconstructed portfolios. The policy landscape was identified to be dynamic and changing. The information provided in this section relied on feedback from public servants, departmental documents and the Federal 2019-2020 Budget.

The Australian Government is a major provider of a wide range of employment, training and education and income support services. These include a range of payments (e.g. Newstart); jobseeker services; education and training programs that target particular cohorts (e.g. youth, mature workers). These are provided through several Federal Government Departments such as the Department of Human Services, Department Employment, Skills, Small and Family Business and Department of Education. A desk-top search revealed numerous government programs and it will be a cumbersome exercise to repeat those here. These are often universal services which have eligibility guidelines and delivered to all individuals across Australia.

This section identifies key policies and specific programs that are relevant to regional workforce issues. The Australian Government does not have an overarching rural workforce policy. It has periodically commissioned work to develop workforce strategies for particular industries (e.g. aged care workforce strategy 2018) and has recently announced a workforce strategy for the agricultural sector. The House of Representatives Select Committee on Regional Development and Decentralisation (2018:17) identified that “local education and training that is engaged with its community is pivotal to regional development and decentralisation”. The Committee articulates two critical areas for regional policy and investment:

- Investment in capacity building rural/regional communities particularly education and training and leadership development, and
- Investment in human capital; the employment of people to design and deliver services in rural communities (2018: xxvii).

The Australian Government’s main strategy document is *Regions 2030*, adopted in 2017. This is a co-ordinating document which packages Australian Government’s activity and programs under five key areas: Jobs and Economic Development; Infrastructure; Health, Education; and Communications. An important feature of the Jobs and Economic Development is the commitment to decentralisation where Australian Government jobs will be decentralised to regional areas.

Selected highlights from Australian Government programs include:

Building Better Regions Fund Federal Funding $641.6 million	Program that provides grants for projects in regional areas outside the capital cities. The purpose of the fund is to invest in projects that create jobs, drive economic growth and build stronger communities in the region. The program is funded under two streams, one that supports new or upgrade of infrastructure and the other is for community building activities
The Regional Growth Fund Federal funding $10 million	Investment that will run over four years from 2018-19 to 2021-22. The objectives of the Program are to provide funding for major transformational projects that support long term economic growth and create jobs in regions, including those undergoing structural adjustment. Through this Program, it is expected that investment will be leveraged from the private sector, not-for-profit organisations and other levels of government in the region.
Youth Employment Package Federal Funding $840million	Suite of activities that aim to give young seekers employability skills and work experience to get a job. Youth Jobs PaTH is a $840 mil program that enables employers to hire young people through three stages: Prepare, Trial and Hire or for young people to engage in entrepreneurship and self-employment. The Youth Employment Strategy, as part of this package is a $331 mil program that helps young people at risk of long term unemployment
Skilling Australians Fund State and Federal $39.4 Million	A national partnerships agreement between Commonwealth and States to provide funding to support increase skills outcomes for industry. It funds a range of VET programs and additional places for traineeships and apprenticeships. In 2017-18, $187 mil was provided nationally with Queensland receiving $39.4 million.
New Employment Service Model	Following consultations, the Australian Government is introducing the New Employment Service Model commencing in July 2019 as pilots in two locations before being rolled out nationally from July 2022. The main thrust of the changes is a shift to digital service delivery where job seekers who are digitally literate will utilise Digital First and provide self-service online. Job matching, jobs board and training support will be provided on line. The mutual obligation framework for activities to seek employment will remain in place with consequences for non-compliance. It is planned that the mutual obligation requirements will also be digitally implemented. Digital Plus is a service for those who are not digitally literate will be provided with face-to-face support including training to help use digital services. The most disadvantaged job seekers will receive Enhanced Services which will be delivered through employment services providers
Regional Jobs and Investment Packages Federal funding $222.3 million	Investment introduced by the Australian Government in 2018 that is intended to create jobs and drive economic growth in 10 regions by diversifying regional economies, stimulating long term growth, delivering sustainable employment and enabling entry to new markets and sectors. Three pilot regions were selected in Queensland: Bowen Basin, Tropical North Queensland and Wide Bay Burnett.
Agricultural Competitiveness White Paper $4billion strategy	Agricultural Competitiveness White Paper and initiatives focuses on five key areas: A fairer go for farm businesses; building the infrastructure of the 21st century; strengthening our approach to drought and risk management, farming smarter and accessing premium markets. The strategy is a $4 billion

	dollar investment across a range of initiatives linked with farm business models, infrastructure, drought resilience, R&D and access to markets.
Harvest Labour Services and the National Harvest Labour Information Service Federal Funding $24.1 million	Connect workers with employers in 16 harvesting areas across Australia. The Government will provide $24.1 million over four years from 2019-20 (and $6.8 million per year ongoing) to expand from 11 to 16 regions and incentivise providers in placing seasonal workers (Australian Government 2019: 149).
National Labour Hire Registration Scheme Federal funding $6.2 million	The Government will provide $26.8 million over four years from 2019-20 (and $6.2 million per year ongoing), including $1.0 million over four years in capital funding, to establish a National Labour Hire Registration Scheme (the Scheme) to protect vulnerable workers, including migrant workers. The Scheme will make it mandatory for labour hire operators in high-risk sectors, such as horticulture, cleaning, meat processing and security sectors, to register with the Australian Government as a labour hire operator. The Scheme will provide visibility of businesses operating in the labour supply industry, introduce a pre-entry requirement to those operating as a labour hire business, help to reduce worker exploitation, and drive behavioural change in the industry. The cost of administering the Scheme will be recovered from the registered labour hire operators through prescribed annual fees and charges (Australian Government 2019:.151).
Regional Employment Trials (RET) Department of Employment	RET are programs which recognising that some regions face challenges in terms of employment opportunities and growth. The program runs in 10 disadvantaged regions, starting 1 October 2018. In Queensland two regions are part of the trial: Townsville and Wide Bay Burnett. The trial takes into account regional variations to help ensure that local economic opportunities are better promoted to Australians looking for work and employment services providers. In trial regions, Employment Facilitators will work with Regional Development Australia (RDA) committees to enable local stakeholders to address employment issues. RDA committees will play a key role in the identification, assessment and promotion of RET projects to ensure they align with local needs.
Career Transition Assistance (2018-2020). Federal Government $110million	Career Transition Assistance is one of the key measures in the Australian Government's $110 million Mature Age Employment package announced in the 2017-18 Federal Budget. The Program is based on findings by the Department Employment, Skills, Small and Family Business from employers relating to mature age workers. The findings from the research was that employers believed mature age job seekers needed to ensure their skills are up-to-date and there is the need to improve their basic computer and technology skills. The Program will be rolled out nationally from July 2019 following pilots in five sites and will focus on tailored career assistance to understand and capitalise on job opportunities and to develop functional digital literacy and confidence in using different types of technology.
Rural and Regional Enterprise Scholarships: Federal Funding	These scholarships support students with the costs of studying at university or at a vocational education and training institution. The scholarships are valued at up to $18,000 each and are available to support students studying for six months full-time or up to 8 years part-time, on campus, or through online and distance education.

Get Moving	Get Moving enables participants living in slow labour market regions to relocate to their areas for employment.
Aged Care Workforce Strategy Federal Funding $2.6Million	the Australian Government has allocated $2.6 million in 2019-20 to provide additional support for the implementation of the Aged Care Workforce Strategy, in recognition of the growing ageing population and accompanying growth in jobs in that sector (Australian Government 2019:.103).
Workforce Incentive Program (WIP)	Under the Stronger Rural Health Strategy, this program will provide targeted financial incentives to encourage doctors to deliver eligible primary health care services in regional, rural or remote areas that have difficulty attracting and retaining doctors. The WIP will also provide financial incentives to support eligible general practices to engage the services of nurses, Aboriginal and Torres Strait Islander Health Workers and Health Practitioners and allied health professionals

Table 17: Selected Australian Government Programs
Source: Australian Government websites

Although the Australian Government does not have an overarching rural workforce policy, these programs demonstrate the breadth of activities and policies that are implemented across the nation.

7. WORKFORCE PLANNING

Different industries and regions have diverse workforce needs. Workforce planning has occurred in diverse ways. For example, workforce planning in agriculture has taken a specific industry-based approach and has been led by national commodity groups (RJIA 2018:4). This type of approach takes into consideration overall industry concerns but is often isolated from regional initiatives. While there has been industry based skills and workforce plans there is a growing awareness of the importance of place based. Government, at different jurisdictional levels, has also engaged in workforce planning. Jobs Queensland has been engaged in undertaking tourism workforce planning while the Federal Government will develop a force strategy for agriculture. The following selected highlights demonstrates the type of industry and place based workforce planning that is occurring:

Early Childhood Education and Care 2016–2019 Workforce Action Plan. This Qld Government Plan focuses on meeting the workforce needs for a growing early childhood education and care sector with a focus on skills, qualifications and professionalism. The Plan asserts that "Challenges remain, especially for services and educators in rural and remote communities. The review made it clear that many services continue to experience real difficulties recruiting and retaining qualified staff, particularly early childhood teachers" (DET 2016:3). A range of study program supports are identified (study allowances and scholarships) to encourage study and upgrade qualifications but no major rural workforce strategy or initiative is identified in the Plan.

Tourism Workforce Plans. Jobs Queensland has developed a series of 13 place-based *Regional Tourism Workforce Plans* in consultation with tourism industry stakeholders. These regional plans support the *Queensland Tourism Workforce Plan 2017–20*; an industry-endorsed framework that identifies key skills and workforce drivers critical to the tourism industry's growth. The Plans identify the key workforce issues in each location and have strategies for action in areas of skills, recruitment and labour supply.

NDIS Workforce Skills Project. This represents several projects in partnership with industry bodies to develop skills and traineeships for the NDIS.

*Advanced Manufacturing Skills -Training and Workforce Development Strategy for the Manufacturing Industry in Queenslan*d. This initiative identifies the opportunities and challenges within Queensland's manufacturing industry. Focusing on workforce needs for advanced manufacturing the key areas of focus include strengthening the role of apprenticeships and traineeships and the VET system in supporting skills development; building a highly skilled, adaptable and capable existing workforce; increasing the diversity of the manufacturing workforce; and positioning manufacturing as a first choice career.

Townsville Workforce Development Plan. This Plan is currently being developed in partnership between Jobs Qld and Townsville City Council under the Townsville City Deal.

The Fraser Coast Workforce Blueprint 2018. This is a place based approach to addressing workforce issues in the region. The Blueprint was developed by Jobs Qld in partnership with a range of organisations including TAFE and CSIRO.

Aged Care Workforce Strategy. An independent Aged Care Workforce Strategy Taskforce was commissioned by the Australian Government to develop a strategy for growing and sustaining that workforce that provides aged care services and support for older people, to meet their care needs in a variety of settings across Australia. Key areas of focus include skills and education, recruitment and retention, organisational settings and leadership and standards of care.

Medical Practitioner Workforce Plan for Queensland. A plan developed by Queensland Health to secure Queensland's medical workforce. The focus areas include future medical specialist workforce requirements and the distribution of the workforce across Queensland. Securing the medical workforce to deliver services to regional and rural communities is addressed via strategies such as Fellowship Transition Scheme and Regional Specialist Training Fund.

Queensland Production Horticulture Workforce Development Plan, 2013-2015. A workforce plan developed by Growcom focusing Queensland horticulture industries workforce needs.

Labour Demands in the Meat Processing Industry. A plan developed by the Australian Meat Industry Council, identifies the key labour needs in the meat processing industry.

8. DISCUSSION & RECOMMENDATIONS

Rural and regional communities and economies are dynamic and vibrant places. Economies in rural and regional Queensland has been undergoing industry and structural adjustment for several decades. The strength of rural economies lies with their ability to be competitive, agile and make productivity gains. Many industries in Australia are faced with new disruptions causing many to undertake structural adjustment. Many of Queensland's rural economies are undergoing transition, albeit at different paces across industries (Job Queensland 2018). There is a strong correlation between the adaptive capacity of economies with remoteness (Productivity Commission 2017). The implications of this for the workforce development and meeting the needs of changing industries in rural areas is significant. Absolute advantage for economies can be gained by non-price competitiveness pertaining to human capital, learning and interdependencies (Camagni 2002).

Considerations relating to workforce issues in rural areas is complex and relate to the nature of economies and economic development, institutional arrangements, nature of change in specific industries in each region, social and demographic factors, innovation and natural environments. The notable features of the Queensland economy have been identified as:

- large number of regional centres with distinct economies and communities
- large proportion of small businesses
- lower ratio of persons with post-secondary educational qualifications
- lower ratio of persons employed in professional occupations
- ageing workforce demographics
- lower ratio of digital literacy capabilities and slower technology take-up (Jobs Queensland 2019:12, Becker et al 2015).

This complex scenario provides a challenging context for policy interventions, with large industry, education and training stakeholders. From our consultations and our review of the literature, four key areas emerge for policy consideration:

i) Regional Workforce and Skills Shortages;
ii) ii) Workforce Education and Training;
iii) iii) Disruption and New Workforce Models for Transitioning Economies;
iv) iv) Policy and Program Coordination.

The key recommendation for policy, strategy and programs deliberation are outlined below.

Regional Workforce and Skills Shortages: Addressing regional workforce and skills shortages entails a complex interplay of macro-economic trends, social and demographic change and local/regional influencing factors. It involves focused effort in identifying and addressing shortfalls for demand for workers for a particular occupation and ensuring adequate supply of workers who are qualified, available and willing to work. Adequate training is also required so that the workforce is not under-skilled and there is a need to address recruitment difficulties to outreach employees when there is an adequate supply of workers. Depending on the industry and the nature of occupations, different aspects of workforce skills and shortages are occurring in rural Queensland. Attraction and retention involves individual, institutional and community domains (Becker et al 2013). With an ageing population demographic, regional skills and workforce issues are going be heightened with increased reduction in labour force participation. The participation in the labour market is currently approximately 65% which is expected to decline to 61% in 2049-50. (Australian Government 2010 :10). Consequently, policy-makers need to grasp the nature of regional place-based workforce transitions and shortfalls, the local workforce development and service support system, the nature of competition for a limited pool of workers and the critical roles of collective approaches to developing alternative strategic approaches.

While it is impossible to list all of the numerous policy and program options available under this issue, overall, we recommend the need to take a place-based and collective approach to resolving issues. We also recommend that these place-based based approaches should also particularly focus on a few focal areas of critical importance to regions:

- *Retention of young people in rural areas* to complete their education. Students studying in their own regions tend to remain in the regions. Stopping the metropolitan drift of local young people is a critical part of addressing skills shortages. This can be achieved through a range of mechanisms including regional and education incentives and improved choice and options for education and training at the regional level. Attracting young people from metropolitan areas into rural education providers and post completion regional incentives may also assist in addressing skilled and trained workforce in the regions.

- *Providing early career guidance and career options in rural industries* at school needs to be improved. There is a significant role for the industry as well as governments. Attendance at school career expos, better equipping career advisors, information via youth networks, appropriate work experience at school and improved VET in school are some areas of intervention for policy and industry. Developing school education and connecting students with career opportunities and providing industry relevant learning in areas such as science, technology, engineering, business and mathematics, human societies, social sciences, and health are important policy strategies in school education.

- *Joined up regional strategies for attracting and retaining people in the regions.* Malecki (2004) argues that competition for workers involves more than marketing the region itself, but rather needs enhancement of services and amenities that attract and retain workers. To achieve this end in rural settings requires collaborative approaches across key stakeholders. There is a leadership role for government, industry and service providers to work together to develop appropriate place based strategies that enable workers to come and stay. It is important to determine the critical service infrastructure that is needed, the type and level of skills required, the demographic profiles to be attracted, building business capacity for successful recruitment and supporting small businesses with human resource management skills. These represent some of the key possible policy and program areas. There is a need for coordinated approaches across the three spheres of government in improving information systems on skill needs and developing an environment conducive to attracting and retaining workers in the regions.

- *Facilitative policies for alternative sources of workforce*. It has been identified that there are pools of underutilised workforce cohorts of potential employees. These include people retiring or about to retire from the workforce, women, underemployed youth and international migration. While there are some programs programmatically targets, there is not an overarching strategic direction or policy framework with accompanying strategies needed to retain or attract the alternative sources of employees.

- *Addressing Barriers to Labour Mobility*: Labour mobility across locations and within industry/occupations is limited in many occupations in the labour market. Many inputs are more mobile while labour is less so (Productivity Commission 2015:446). Barriers that limit the mobility of labour between segments of the labour market can include age, family circumstances, education, life events, transport housing, industry related factors and local infrastructure. With changing economic and employment contexts, development of integrated approaches to removing the barriers that limit labour mobility is essential. A cross sectoral approach is needed in addressing the determinants of labour mobility at regional level. Particular emphasis will is needed for labour mobility across industries and occupations from declining industries to emerging and new occupations.

- *International Migration*: Immigration programs that meet industry needs and enable flexibility is supported by industry. Extension of the Seasonal Pacific Worker programs should be considered, with the inclusion of women workers from the Pacific. Additionally, labour migration that support harvest seasons needs to be expanded and consideration be given to an agricultural visa. Greater permanent migration to the regions should be identified in line with industry and population needs. Policy initiatives for the permanent settlement of completing international students in the regions considered.

Workforce Education and Training: Education and training will play a critical role, not just in the future prosperity of regions but also in the quality/standard of living of individuals. Technological change, the need for productivity gains and efficiency, environmental sustainability challenges and changing demographics will bring a renewed need to invest in education and training of the workforce. A highly educated and skilled workforce is better able to support innovation and improve productivity. The workforce of the future is one in which workers will need a range of complex skills. Major issues have been identified in this report which policy and programs need to proactively address with education providers, industry and key stakeholders. Government policies, funding models and incentives are important tools to facilitate learning and skilling. The key areas of policy and program are:

- Developing detailed understanding of nature of industry skills needs of different industries and the spatially distribution of these needs
- The provision of frameworks that enable flexibility and ability for students to move more easily between VET and higher education sectors to gain the skills and knowledge they need at different times in their working lives
- Support to industry and employees about what skills are needed or people have in order to address and value existing skills sets and assessment of training needs
- Identifying immediate (accelerated) and long term strategies to meet skills in demand, identified by industries, that are often not covered in VET and higher education courses identified e.g. workplace health and safety, business, financial and risk management, mechanical and machinery maintenance, operational farm skills, digital technologies, and innovation etc
- Developing strategies and supports for more effective school-work transition and how school can equip students for work in rural areas (in curriculum, skills and career pathways and counselling)
- Addressing VET and retraining by making the VET system more effective in providing students with the skills they need while examining the changing nature of industry skills needs. The ability of VET providers to be responsive needs policy considerations of how flexibility can be introduced into the configurations of training packages. Areas that need urgent policy attention include better articulation of the skills needs of industry in regions, detailed evaluation of VET investments against skills and workforce needs outcomes, pace of qualifications development and suitability of packages, implications of funding models in rural Queensland, quality of providers, access and equity for disadvantaged learners, flexibility of delivery and micro-credentialing and VET in schools. Additionally, the retraining of workers needs urgent attention and specialist programs for re-training from one industry sector to another, with policy considerations around transferability, differentiated and common competencies and new skills for emerging industries are required. There needs to be a stronger community engagement of VET, particularly with industry and job seekers. New models of pathways from VET to higher education in rural areas needs to be identified and supported with appropriate funding models to enable education provider viability. The examination of funding and financing models for VET should consider a student loan scheme.
- Addressing Higher Education Challenges. A number of areas for policy/program areas have emerged in relation to higher education in rural Queensland including:

    - Supporting the capacity of regional/rural universities to better engage with industry and communities
    - Revising the policy initiatives relating to widening participation in higher education for rural students and strategies to curb the decline in university attendance from rural areas
    - Supporting re-skilling needs of professional employees
    - Higher policy priority for engagement with higher education institutions in order to be better responsive industry needs with agile courses ad programs

- Support industry to better understand higher education pathways
- Support for higher education institutions in rural areas to deliver new degrees in local industries in a region with identified workforce need
- Equip metropolitan universities to understanding employment opportunities in rural areas and delivery of relevant courses
- Development of an employer-higher education rural study-work schemes (bond type schemes).
- Develop flexible options such as micro-credentialing at the higher education level

Disruption and New Workforce Models For Transitioning Economies: The future of work is changing with disjunctures expected to emerge between what is considered a job, the nature of work and how/when it is undertaken. The advance of technology and the redefinition of work will take place at an accelerated rate of pace. There is a policy gap in the processes of alignment between technological and demographic change, global business environment and the development of capabilities and skills of the workforce. Early intervention policy strategies for Identifying and engaging those most at risk of disruption to their employment is key to maintaining engagement in the labour force. Equity issues will become paramount and the development of fair and cohesive society outcomes will need to key aspect of workforce policy innovations. New policy thought leadership is needed in relation to current and emerging future workforce and industry challenges, environmental sustainability, workforce equity outcomes due to industry transitions and new models that address emerging challenges. Facilitating integrated and coordinated approaches across stakeholders to and providing a strong evidence/research to understand the nature of the changes taking place are critical in the policy process.

Policy and Program Coordination: The current policy and program landscape is characterised by complexity- woven in an intricate web of government, regional, industry and stakeholder relationships which are made more complex by different roles and authorities hold across the various jurisdictional arrangements. This has resulted in policy and program challenges including:

- Poor or inconsistent definitions being used to underpin policy making
- Fragmentation, duplication, and conflicting approaches
- Lack of clarity of policy objectives in relation workforce development
- Lack of clarity of roles and responsibilities
- Lack of common geographic regions
- Lack of an evidence base and research
- Lack of evaluation and knowledge of policy impacts.

The development, attraction and retention of the workforce is a complex process, which requires quality governance and effective policies. There is an urgent need to take adaptive and integrative approaches to regional and rural workforce development including policy/program coherence and coordination. Using place based approaches requires de-centralisation and devolution of decision making to the actors at the regional/rural level to enable responsiveness, planning and implementation at the local level.

CONCLUSION

Vibrant and prosperous regional communities rely on industries that can meet their workforce needs and citizens that can find and retain employment. Queensland's regions have their own unique population, economic and workforce characteristics and challenges. This paper provides an overview of workforce characteristics of rural Queensland, the changing nature of economies and future disruptions and change. Queensland rural economies face factors such as skill shortages, structural changes in the economy, an ageing population, the outward movement of young people, and changes in external market conditions tied to global processes. Queensland economies can be seen as transitioning economies which are dynamic. Major changes are emerging in the nature of work, where work is and how industry will recruit. Therefore, aligning the skills and availability of the workforce and the needs of industry is going to be critical. The role of education in skilling and reskilling for the jobs of the future is fundamental. This necessitates a major review of the way education and training providers can be enabled to be responsive to changing workforce pressures. This is particularly going to be critical for rural industries in regional/rural Queensland.

It is argued that "that all places can grow when policy-making is attuned to spatial particularities" (Pugalis & Gray 2016:181). The challenge for policy makers is how to ensure that workforce needs are identified at the local level and policy innovations in education and training, workforce supply and workforce planning can meet the needs of rural Queensland industries and communities.

REFERENCES

ABS (2019) *Labour Force, Australia 2019* , Cat. no. 6291.0, Australian Bureau of Statistics, Canberra, available at https://www.abs.gov.au/ausstats/abs@.nsf/mf/6291.0.55.003

ABS (2016) *2016 Migration Outlook*, Australian Bureau of Statistics, Canberra, available at https://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/3417.0Main%20Features22016?opendocument&tabname=Summary&prodno=3417.0&issue=2016&num=&view=

ABS (2016a) *Census of Population and Housing*, Australian Bureau of Statistics, Canberra available at https://www.abs.gov.au/census

ABS (2016b) *Census of Population and Housing: Reflecting Australia – Stories from the Census, 2016*, 'Aboriginal and Torres Strait Islander Population Article', Australian Bureau of Statistics, Canberra.

ABARES (2019) *About My Region: Regional Profiles*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra, available at http://www.agriculture.gov.au/abares/research-topics/aboutmyregion/qld-wide-bay#employment

Alcorso C. (2018) *Australian Disability Workforce Report*, 3rd ed., National Disability Services, available at https://www.nds.org.au/images/workforce/ADWR_Third_Edition_July_2018.pdf

AlphaBeta (2017) *The Automation Advantage*, Sydney available at https://www.alphabeta.com/wp-content/uploads/2017/08/The-Automation-Advantage.pdf

Argent N. (2011) Australian Agriculture in the Global Economic Mosaic, in *Globalisation, Agriculture and Development: Perspectives from the Asia-Pacific,* M. Tonts, & MA Siddiqu (eds), Edward Elgar, Cheltenham, pp. 7–28.

Argent N. & Tonts M. (2015) A Multicultural and Multifunctional Countryside? International Labour Migration and Australia's Productivist Heartlands, *Population, Space & Place*, Vol. 21, pp.140–156

Arntz M., Gregory T. & Zierahn U. (2016) *The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis* OECD Social, Employment and Migration Working Papers, No. 189, OECD Publishing, Paris, available at http://dx.doi.org/10.1787/5jlz9h56dvq7-en

Australian Government (2019) *Budget 2019-20,* Canberra, available at https://www.budget.gov.au/

Australian Government (2015) *Agricultural Competitiveness White Paper*, Canberra, available at https://agwhitepaper.agriculture.gov.au/sites/default/files/2019-01/ag-whitepaper-at-a-glance.pdf

Australian Government (2010) *Australia to 2050: Future Challenges: The 2010 Intergenerational Report*, Parliament of Australia, Canberra available at http://archive.treasury.gov.au/igr/igr2010/Overview/pdf/IGR_2010_Overview.pdf

Australian Industry Group. (2016) *The Emergence of the Gig Economy*, Australian Industry Group, Melbourne, available at http://cdn.aigroup.com.au/Reports/2016/Gig_Economy_August_2016.pdf

Babacan H. & Dale A. (2019) Emerging Rural and Regional Policy Considerations for Queensland: An Overview Paper, Rural Economies Centre of Excellence, available at https://www.ruraleconomies.org.au/policy- development/ policy-development-for-regional-queensland/

Babacan H. (1997) Non-English Speaking Background Communities in Rural Areas, in *Rural Australia Conference Proceedings*, Charles Sturt University, Wagga Wagga, pp. 15-22.

Becker K., Bradley L., & Smidt, M. (2015) *The Future of Work: What it means for Queensland Businesses.* Queensland University of Technology, Brisbane.

Becker K., Hyland P. & Soosay C. (2013) Labour Attraction and Retention in Rural and Remote Queensland Communities, *Australasian Journal of Regional Studies,* Vol.19(3), pp.342-368.

Beer A. (2015) Structural Adjustment Programmes and Regional Development in Australia, *Local Economy*, Vol.30 (1), pp.21–40.

Berger T. & Frey C.B. (2017) *Industrial Renewal in the 21st Century: Evidence from US Cities*, Regional Studies, Vol. 51(3), pp. 404-413.

Binks B., Stenekes N., Kruger H. & Kancans R. (2018) *Snapshot of Australia's Agricultural Workforce*, ABARES Insights, Issue No 3, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

BTRE (2006) *Skill Shortages in Australia's Regions*, Working Paper No. 68, Bureau of Transport and Resource Economics, Canberra available at
https://www.bitre.gov.au/publications/2006/files/wp_068.pdf

Camagni R. (2002) On the Concept of Territorial Competitiveness: Sound or Misleading? *Urban Studies*, Vol. 39, pp. 2395-411.

Cardak B, Brett M,, Bowden M., Vecci J,.,Barry P., Bahtsevanoglou J. & McAllister R.(2017) *Regional Student Participation and Migration*, National Centre for Student Equity in Higher Education, Curtin University, Perth.

Castles S. & Miller M. (2009) *The Age of Migration: International Population Movements in the Modern World*, 4th ed. Palgrave Macmillan, Houndmills.

CEDA (2015) *Australia's Future Workforce*? Committee for Economic Development for Australia, Melbourne, available at
https://www.ceda.com.au/CEDA/media/ResearchCatalogueDocuments/Research%20and%20Policy/PDF/26792-Futureworkforce_June2015.pdf

Coaldrake P. (2018) *Review of the Future of Vocational Education, Training and Skilling in Central-Western Queensland,* Queensland Government, available at
https://publications.qld.gov.au/dataset/coaldrake-review/resource/ae7e15bf-4041-4651-a711-c8fc114eb089

Collins J., Krivokapic-Skoko B. & Monani D. (2016) *New Immigrants Improving Productivity in Australian Agriculture,* Publication No. 16/027, Rural Industries Research and Development Corporation, Canberra. available at
https://www.agrifutures.com.au/wp-content/uploads/publications/16-027.pdf

Collins J. & Krivokapic-Skoko B (2012) *Attraction and Retention of New Immigrants in Regional and Rural Australia: A Literature Review and National Survey*, Rural Industries Research and Development Corporation, Canberra.

CSIRO (2017) *Food and Agribusiness: A Roadmap for Unlocking Value-Adding Growth Opportunities for Australia*, Commonwealth Scientific and Industrial Research Organisation, Canberra, available at https://www.csiro.au/~/media/.../SMIIndustryRoadmapFoodAgWEB170710-PDF.pdf

DAF (2019) *Growing for Queensland*: A *Discussion Paper,* Queensland Government, Brisbane, available at https://publications.qld.gov.au/dataset/growing-for-queensland/resource/67a8d14f-1e2a-43db-9f1f-85d0ed47220d

DAF (2018) *Queensland Agriculture Snapshot 2018*, Department of Agriculture and Fisheries, Brisbane, available at https://www.daf.qld.gov.au/__data/assets/pdf_file/.../State-of-Agriculture-Report.pdf

DAF (2012) *Industry Skills and Workforce Development Report*, Department of Agriculture, Forestry and Fisheries, Queensland Government, Brisbane.

DAFF (2013) *Agriculture: 2013 Workforce Development and Planning*, Queensland Government, Brisbane.

Davies A., Tonts M., Troy L. & Pelusey H. (2009) *Australia's Rural Workforce: An Analysis of Labour Shortages in Rural Australia,* RIRDC Publication No 09/008, Rural Industries Research and Development Corporation, Canberra, available at
https://www.agrifutures.com.au/wp-content/uploads/publications/09-008.pdf

Deloitte Access Economics (2012) Evaluation *of Skilling Queenslanders for Work*, Department of Education, Training and Employment, available at
https://www2.deloitte.com/au/en/pages/economics/articles/evaluation-skilling-queenslanders-for-work-program.html

Department of Education (2019) *Skilling Australians Fund*, Australian Government, Canberra, available at https://www.education.gov.au/skilling-australians-fund

Department of Education (2019a) *About the Skills Sector*, available at Australian Government, Canberra, https://www.education.gov.au/about-skills-sector

Department of Employment, Skills, Small and Family Business (2019) *Employment Outlook Projections*, Australian Government, Canberra, available at
http://lmip.gov.au/default.aspx?LMIP/EmploymentProjections

Department of Employment, Skills, Small and Family Business (2019a) *Small Area Labour Markets, March Quarter 2019*, Australian Government, Canberra, available at
https://www.employment.gov.au/small-area-labour-markets-publication

Department of Employment, Skills, Small and Family Business (2019b) *Population By Labour Force Status,* Australian Government, Canberra, available at
http://lmip.gov.au/default.aspx?LMIP/Downloads/ABSLabourForceRegion

Department of Employment, Skills, Small and Family Business (2018) *Survey of Employers' Recruitment Experiences*, Australian Government, Canberra, available at
http://lmip.gov.au/default.aspx?LMIP/GainInsights/EmployersRecruitmentInsights

Department of Home Affairs (2019) *Skilled Occupation List*, Australian Government, Canberra, available at https://immi.homeaffairs.gov.au/visas/working-in-australia/skill-occupation-list

Department of Home Affairs (2019a) *Migration Program Planning Levels*, Australian Government, Canberra, available at https://immi.homeaffairs.gov.au/what-we-do/migration-program-planning-levels

Department of Home Affairs (2019b) *Refugee and Humanitarian Program*, Australian Government, Canberra, available at thttps://immi.homeaffairs.gov.au/what-we-do/refugee-and-humanitarian-program/about-the- program

Department of Home Affairs (2019c) *Working in a Regional Area*, Australian Government, Canberra, available at https://immi.homeaffairs.gov.au/what-we-do/regional-migration/working-in-a-regional-area

Department of Home Affairs (2019d) *New Regional Visas*, Australian Government, Canberra, available at https://immi.homeaffairs.gov.au/what-we-do/regional-migration/news/new-regional-visas

Department of Home Affairs (2019e) *Seasonal Visas*, Australian Government, Canberra, available at
https://immi.homeaffairs.gov.au/what-we-do/regional-migration/employ-or-sponsor-someone/seasonal-visas

Department of Industry, Innovation and Science (2016) *Australian Industry Report 2016,* Australian Government, Canberra, available at https://www.industry.gov.au/australian-industry-report—2016

Department of Jobs and Small Business (2019) *Australian Jobs 2019*, Australian Government, Canberra, available at
https://docs.employment.gov.au/system/files/doc/other/australianjobs2019.pdf

Department of Jobs and Small Business (2017*) Employers' Experiences and Attitudes to Hiring Refugees*, Australian Government, available at
http://lmip.gov.au/default.aspx?LMIP/GainInsights/EmployersRecruitmentInsights

DESBT (2019) *2018-19 Annual VET Investment Plan: Key Priorities for 2018-19*, Department of Employment, Small Business and Training, Queensland Government, Brisbane, available at
https://desbt.qld.gov.au/training/docs-data/strategies/vetinvest

DESBT (2018) *2018-19 Annual VET Investment Plan*, Department of Employment, Small Business and Training, Queensland Government, Brisbane, available at
https://desbt.qld.gov.au/__data/assets/pdf_file/0018/8262/annual-vet-investment-plan.pdf

DESBT (2017) *VET Participation: VET Annual Summary*, Department of Employment, Small Business and Training, Queensland Government, Brisbane, available at https://desbt.qld.gov.au/training/docs-data/statistics/training-performance/vet-activity

DESBT (2017a) *Apprenticeships and Trainees: VET Annual Summary*, Department of Employment, Small Business and Training, Queensland Government, Brisbane, available at https://desbt.qld.gov.au/training/docs-data/statistics/training-performance/apprentices-trainees

DET (2016) *Early Childhood Education and Care 2016–2019 Workforce Action Plan*, Department of Employment and Training, Qld Government, Brisbane, available at https://earlychildhood.qld.gov.au/careersAndTraining/Documents/workforce-action-plan-16-19.pdf

Douglas J., Kilpatrick S., Katersky-Barnes R., Alderson R. & Flittner N. (2018) Embedding Tertiary Education in Rural Communities: Building 'Warm Connections', *Studies in Continuing Education*, DOI: 10.1080/0158037X.2018.1548435, pp. 1-14.

DPM&C (2019) *Closing the Gap Report 2019*, Department of Prime Minister & Cabinet, Canberra, available at https://ctgreport.pmc.gov.au/sites/default/files/ctg-report-2019.pdf?a=1

Education Council (2019) *Communique*, 28 June 2019, available at http://www.educationcouncil.edu.au/site/DefaultSite/filesystem/documents/Communiques%20and%20Media%20Releases/2019%20media%20releases/Education%20Council%20Communique%2028%20June%202019%20final.pdf

Education Queensland (2019) *Rural and Remote Education*, Queensland Government, Brisbane, available at https://education.qld.gov.au/schools-educators/other-education/rural-and-remote-education

Gale T. & Parker S. (2015) To Aspire: A Systematic Reflection on Understanding Aspirations in Higher Education, *The Australian Educational Researcher*, Vol. 42 (2), pp. 139–153.

Halsey J. (2018) *Independent Review into Regional, Rural and Remote Education, Final Report*, Department of Education, Canberra, available at https://docs.education.gov.au/node/50281

Hajkowicz SA. & Eady S. (2015), *Rural Industry Futures: Megatrends Impacting Australian Agriculture Over the Coming Twenty Years*, A research report prepared by CSIRO for the Rural Industries Research and Development Corporation, RIRDC, Canberra, available at https://www.agrifutures.com.au/wp-content/uploads/publications/15-065.pdf

Houghton K., (2019) *The Future of Regional Jobs*, The Regional Australia Institute, Canberra , available at http://www.regionalaustralia.org.au/home/wp-content/uploads/2019/04/RAI_SIP-2018-2-1-2_FutureRegionalJobs_Booklet_Print_3.pdf

Hugo G. (2009) Best Practice in Temporary Labour Migration for development: A Perspective from Asia and the Pacific*, International Migration*, Vol.47, pp. 23–74.

ISSR (2010) *Factors That Influence Skilled Migrants Locating in Regional Areas – Final Report*, Department of Immigration and Citizenship, Belconnen.

Jobs Queensland (2019) *Future of Work in Queensland to 2030. Evolution or Revolution*? Queensland Government, available at https://jobsqueensland.qld.gov.au/resources/reports-and-plans/

Jobs Queensland (2018) S*upporting Workforces During Industry Transition: Key Elements for Success*, Queensland Government, Brisbane, available at https://jobsqueensland.qld.gov.au/resources/reports-and-plans/

Jobs Queensland (2018a) *Anticipating Future Skills: Jobs Growth and Alternative Futures for Queensland to 2022*, Queensland Government, available at https://jobsqueensland.qld.gov.au/wp-content/.../anticipating-future-skills-report.pdf

Joyce S. (2019) *Strengthening Skills: Expert Review of Australia's Vocational Education and Training System,* Commonwealth of Australia, Canberra, available at https://www.pmc.gov.au/sites/default/files/publications/strengthening-skills-independent-review-australia-vets_1.pdf

Koshy P. (2018). *Equity Student Participation in Australian Higher Education: 2012 – 2017*, National Centre for Student Equity in Higher Education (NCSEHE), Curtin University, Perth, available at https://www.ncsehe.edu.au/wp-content/uploads/2018/12/Equity-Student-Briefing-Note_2017-18_Final.pdf

Koshy P. & Seymour R. (2015) *Student Equity Performance in Australian Higher Education: 2007 to 2014*, National Centre for Student Equity in Higher Education (NCSEHE), Curtin University, Perth.

Krivokapic-Skoko B. & Collins J. (2016) Looking for Rural Idyll 'Down Under': International Immigrants in Rural Australia, *International Migration*, Vol. 54 (1), pp.167-179.

Lamb S., Jackson J., Walstab A. & Huo S. (2015), *Educational Opportunity in Australia 2015: Who Succeeds and Who Misses Out*, Centre for International Research on Education Systems, for the Mitchell Institute, Melbourne, available at http://www.mitchellinstitute.org.au/wp-content/uploads/2015/11/Factsheet-6-Rural-and-remote-communities-frequently-missing-out.pdf

Malecki E. (2004). Jockeying for Position: What it Means and Why it Matters to Regional Development Policy When Places Compete, *Regional Studies*, Vol. 38, pp. 1101-1120.

Mitchell Institute (2015) *Young People in Rural and Remote Communities Frequently Missing Out*, Fact Sheet No.6, Melbourne, available at www.mitchellinstitute.org.au/fact-sheets/young-people-in-rural-and-remote-communities-frequently-missing-out/

NCVER (2017) *Total VET Students and Courses 2017*, National Centre for Vocational Education and Research, available at https://www.ncver.edu.au/research-and-statistics/data/all-data/total-vet-students-and-courses-2017-data-slicer

NDS (2018) *State of Disability Sector Report 2018*, National Disability Service, available at *https://www.nds.org.au/pdf-file/d3f2aa1f-52e9-e811-80cf-005056ac7853*

NFF (2018) *2030 Road Map*, National Farmers Federation, Kingston, ACT, available at https://www.nff.org.au/publications.html?hilite=labour+shortages

NFF (2008) *Labour Shortage Action Plan,* National Farmers Federation, Kingston, ACT.

NRAC (2012) *Report on the Workforce Planning Capabilities of Agricultural Employers*, National Rural Advisory Council, Canberra, available at http://www.agriculture.gov.au/Style%20Library/Images/DAFF/__data/assets/pdffile/0008/2363381/nrac-planning-report.pdf

OECD (2016) *Excellence and Equity in Education*, Organisation for Economic Cooperation and Development, Paris, available at https://www.oecd-ilibrary.org/docserver/9789264266490-5-en.pdf?expires=1562247986&id=id&accname=guest&checksum=AD8B89E6174F7A1C6917935CA78A288E

Perkins P., Saunders D., Perez T., & Collings J. (2018) *2018 Agricultural Future Skills and Training Needs Research*, Queensland Farmers Federation, Brisbane.

Productivity Commission (2017) *Transitioning Regional Economies*, Productivity Commission Study Report, Canberra, available at https://www.pc.gov.au/inquiries/completed/transitioning-regions/report/transitioning-regions-overview.pdf

Productivity Commission (2013) *Looking Back on Structural Change in Australia: 2002-2012*, Productivity Commission, Melbourne, available at https://melbourneinstitute.unimelb.edu.au/assets/documents/hilda-bibliography/other-publications/2013/Productivity_Commission_annual-report-2011-12-supplement.pdf

Productivity Commission (2005) *Trends in Australian Agriculture*, Productivity Commission Research Paper, Canberra, available at https://www.pc.gov.au/research/completed/agriculture/agriculture.pdf

Pugalis L. & Gray N. (2016) New Regional Development Paradigms: An Exposition of Place-Based Modalities, *Australasian Journal of Regional Studies,* Vol.22(1), pp. 181-203.

Queensland Government (2019) *Our Future State: Advancing Queensland's Priorities*, available at https://www.ourfuture.qld.gov.au/

Queensland Government (2019a) *2019-2020 Queensland Budge*t, Queensland Treasury, Brisbane, available at https://budget.qld.gov.au/highlights/#skills-and-training

Queensland Government (2019b) *Industry Roadmaps*, Department of State Development, Manufacturing, Infrastructure and Planning, Brisbane, available at http://www.dsdmip.qld.gov.au/industry-development/industry-roadmaps.html

Queensland Government (2018) *Queensland Government Response to the Queensland Productivity Commission Inquiry into Service Delivery in Remote and Discrete Aboriginal and Torres Strait Islander Communitie*s, Brisbane, available at https://www.datsip.qld.gov.au/resources/datsima/publications/policy/qgov-qpc-response.pdf

QPC (2017) *Service Delivery in Remote and Discrete Aboriginal and Torres Strait Islander Communitie*s, Queensland Productivity Commission, Brisbane, available at https://www.qpc.qld.gov.au/inquiries/service-delivery-in-queenslands-remote-and-discrete-indigenous-communities/

Queensland Treasury (2019) *Queensland Regional Profiles,* Queensland Government, Brisbane, available at https://statistics.qgso.qld.gov.au/qld-regional-profiles

Queensland Treasury (2019b) *Labour Force, May 2019*, Queensland Government, Brisbane, available at http://www.qgso.qld.gov.au/products/reports/labour-force/labour-force-201905.pdf

RAI (2019) *National Population Plan for Regional Australia*, Regional Australia Institute, Canberra, available athttp://www.regionalaustralia.org.au/home/wp-content/uploads/2019/02/2019_RAI_NationalPopulationPlanForRegionalAustralia_Final.pdf

Queensland Treasury (2016) *Aboriginal and Torres Strait Islander Peoples in Queensland, Census 2016*, Queensland Government, Brisbane, available at www.qgso.qld.gov.au/products/reports/atsi-pop-qld-c16/atsi-pop-qld-c16.pdf

RAI (2019) Future of Regional Jobs, Regional Australia Institute, Canberra, available at www.regionalaustralia.org.au/home/2019-future-regional-jobs/

RAI (2015*) Delivering Better Government for the Regions*, Regional Australia Institute Discussion Paper, Canberra, available at http://www.regionalaustralia.org.au/wp-content/uploads/Delivering-Better-Government-to-the-Regions-FINAL-20151112.pdf

RBA (2019) *Key Economic Indicators Snapshot*, Reserve Bank of Australia, Canberra, available at https://www.rba.gov.au/snapshots/economy-indicators-snapshot/

RJSA (2017) *Submission to the Advancing Skills Consultations*, Queensland Farmers Federation, Brisbane.

Rodriguez-Pose A. (2013) Do Institutions Matter for Regional Development? *Regional Studies*, Vol.47, pp. 1034–1047.

Schwartz J., Hatfield S., Jones R. & Anderson S. (2019) *What is the Future of Work? Redefining Work, Workforces and Workplaces,* Deloitte Insights, available at https://www2.deloitte.com/insights/us/en/focus/technology-and-the-future-of-work/redefining-work-workforces-workplaces.html#endnote-sup-2

Shah C. & Burke G. (2005) Skilled Shortages: Concepts, Measurement and Policy Responses, *Australian Bulletin of Labour*, Vol. 31, pp.44-71.

Te Riele K. (2018) Context of Flexible Learning Options, in S. McGinty, K Wilson, J. Thomas & B. Lewthwaite (eds). *Gauging the Value of Education for Disenfranchised Youth*, Brill Sense Publishers, Ledien, Boston, pp. 1-12

Universities Australia (2017) *Submission to Independent Review into Regional, Rural and Remote Education*, Universities Australia, Canberra, available at https://www.universitiesaustralia.edu.au/wp-content/uploads/2019/06/UA-submission-to-the-independent-review-into-RRR-education.pdf

WEF (2018) *The Future of Jobs Report 2018, World Economic Forum,* Geneva, available at http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf

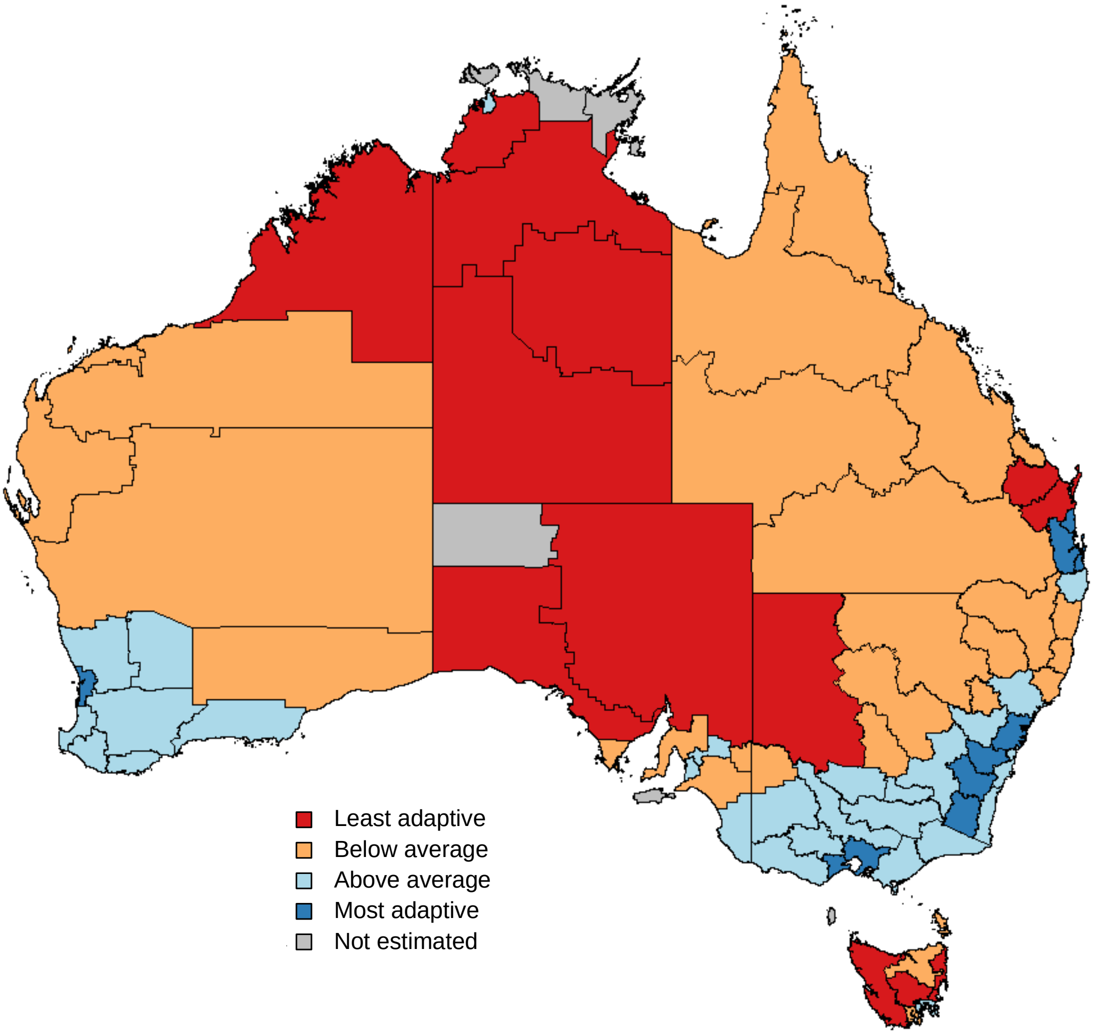
Wibrow B. & Circelli M. (2016) *When One Door Closes: VET's Role in Helping Displaced Workers Find Jobs*, National Centre for Vocational Education Research (NCVER), Adelaide, available at https://www.ncver.edu.au/__data/assets/file/0035/55889/whenonedoorcloses-2861.pdf

Zacharias N. (2017) *The Australian Student Equity Programme and Institutional Change: Paradigm Shift or Business as Usual?* The National Centre for Student Equity in Higher Education (NCSEHE), Curtin University, Perth.

Zhao S., Binks B., Kruger H., Xia C., & Stenekes N. (2018) *What Difference Does Labour Choice Make to Farm Productivity and Profitability in the Australian Horticulture Industry?* Report No. 18.1, Australian Bureau of Agricultural and Resource Economics and Sciences, available at agriculture.gov.au/abares/publications.

APPENDICES

Appendix 1: The Relative Adaptive Capacity of Functional Economic Regions



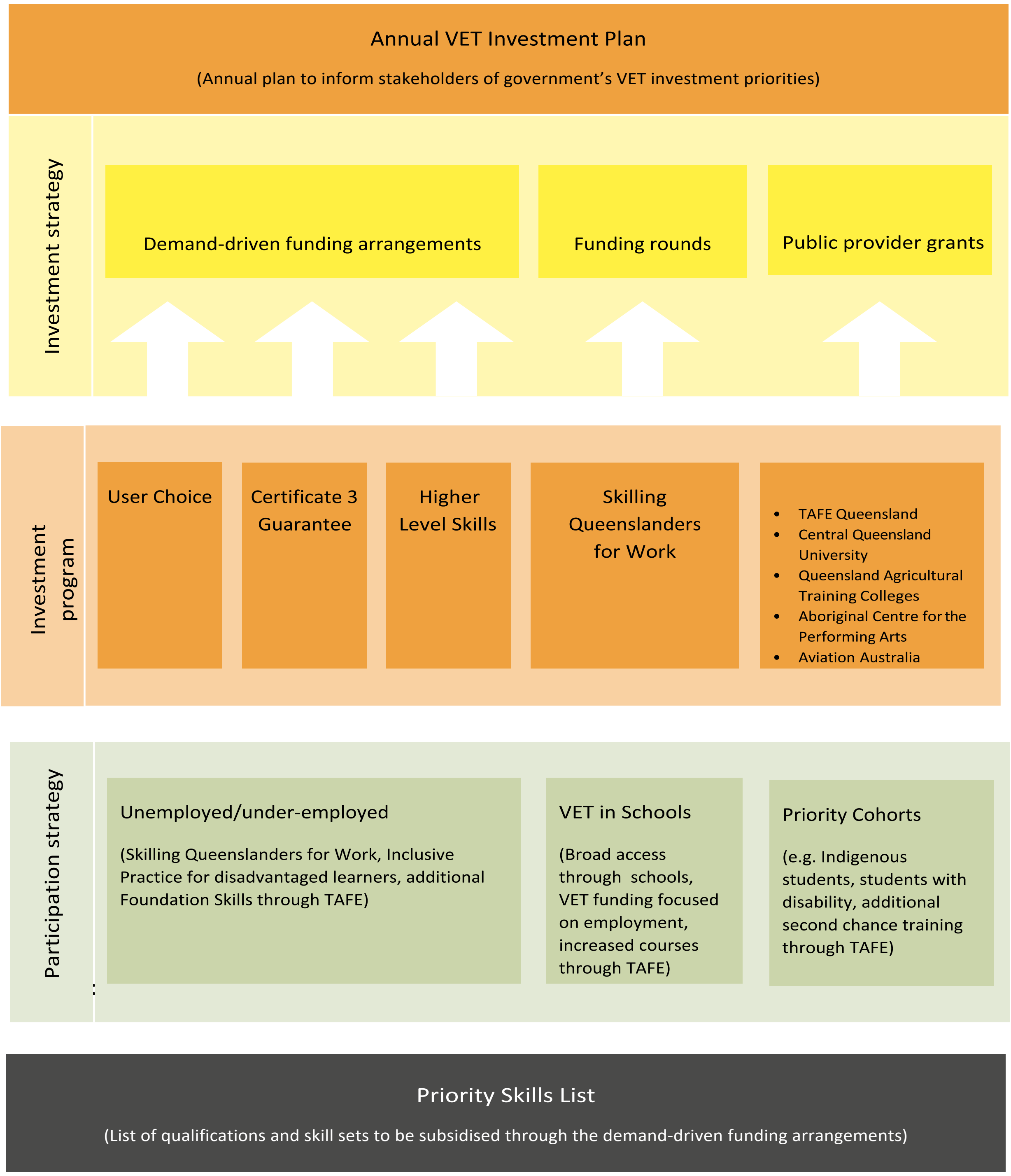
Source: Productivity Commission 2017:11

Appendix 2: Consultation Agencies

- Department of Employment, Skills, Small and Family Business, 1 officer, plus written input
- Department of Employment, Small Business and Training,, Queensland Government, 2 officers
- Department of Agriculture and Fisheries, Qld Government, 2 officers
- Department of Communities, Disability Services and Seniors
- Jobs Queensland,
- Agforce
- Advance Cairns
- Australian Meat Industry Council
- Central Queensland University, VET, Rockhampton
- Dawsons (labour hire, recruitment)
- Farmer, 2 people
- Small business, 1
- Jobs Service providers x 2
- National Disability Services
- Queensland Farmers Federation
- Rural Jobs and Skills Alliance
- Regional Australia Institute
- Regional Skills Investment Strategy- Townsville City Council
- Toowoomba and Surat Basin Enterprise
- Vocational Partnerships Group, Cairns

Appendix 3: VET investment framework

The 2018–19 VET investment framework is outlined below. Investment for key programs under this plan are outlined on the following pages and demonstrate the government's support of training opportunities across a broad range of industries.



Source: 2018-19 Annual VET Investment Plan, Department of Employment, Small Business and Training, https://desbt.qld.gov.au/__data/assets/pdf_file/0018/8262/annual-vet-investment-plan.pdf

Appendix 4- Regional Occupation List

The **Regional Occupation List** contains **77 occupations**. This list is prescribed in legislative instrument **LIN 19/051**: Specification of Occupations and Assessing Authorities.

This list is relevant to persons who:

- Are nominated by a State or Territory government agency and are issued an invitation on or after 11 March 2019 to make an application for a **Subclass 489** (Skilled Regional (Provisional) (State or Territory government agency nominated)) visa

ANZSCO Code	Description	Assessing Authority	Skill Level
121111	Aquaculture Farmer	VETASSESS	1
121211	Cotton Grower	VETASSESS	1
121213	Fruit or Nut Grower	VETASSESS	1
121214	Grain, Oilseed or Pasture Grower	VETASSESS	1
121216	Mixed Crop Farmer	VETASSESS	1
121217	Sugar Cane Grower	VETASSESS	1
121299	Crop Farmers nec	VETASSESS	1
121312	Beef Cattle Farmer	VETASSESS	1
121313	Dairy Cattle Farmer	VETASSESS	1
121314	Deer Farmer	VETASSESS	1
121315	Goat Farmer	VETASSESS	1
121316	Horse Breeder	VETASSESS	1
121317	Mixed Livestock Farmer	VETASSESS	1
121318	Pig Farmer	VETASSESS	1
121322	Sheep Farmer	VETASSESS	1
121399	Livestock Farmers nec	VETASSESS	1
121411	Mixed Crop and Livestock Farmer	VETASSESS	1
131114	Public Relations Manager	AIM	1
132411	Policy and Planning Manager	VETASSESS	1
133112	Project Builder	VETASSESS	1
133612	Procurement Manager	AIM	1
134211	Medical Administrator	VETASSESS	1
134412	Regional Education Manager	VETASSESS	1
139915	Sports Administrator	VETASSESS	1
141211	Caravan Park and Camping Ground Manager	VETASSESS	2
311111	Agricultural Technician	VETASSESS	2
272611	Community Arts Worker	VETASSESS	1
272413	Translator	NAATI	1
271214	Intellectual Property Lawyer	VETASSESS	1
253211	Anaesthetist	MedBA	1
252312	Dentist	ADC	1
251311	Environmental Health Officer	VETASSESS	1
242211	Vocational Education Teacher	VETASSESS/TRA	1
234915	Exercise Physiologist	VETASSESS	1
234311	Conservation Officer	VETASSESS	1
234213	Wine Maker	VETASSESS	1
232413	Multimedia Designer	VETASSESS	1
231213	Ship's Master	AMSA	1
231114	Helicopter Pilot	CASA	1

ANZSCO Code	Description	Assessing Authority	Skill Level
231113	Flying Instructor	VETASSESS	1
231111	Aeroplane Pilot	CASA	1
225112	Market Research Analyst	VETASSESS	1
224912	Liaison Officer	VETASSESS	1
224412	Policy Analyst	VETASSESS	1
223113	Workplace Relations Adviser	VETASSESS	1
223111	Human Resource Adviser	VETASSESS	1
149914	Financial Institution Branch Manager	VETASSESS	2
149912	Cinema or Theatre Manager	VETASSESS	2
149113	Sports Centre Manager	VETASSESS	2
149112	Fitness Centre Manager	VETASSESS	2
149111	Amusement Centre Manager	VETASSESS	2
142115	Post Office Manager	VETASSESS	2
141211	Caravan Park and Camping Ground Manager	VETASSESS	2
139915	Sports Administrator	VETASSESS	1
134412	Regional Education Manager	VETASSESS	1
134211	Medical Administrator	VETASSESS	1
133612	Procurement Manager	AIM	1
133112	Project Builder	VETASSESS	1
132411	Policy and Planning Manager	VETASSESS	1
131114	Public Relations Manager	AIM	1
121411	Mixed Crop and Livestock Farmer	VETASSESS	1
121399	Livestock Farmers nec	VETASSESS	1
121322	Sheep Farmer	VETASSESS	1
121318	Pig Farmer	VETASSESS	1
121317	Mixed Livestock Farmer	VETASSESS	1
121316	Horse Breeder	VETASSESS	1
121315	Goat Farmer	VETASSESS	1
121314	Deer Farmer	VETASSESS	1
121313	Dairy Cattle Farmer	VETASSESS	1
121312	Beef Cattle Farmer	VETASSESS	1
121299	Crop Farmers nec	VETASSESS	1
121217	Sugar Cane Grower	VETASSESS	1
121216	Mixed Crop Farmer	VETASSESS	1
121214	Grain, Oilseed or Pasture Grower	VETASSESS	1
121213	Fruit or Nut Grower	VETASSESS	1
121211	Cotton Grower	VETASSESS	1
121111	Aquaculture Farmer	VETASSESS	1

Source: *Australian Government - Department of Home Affairs | List of eligible skilled occupations,* https://immi.homeaffairs.gov.au/visas/working-in-australia/skill-occupation-list

Appendix 5: Changing Nature of Jobs

Stable Roles	New Roles	Redundant Roles
Managing Directors and Chief Executives	Data Analysts and Scientists*	Data Entry Clerks
General and Operations Managers*	AI and Machine Learning Specialists	Accounting, Bookkeeping and Payroll Clerks
Software and Applications Developers and Analysts*	General and Operations Managers*	Administrative and Executive Secretaries
Data Analysts and Scientists*	Big Data Specialists	Assembly and Factory Workers
Sales and Marketing Professionals*	Digital Transformation Specialists	Client Information and Customer Service Workers*
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	Sales and Marketing Professionals*	Business Services and Administration Managers
Human Resources Specialists	New Technology Specialists	Accountants and Auditors
Financial and Investment Advisers	Organizational Development Specialists*	Material-Recording and Stock-Keeping Clerks
Database and Network Professionals	Software and Applications Developers and Analysts*	General and Operations Managers*
Supply Chain and Logistics Specialists	Information Technology Services	Postal Service Clerks
Risk Management Specialists	Process Automation Specialists	Financial Analysts
Information Security Analysts*	Innovation Professionals	Cashiers and Ticket Clerks
Management and Organization Analysts	Information Security Analysts*	Mechanics and Machinery Repairers
Electrotechnology Engineers	Ecommerce and Social Media Specialists	Telemarketers
Organizational Development Specialists*	User Experience and Human-Machine Interaction Designers	Electronics and Telecommunications Installers and Repairers
Chemical Processing Plant Operators	Training and Development Specialists	Bank Tellers and Related Clerks
University and Higher Education Teachers	Robotics Specialists and Engineers	Car, Van and Motorcycle Drivers
Compliance Officers	People and Culture Specialists	Sales and Purchasing Agents and Brokers
Energy and Petroleum Engineers	Client Information and Customer Service Workers*	Door-To-Door Sales Workers, News and Street Vendors, and Related Workers
Robotics Specialists and Engineers	Service and Solutions Designers	Statistical, Finance and Insurance Clerks
Petroleum and Natural Gas Refining Plant Operators	Digital Marketing and Strategy Specialists	Lawyers

Source: World Economic Forum 2018:9