

MANUFACTURING



Government of South Australia
Training and Skills Commission

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Foreword



The Commission is pleased to present this report on South Australia's Industry Priority Qualifications (IPQs). This unique report details the extensive industry collaboration and consultation process undertaken by the Commission over the last 12 months, culminating in the identification of industry's priorities across the State economy and within 18 industry sectors; the first time this has been achieved. The level of engagement with industry stakeholders exceeded the Commission's expectations, and we acknowledge the hundreds of contributions made by industry. The scope and depth of the results achieved through this collaborative approach means this work will remain important and relevant for years to come.

These Priority Qualifications Lists are a direct reflection of industry feedback and will play an important role as one of a range of inputs used by Government to determine which Vocational Education and Training qualifications will receive publicly funded support.

South Australia needs a workforce that is innovative and adaptable but most importantly, in possession of the skills required to meet the ever-changing needs of industry and the South Australian economy. This report is a valuable tool to assist in meeting this challenge.

The detailed findings contained in this report are valuable across several domains; valuable to Government in guiding public investment in skills development, and valuable to industry to better understand and compare qualification priorities across sectors. These findings are also valuable to the Commission as they provide a platform for further exploration and policy deliberations which in turn will inform future recommendations to Government as part of our State Workforce Development Plan Skills for Future Jobs 2020 to be released at the end of 2016.

While it is acknowledged that the priorities of Government and public investment may differ from those of industry, we are encouraged by the fact that this is the first time Government will have a comprehensive understanding, informed directly by industry, of the needs of industry within the context of qualification and skills priorities.

On behalf of the Commission, we extend a sincere thank you to all contributors and respondents who participated in our consultations. It is clear that the challenges facing skills development for industry are significant, but so is the appetite from Government, industry and the community to actively pursue mutually beneficial solutions.

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Anthony Kittel
CHAIR

A handwritten signature in white ink, appearing to read 'Melinda OLeary'.

Melinda OLeary
DEPUTY CHAIR

Our Members



Mr Anthony Kittel (Chair)
Chief Executive Officer, REDARC Electronics



Ms Melinda OLeary (Deputy Chair)
Nova Systems



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Managing Director, Rheinmetall Defence



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Dr Karleen Thornton
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The Training and Skills Commission

The Commission, established in 2003 and later reformed in 2008, is comprised of industry, academic and community leaders with responsibility for advising the Minister for Higher Education and Skills on skills and workforce development priorities for South Australia and regulation of our Apprenticeship and Traineeship system.

The Commission also provides independent, strategic advice on how South Australia can invest in a sustainable, highly skilled workforce particularly in key growth sectors. This advice is crucial to meeting South Australia's economic and social needs, now and into the future.

Our Responsibilities

The Commission's responsibilities include:

- promoting and encouraging investment, equity and participation in, and access to vocational education and training (VET);
- monitoring, reporting and making recommendations to the Minister on the state of VET and workforce development in South Australia, including the expenditure of public money in these areas; and
- promoting pathways between the secondary school, VET, adult community education, and higher education sectors.

Executive Summary

This report represents the significant findings of the Commission's Industry Priority Qualifications Survey. With 1,138 Qualifications, Skill Sets and Accredited Courses (QSCs) identified by industry as a priority, this report provides a unique opportunity for the State Government to strategically align its investment in skills development with the qualification priorities of industry.

The 'Whole of Economy' List of Priority Qualifications was informed by 850 responses to an industry designed survey, 20 half-day consultation sessions, discussion with peak employer and employee bodies and now a final revision after being available for feedback since the launch of the Interim Report on 8 December 2015. This document represents over 800 hours of consultation activity, and is arguably the most comprehensive exploration of industry demand conducted in any jurisdiction across Australia.

Across the breadth of our State's economy there are 106 QSCs identified as Highest Priority (Tier 1), 169 identified as a High Priority (Tier 2), 225 identified as a Priority (Tier 3), 639 identified as a Low Priority (Tier 4) and 2,961 were not selected (Tier 5).

As diverse as enterprises are within our State, the results of the Commission's stakeholder consultations indicate the wide application of generic and transferable qualifications across most industry sectors. Of the 106 qualifications identified as a Tier 1 priority, approximately 50 percent are highly transferable and non-industry specific. Leadership and management, general business related qualifications as well as work, health and safety qualifications were routinely identified as a high priority across most industry sectors.

These results are complemented by qualitative insights gathered from extensive conversations with our industry Partners, which in turn has enabled the identification of key trends and workforce development challenges in South Australia.

These include:

- The increasing complexity of the Vocational Education and Training (VET) sector is proving difficult to understand and navigate;

- Formal training is not always the answer to the workforce development needs of industry;
- Enterprises highly value skills that increase the internal mobility and capabilities of employees;
- The Australian Qualifications Framework (AQF) and Training Packages are inconsistent and often misunderstood by many engaged in the VET system;
- Continual changes to the level of public subsidy for VET qualifications at both a State and Commonwealth level diminishes business planning capability;
- The capacity of industry to invest in skills development varies widely between sectors and sub-sectors, as well as between small and large employers;
- As diverse and unique as our State's economy is in the national context, so too are the unique needs of our regions when compared to the broader South Australian economy; and
- High growth employers have demonstrated differing needs than those employers experiencing subdued conditions.

Throughout the process of consultation the Commission has remained committed to its principles of transparency with its approach and methodology.

The final consultation phase and work of the Commission has reaffirmed the strength of this engagement, with some (though not extensive) changes in priorities that reflect additional stakeholder feedback and analysis.

The Commission is confident that the 'Whole of Economy' Priority Qualifications List now represents the best platform South Australia has ever had to guide Government investment in VET towards industry need. These qualifications have been self-identified by industry and have been considered in the context of the wider economy. Discussions with our industry Partners and stakeholders were extensive to the point of being able to consider individual qualifications and their place in our diverse VET sector.

It is not always the case that VET qualifications are undertaken for the purposes of employment or improving business productivity. It is therefore important to understand the role that VET plays in our society in the broader context. The Commission has long provided support and analysis on the importance of the VET sector in social inclusion, and recognises the integral part that Adult Community Education (ACE) plays in providing pathways that encourage participation in work and community.

In this report, the Commission has provided suggestions on how the South Australian Government should treat the findings as well as identifying opportunities for future policy work.

That said, this report is a platform for industry as much as a blueprint for Government; one which provides better information on market demand and activity, as well as providing a tool to promote closer alignment of Government support to industry need.

As perhaps the only report of its kind – industry, government, training providers, employers and various other stakeholders now have yet another piece of the strategic puzzle, one which can respond to the question of ‘what training and skills should the Government support’?

This report, although not the complete answer, is a significant step forward and one that will provide insight into the skills needs of industry well into the future.

This report should be read in conjunction with the full Report on South Australia's Industry Priority Qualifications available at: www.tasc.sa.gov.au



Respondents

850 respondents completed the IPQ Survey representing employers, individuals, unions, registered training organisations and industry groups.



Employer Size

58% of employers surveyed identified as **micro or small businesses** with less than 20 employees.



Qualifications

Over 1,100 Qualifications, Skills Sets and Accredited Courses (QSCs) were identified by industry as a priority. This is just over 25% of all available QSCs (4,103) embedded within the IPQ Survey.



Priorities

106 qualifications were identified as a **top priority** for industry over the next five years, while 169 were identified as a high priority and 225 identified as a priority. The remaining 639 were identified as lower priority.



Top Qualifications

Generic (business-related) qualifications were consistently identified as high priorities for industry and the SA economy. These qualifications were often considered applicable to multiple occupations and transferable across industry sectors.



Skills Clusters

Managerial and Leadership, Sales and Customer Service and Information and Technology skills were ranked most highly across industry sectors by survey respondents as the skills required in the next five years.



Key Challenges

Reskilling will be a priority to meet the skills and workforce needs of the future as structural change presents ongoing challenges for the South Australian economy.



Projected Employment Growth

TaSC Interim Modelling projects employment growth of **1.1 % per annum (43,000 new jobs)** over the next five-year period.



Regional Needs

The **Industry Priority Qualifications of State Government Regions** are very diverse and need to be better understood.



High Growth & Small Employer Needs

Both High Growth and Small Employers have ranked **Marketing & Customer Engagement qualifications** as high priority.



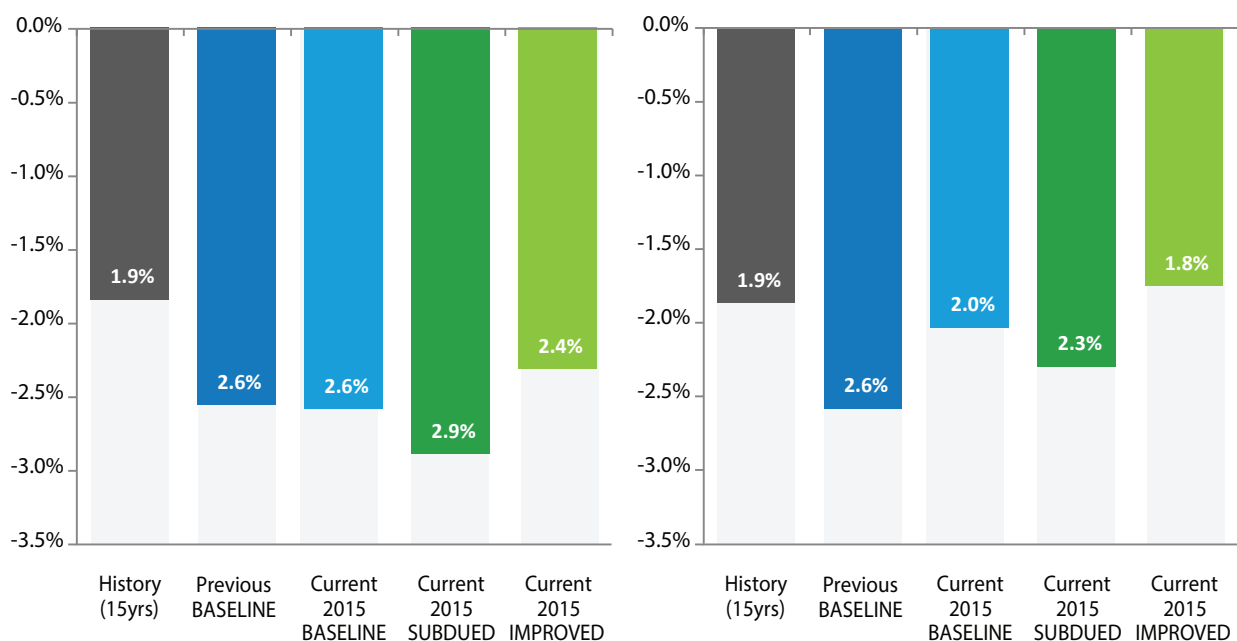
Manufacturing

Employment Outlook

According to the Commission's interim modelling, employment in the Manufacturing Industry is projected to decrease 2.6 percent a year over the next five (5) years under the baseline scenario. This compares with a rate of growth over the past 15 years of -1.9 percent per annum.

Over the long-term (2014-15 to 2024-25), Manufacturing's share of State employment is projected to decline from 8.9 percent to 6.6 percent.

**Figure 1 - Manufacturing, Average Annual Employment Change
2014-15 to 2019-20 and 2014-15 to 2024-25**



Source: Interim TaSC Economic Modelling, 2015

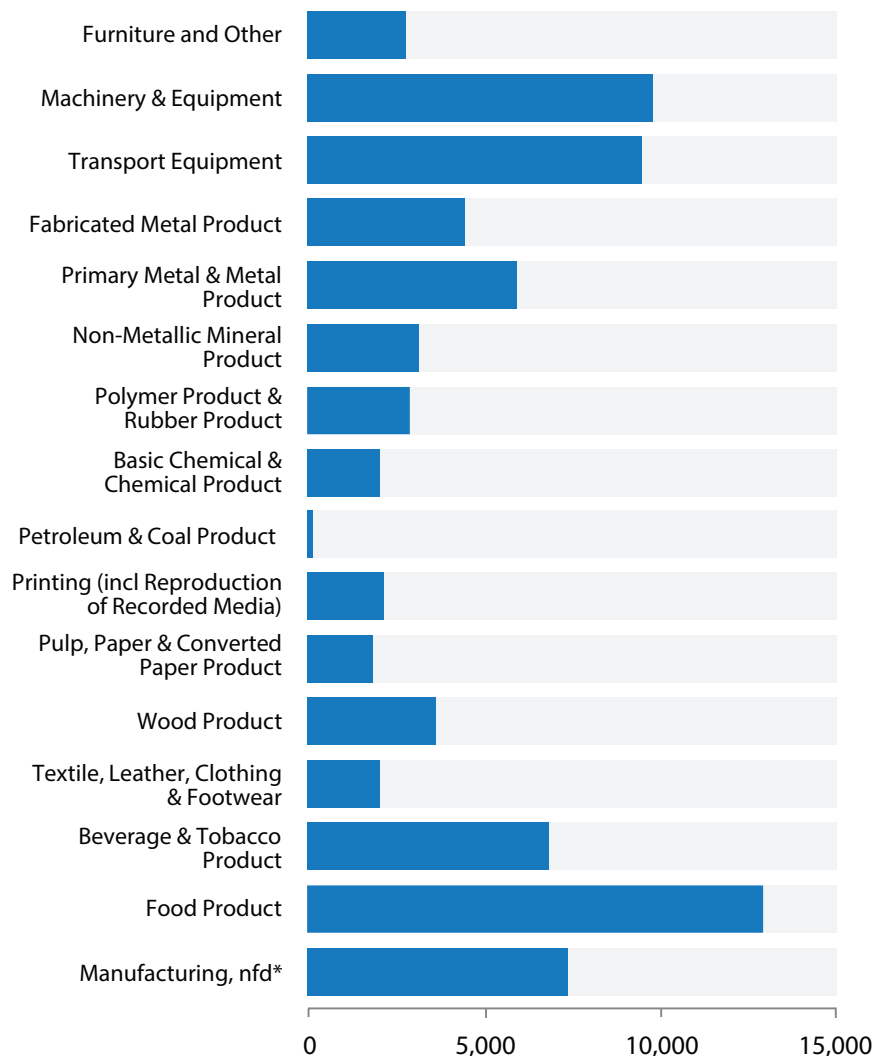
Industry Outlook

Manufacturing is one of the key industry sectors in South Australia, employing 71,500 persons, which accounts for 8.9 percent of the total full-time and part-time employment in the State¹. In June 2014, South Australia had 3,420 manufacturing businesses with annual revenue over \$200,000². The share of manufacturing in terms of economic activity has declined in recent years; however, the relative performance of the Manufacturing Industry in South Australia over the past five years has been significantly worse than the national average.

The Manufacturing Industry in South Australia was in the past a hallmark of the economy and a proud employer of large numbers of the State's workforce. The decline in manufacturing has, and is, impacting on the State's unemployment rate and in particular pockets of the workforce, such as male full-time employment where the impact has been most prevalent.

Between 2008-09 and 2012-13, manufacturing employment in South Australia declined by 15 percent (compared to a national average of 8 percent), and sales and service income for the Manufacturing Industry declined by 17 percent, compared to a national average of 5 percent³.

Figure 2 - Manufacturing, Employment by Sub-Sector



1 - Frost and Sullivan, 2015, Assessment of the Manufacturing Works Program, Department of State Development SA.

2 - *ibid*

3 - *ibid*

Source: Australian Bureau of Statistics, Census of Population and Housing, 2011

The State Government's Automotive Supplier Diversification Program supports automotive supply chain companies to diversify into alternative revenue streams. The Automotive Workers in Transition Program is available to advise and re-train workers from supply companies planning to diversify, or close.

The broader picture of manufacturing shows that between June 2001 and June 2014, there was a reduction of manufacturing businesses nationally of 8.7 percent. Interestingly for the same period, 65 percent of businesses that were actively trading in June 2010 were still operating in June 2014⁴. Although manufacturing has been significantly impacted by automation, there is still some way to go with the Manufacturing Industry showing potential for further automation.⁵

Manufacturers are embracing advanced technologies and efficiency practices to increase productivity and gain a competitive advantage. Disruptive technologies such as 3D printing, lasers and Big Data are set to transform Manufacturing Industry sectors.

Food production and food exports are growing in South Australia with recent agreements signed to export flour products to India and dairy and seafood products to China⁶. An advanced food manufacturing centre planned for Northern Adelaide producing ready-made meals for export is expected to create local jobs that may well suit automotive workers.

Health Industries South Australia is expecting to capitalise on the southern hemisphere's largest health and biomedical precinct and promote South Australia as a destination of choice for health care industries.

In 2014, the Australian Biotech Industry was ranked fourth in the world⁷. South Australia's biotech hub at Thebarton allows research and high tech companies to co-exist.

The opening of the Tonsley precinct on the old Mitsubishi site heralds a new wave for innovation and manufacturing with companies such as Siemens opening a new world-class maintenance and repair facility and a medical devices hub.

A review of the State Government Manufacturing Works Program has shown 290 incremental jobs which represents a 1.9 percent increase for the participating organisations compared to an overall decline of 5.2 percent for the Manufacturing Industry in South Australia between 2011-12 and 2012-13.

4 - <http://www.abs.gov.au/ausstats/abs@.nsf/mf/8165.0>

5 - Department of Industry and Science Research Paper, 2015, *A rising tide: automation within Australia's labour market*, Australian Government

6 - <http://www.abc.net.au/news/2015-08-25/south-australian-food-processing/6723628>

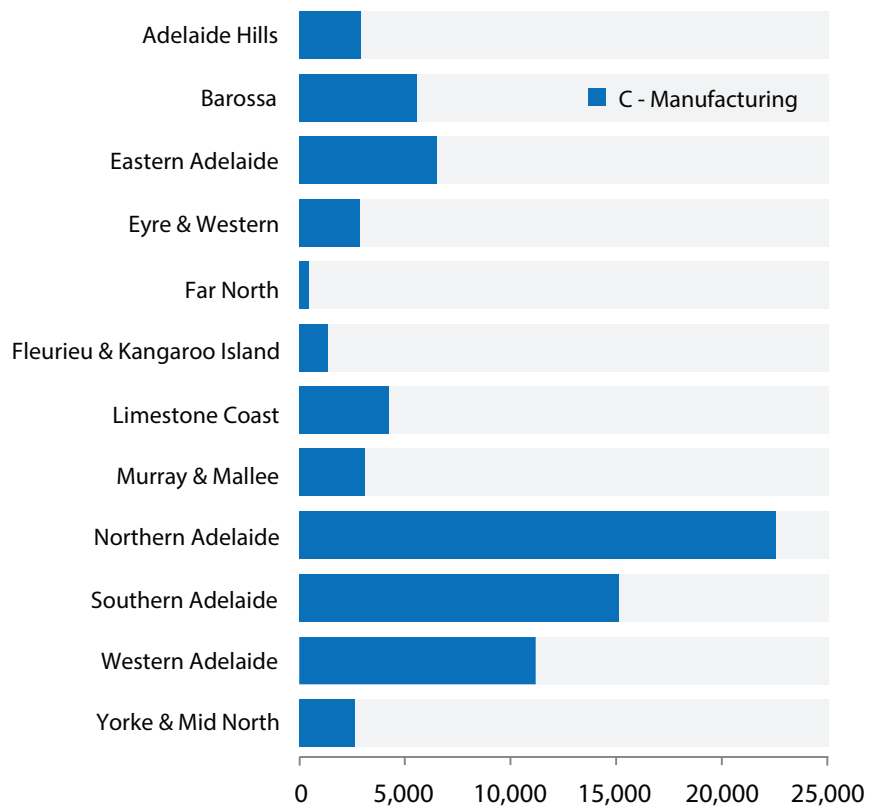
7 - <http://www.mskills.com.au/DownloadManager/downloads/MSApercent20EScanpercent202015.pdf>

The State's Defence Industry directly and indirectly employs around 27,000 people, a significant increase since 2003 when employment in the sector was only 16,000. South Australia's Defence Industry captures a quarter of the Australian Government's in-country spend (around \$1.8 billion per annum). The State Government aims to increase the Defence Industry's annual contribution to our economy to \$2.5 billion and employment to 37,000 people by 2020.⁸

Defence Industry stakeholders are actively campaigning for the future submarines to be assembled in South Australia utilising existing assets such as those available at Techport. Bringing forward the Future Frigates Program to replace the ANZAC class frigates saves over 500 jobs, commencing in October 2015.

The recent announcement to build the Navy's Future Frigates and Offshore Patrol Vessels in Adelaide, while a positive step forward, is not expected to go far enough to providing a truly continuous, long-term plan that sustains the local sector into the future.

Figure 3 - Manufacturing, Employment by Region



Source: Australian Bureau of Statistics, Census of Population and Housing, 2011

⁸ - <http://www.premier.sa.gov.au/images/policies/Our-Jobs-Plan.pdf>

Skills needs

Survey respondents ranked the Managerial and Leadership skills cluster as having the highest importance, followed by the Information and Technology and then the Work Health and Safety (WHS) skills clusters. This is not surprising given the current state of manufacturing and the impact of technology on sustainability.

The absence of the Entrepreneurial skills cluster in the top three could be accounted for by a number of factors, including a lack of understanding of entrepreneurial skills and/or their application to manufacturing, or indeed other priorities.

Language, Literacy and Numeracy (LLN) and Human Resources skills clusters were ranked of lowest importance by manufacturing Survey respondents. The low ranking of LLN skills is somewhat surprising given the rhetoric regarding manufacturing workers often having difficulties reskilling to other industries because of LLN issues.

Table 1 - Manufacturing, Ranked Skills Clusters

Skills Clusters	This Industry	All Respondents	Compare
Managerial & Leadership	1	1	↔
Information & Technology	2	3	↑
Work Health & Safety (WHS)	3	4	↑
Sales & Customer Service	4	2	↓
Marketing & Engagement	5	7	↑
Financial	6	6	↔
Administration & Support	7	5	↓
Entrepreneurial	8	11	↑
Sustainability & Environmental	9	9	↔
Human Resources	10	8	↓
Language, Literacy & Numeracy (LLN)	11	10	↓

Workforce development themes and issues

The Automotive Manufacturing Industry's operations through to 2017 are largely depending on access to a skilled workforce. Staff retention and morale is critical to continued operations.

Of the workers who exited the automotive manufacturing sector between 2006 and 2011, around three quarters had found employment in another sector in 2011, a further 20 percent were not in the labour force, and 5 percent were unemployed. The experience of automotive workers currently facing redundancy may be worse than those who exited the sector over the five years to 2011, due to the likely simultaneous influx of retrenched workers into the labour market and the persistence of soft labour market conditions as the mining boom unwinds and defence sector opportunities remain unclear⁹.

With large numbers of automotive manufacturing workers aged over 50 and likely to find redundancy packages attractive, and a generally ageing manufacturing workforce, concerns exist that their skills may be lost, not just now, but for future generations.

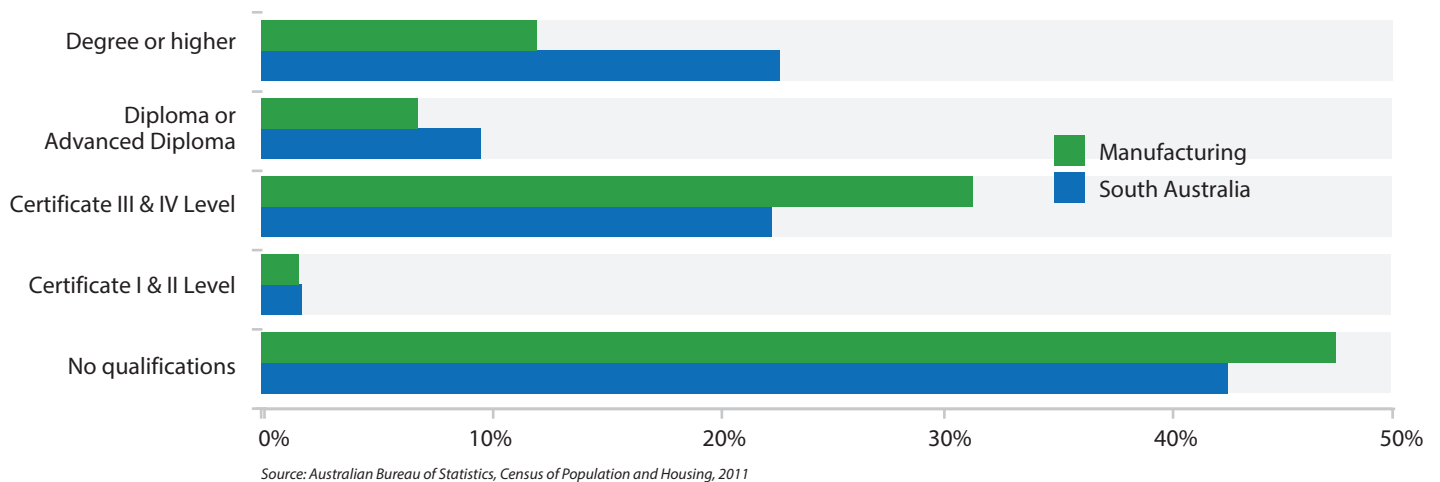
Some skills for manufacturing are within niche areas of specialty, or thin markers that require a small number of critical skills. Cuts to government subsidies make these courses targets for cost cutting and less attractive to providers. There are currently no RTOs that deliver locksmithing, jewellery or foundry skills in South Australia¹⁰.

⁹ - Department of Employment, 2015, *Labour market outcomes of people exiting Motor Vehicle and Motor Vehicle Part Manufacturing*.

¹⁰ - <http://www.mskills.com.au/DownloadManager/downloads/MSApercent20EScanpercent202015.pdf>

A flexible and highly skilled workforce is fundamental to manufacturing's success. Skill needs are changing and those who can adapt, problem solve, think creatively and work across traditional skill boundaries are sought. Science, Technology, Engineering and Mathematic (STEM) skills underpin future manufacturing.

Figure 4 - Manufacturing, Employment Share by Post-School Qualification Level



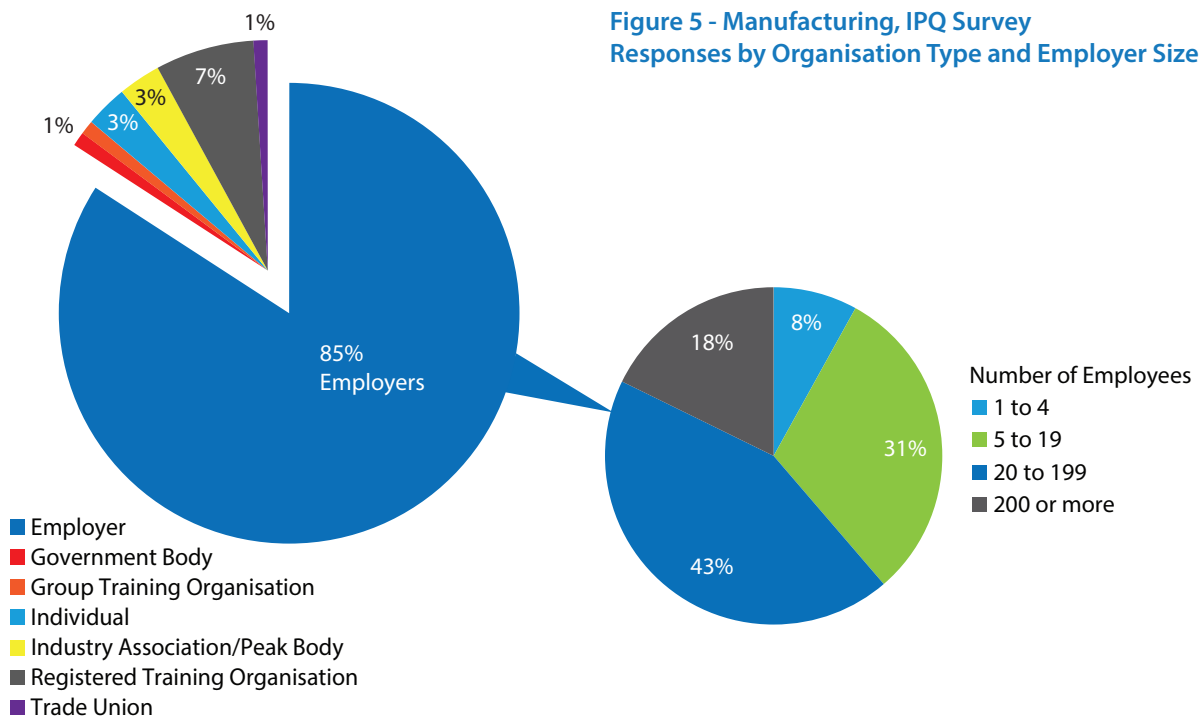
High-level technical skills in robotics, advanced technologies such as additive manufacturing, Computer Aided Design (CAD), Computer Numeric Controlled (CNC) machining and programming are required for manufacturing to be globally competitive.

Australia has the existing skills and capabilities to build and maintain the entire shipbuilding fleet – naval and non-naval, locally. If these highly skilled jobs are lost now, it will be challenging to replace them in the future. It has been reported that the ASC has already cut 300 jobs from their workforce since May 2015 and is expecting to shed another 500 workers by the end of 2016¹¹.

¹¹ - <http://indaily.com.au/business/2015/10/20/asc-warns-of-500-job-losses-to-come/>

Industry Priority Qualifications

The Manufacturing Industry received a total of 73 responses to the Survey. This was slightly below the target, but was the second highest number of responses for an Industry. Responses were highly concentrated in employers. The sub-sector distribution for the Industry highlighted overrepresentation by Fabricated Metal Product Manufacturing and Food Product Manufacturing.



Small to medium employers dominated the responses in this industry. Over two-thirds of employers reported likely additions to staff in the short to medium-term.

Stakeholders had some difficulty with the qualifications in this industry, particularly due to the diverse nature of the sub-sectors, which includes strongly variable employment outlooks. Significant discussions around the Priority Qualifications for the Industry resulted in a number of changes to the Tiers.

Table 24 - Manufacturing, Prioritised Qualifications

Manufacturing

Tier 1 (Highest Priority)

Certificate IV in Work Health and Safety
 Certificate III in Engineering - Composites Trade
 Certificate III in Engineering - Electrical/Electronic Trade
 Certificate III in Engineering - Fabrication Trade
 Certificate III in Engineering - Mechanical Trade
 Certificate III in Engineering - Technical
 Certificate III in Food Processing
 Certificate III in Meat Processing (Boning Room)
 Certificate III in Meat Processing (Meat Safety)
 Certificate III in Meat Processing (Retail Butcher)
 Certificate III in Meat Processing (Slaughtering)
 Certificate III in Meat Processing (Smallgoods - Manufacture)
 Certificate III in Retail Baking (Bread)
 Certificate III in Retail Baking (Cake and Pastry)
 Certificate III in Retail Baking (Combined)
 Certificate II in Meat Processing (Abattoirs)

Tier 2 (High Priority)

Advanced Diploma of Electronics & Communications Engineering
 Diploma of Engineering - Advanced Trade
 Diploma of Leadership and Management
 Diploma of Project Management
 Diploma of Work Health and Safety
 Certificate IV in Competitive Systems and Practices
 Certificate IV in Electronics and Communications
 Certificate IV in Engineering
 Certificate IV in Food Processing
 Certificate IV in Meat Processing (Meat Safety)
 Certificate III in Business Administration
 Certificate III in Cabinet Making
 Certificate III in Electronics and Communications
 Certificate III in Engineering - Production Systems
 Certificate III in Furniture Making
 Certificate III in Process Manufacturing
 Certificate III in Wine Industry Operations
 Certificate II in Electrotechnology Studies (Pre-voc)
 Certificate II in Engineering Pathways
 Certificate II in Food Processing

Tier 3 (Priority)

Advanced Diploma of Engineering
 Advanced Diploma of Leadership and Management
 Advanced Diploma of Program Management
 Advanced Diploma of Work Health and Safety
 Diploma of Aeroskills (Avionics)
 Diploma of Aeroskills (Non-Destructive Testing)
 Diploma of Aviation Maintenance Management (Avionics)
 Diploma of Business
 Diploma of Electronics and Communications Engineering
 Diploma of Engineering - Technical
 Diploma of Food Processing
 Diploma of Human Resources Management
 Diploma of International Business
 Diploma of Marketing
 Diploma of Purchasing
 Certificate IV in Aeroskills (Avionics)
 Certificate IV in Business Administration
 Certificate IV in Leadership and Management
 Certificate IV in Manufacturing Technology
 Certificate IV in Meat Processing (Quality Assurance)
 Certificate IV in Printing and Graphic Arts
 Certificate IV in Project Management Practice
 Certificate III in Aeroskills (Mechatronics)
 Certificate III in Aircraft Life Support and Furnishing
 Certificate III in Aircraft Surface Finishing
 Certificate III in Competitive Systems and Practices
 Certificate III in Information, Digital Media and Technology
 Certificate III in Manufactured Mineral Products
 Certificate III in Meat Processing (General)
 Certificate III in Plant Baking
 Certificate III in Printing and Graphic Arts (Digital Printing)
 Certificate III in Printing and Graphic Arts (Print Finishing)
 Certificate III in Printing and Graphic Arts (Printing)
 Certificate III in Printing and Graphic Arts (Sacks and Bags)
 Certificate II in Aircraft Line Maintenance
 Certificate II in Engineering
 Certificate II in Engineering - Production Technology
 Certificate II in Manufacturing Technology
 Certificate II in Process Manufacturing
 Certificate II in Wine Industry Operations
 Certificate I in ElectroComms Skills

A full list of **Tier 4** (Low Priority) Industry Prioritised Qualifications are available in the IPQ Dataset
www.tasc.sa.gov.au



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Disclaimer: The material contained in this report has been developed by the Training and Skills Commission and was informed through a detailed survey of industry and consultations with key industry partners and groups. The information contained in this report does not necessarily reflect the views of the Government of South Australia or the Department of State Development, or indicate any commitment to a particular course of action.

The information contained in the report is provided in good faith and all reasonable care has been taken in its preparation. The Training and Skills Commission recommends users exercise care in interpreting this report and carefully evaluate the relevance of the material for their purpose and where necessary obtain appropriate advice specific to their particular circumstances.

A full copy of the Report on South Australia's Industry Priority Qualifications can be accessed electronically at:
www.tasc.sa.gov.au

Images have been supplied by the Department of State Development and the South Australian Tourism Commission.

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