



Australian Government

GROWING OPPORTUNITIES: SOUTH AUSTRALIAN AND VICTORIAN COMPARATIVE ADVANTAGES

**Report of the Panels for the Reviews of the
South Australian and Victorian Economies**

April 2014



For information please contact:

Manager
Manufacturing Policy
Department of Industry
GPO Box 9839
Canberra ACT 2601

Telephone: +61 2 6213 6000

Facsimile: +61 2 6213 7000

Email: EconomicReviewTaskforce@industry.gov.au

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GPO Box 9839, Canberra ACT 2601.

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INTRODUCTION

The Australian Government conducted reviews of the South Australian and Victorian economies following announcement by the remaining Australian-based automotive manufacturers, Holden, Ford and Toyota, that they intended to cease production in Australia by 2017.¹

The Australian Government will continue financial support for the automotive sector until 2017.

The three year lead time to 2017 provides an opportunity for the Australian Government, through an orderly and well-considered process, to identify the industries and jobs of the future for South Australia and Victoria.

Knee-jerk and politically-expedient responses are neither appropriate nor a strategic response to the cessation of automotive assembly in 2017.

The Prime Minister announced reviews of the South Australian and Victorian economies in December 2013. The Prime Minister also announced a \$100 million Growth Fund to support economically responsible initiatives in regions facing pressure in their manufacturing sectors.

The Minister for Industry, the Hon Ian Macfarlane MP established the panels for the reviews, calling for submissions from interested parties on 27 December 2013. Over 90 written submissions were received. Each Panel heard from the respective State Government. The Victorian Panel heard from 14 stakeholder organisations in a day of hearings on 22 January 2014. The South Australian Panel heard from 14 stakeholder organisations in a day of hearings on 5 February 2014. The Panels also heard from nine stakeholder organisations in Canberra on 24 February 2014.

This report, based on the evidence gathered through submissions and hearings, provides an assessment of each State's economic situation, explores key challenges in the automotive and components sectors, and identifies emerging sectors of high growth in which each state has comparative advantages.

The report considers key areas where business and governments could respond to current pressures and implement longer-term activities. These responses and activities could include: recognition of skills inherent in the automotive manufacturing industries; expansion of the small to medium business sector; better linkages between business and research institutions; investment in productivity-enhancing infrastructure; and measures to unleash business growth in new industries, to create the jobs of the future in South Australia and Victoria.

The report will inform the design of the Growth Fund and the Australian Government's Industry Investment and Competitiveness Agenda. The Fund will support economically responsible initiatives in regions facing pressure in their manufacturing sectors. The Victorian Government and Holden have committed to contributing to the Fund. The Australian Government is in consultation with the South Australian Government and Toyota regarding their contributions.²

1. Prime Minister of Australia and Minister for Industry joint media release 'Securing Australia's Manufacturing Future' of 18 December 2013.

2. General Motors indicated to the market that it will book \$100 million for exit-related costs, including employee severance costs.

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BACKGROUND

The Australian automotive manufacturing industry consists of three motor vehicle producers – Ford, Holden and Toyota – which produce small, medium and large passenger motor vehicles. The three motor vehicle producers are based in Victoria and South Australia. Vehicle production is supported by approximately 134 supply chain firms with the capacity to design and manufacture the full range of parts and components. Automotive manufacturing accounts for around 27,500 direct jobs.

Australia accounts for only a small proportion of the global automotive sector, with only 0.3 per cent of global motor vehicle production.

Three major trends are shaping the global automotive sector:

1. the emergence of new growth markets, particularly in Asia. China is now the world's largest vehicle producer country and sales market;
2. the move by vehicle manufacturers toward global platforms to take advantage of greater economies of scale, economic arbitrage and more flexible production processes; and
3. the shift in consumer demand toward smaller more fuel efficient cars and sports utility vehicles.

These trends are fundamental to the decisions of Ford, Holden and Toyota to cease automotive manufacturing in Australia from 2016 and 2017. All three cite the high value of the Australian dollar, economies of scale, high cost of manufacturing, and the competitiveness of the domestic market as factors in their decisions.

Automotive policy settings in Australia over the past 25 years aimed to increase international competitiveness while also supporting Australia's attractiveness as a place for investment in automotive manufacturing.

The Productivity Commission estimates that \$30 billion in assistance has been provided to the automotive manufacturing industry between 1997 and 2012. In recent times, the main form of budgetary assistance to the industry was through *A New Car Plan for a Greener Future*. This was a \$6.2 billion plan to 2020 aimed at attracting new investment, greening the industry, strengthening the supply chain, boosting skills and facilitating international engagement.

Assistance in 2011–12 equated to \$25,000 per employee in the automotive manufacturing sector or \$5,000 per car produced.³

The second major form of assistance to the industry is tariff protection. Imports of motor vehicles and parts incur a five per cent tariff unless imported from a country with which Australia has a Free Trade Agreement. Imports from these economies enter Australia duty free. Australia's five per cent tariff on automotive imports is the same as the general manufacturing tariff.

A number of *ad hoc* grants were provided to Ford, Holden and Toyota in an attempt to secure their ongoing manufacturing operations:

- ▶ **Ford:** In January 2012, Prime Minister Julia Gillard announced a \$34 million grant to Ford to support the upgrades of the 2014 Falcon and Territory vehicles in a project worth a total of \$103.5 million. Ford announced in 2013 that it will close its operations in Australia in 2016.
- ▶ **Holden:** In March 2012, Prime Minister Julia Gillard announced a \$215 million grant agreement with Holden. In December 2013 General Motors announced its decision to close Australian manufacturing operations in 2017.
- ▶ **Toyota:** In August 2013, Prime Minister Kevin Rudd announced a \$28.6 million grant to Toyota. In February 2014 Toyota announced it would cease automotive manufacturing in Australia at the end of 2017.

The decisions by Ford, Holden and Toyota to cease manufacturing in Australia raises significant questions about both the effectiveness and value of taxpayer-funded assistance to the automotive sector and the veracity of policies and proponents that claim a net benefit of such assistance.

3. These estimates are based on the combined net tariff and budgetary assistance estimated by: (i) Productivity Commission, 'Trade & Assistance Review 2011-12', Annual Report Series, Productivity Commission, Canberra, June 2013; and uses employment estimates from (ii) Australian Bureau of Statistics, Labour Force, Australia, Detailed Quarterly, Catalogue Number 6291.0.55.033, November 2013; and the number of vehicles produced provided by (iii) Federal Chamber of Automotive Industries, Vehicle Sales, Monthly Production Volumes, 2013.

EXECUTIVE SUMMARY

The closures of Holden, Toyota and Ford will result in the loss of up to 27,500 jobs nationally by 2017, of which approximately 5,000 (18 per cent) are in South Australia and approximately 18,000 (66 per cent) are in Victoria. Holden and Toyota have indicated that they will maintain production operations until 2017.

The job losses attributable to the closure of Holden, Toyota and Ford are large and poignant for specific regions. Nevertheless, these job losses must be placed in considered context.

Australia has a mobile workforce. Of Australia's workforce of 11.5 million, approximately 355,000 people were displaced in the year to February 2013.⁴ Over the same period, more than one million people started employment with a different employer. Over 55 per cent of the workforce had been with their employer for less than five years.⁵

Projected economic growth for both South Australia and Victoria is around 2 per cent per annum over the next few years. With an estimated 40,200 new jobs expected to be created in South Australia and an estimated 158,000⁶ new jobs expected to be created in Victoria to November 2017, growth in other sectors of both economies is expected to exceed the jobs lost as a result of the wind down of automotive manufacturing.

The skills and capabilities of the more highly qualified workers affected by the automotive closures may be transferable to other sectors. Others may need, or prefer, to undertake training to access alternative employment. A proportion of the workforce has low literacy and numeracy skills and many do not have formal qualifications recognising skills gained over years working in the industry. The diversity of skills, maturity of the automotive workforce, and the shift from traditional 'heavy' manufacturing presents a challenge in preparing some employees for their next job.

South Australia's and Victoria's future employment, export and economic growth opportunities will benefit from the development of scale in high growth sectors with comparative advantages.

In South Australia, the areas of comparative advantage include: food and agriculture; advanced manufacturing; health and biomedical products; oil and gas; mining equipment, technology and services; tourism; and education.

In Victoria, the areas of comparative advantage include: food and agriculture; advanced manufacturing; biomedical products; mining equipment, technology and services; financial and professional services; tourism; education; and health services.

Growth of more small and mid-sized firms, particularly in emerging sectors and services, is a priority. Small and mid-sized firms have the greatest potential for capturing growth opportunities in high value-added production.

But business must take the lead to realise these emerging opportunities. Government support should be focussed on reducing regulation and other business costs, assisting commercialisation through closer industry linkages to research, and facilitating access to overseas markets.

The capacity, particularly for small to medium sized firms, to move in new directions is often likely to need improved leadership and management skills with the ability to apply new business practices and to engage workers in change.

4. ABS (Labour Mobility, Australia, February 2013, Cat No. 6209): 'Displaced' workers are those that were retrenched or ceased employment as their employer went out of business.

5. ABS 6209.0 series.

6. This figure does not take into account the closures of Holden and Toyota.

Refocusing publicly-funded research to better meet business-driven needs will enable new product solutions and support private sector jobs growth. Closer collaboration between industry and research will also improve commercial and economic outcomes from government investment in public research. Commercialisation through a new focus on the 'development' in research and development may require Australian institutions to take greater risks and find peace with occasional failure, in order to develop real commercial success.

Government can best support the current transition of industry by setting the right infrastructure, investment and economic framework. This includes providing long-range certainty around major projects and government spending on defence and productivity-enhancing infrastructure.

With longer term certainty, communities can build a sustainable momentum around the preparation for, and delivery of, major projects ensuring the right infrastructure, supply chains, and pool of skilled workers are put in place.

A combined effort by business, government, research, and other stakeholders is needed to ensure South Australia and Victoria move in step with the global transition from traditional manufacturing to the emerging smart, niche and export-focussed industries and services, which will generate the jobs of the future.

RECOMMENDATIONS

- ▶ Enable an assessment of existing skill levels and extent of formal accreditation across the automotive and component manufacturing workforces.
- ▶ Identify re-skilling and accreditation requirements within these workforces.
- ▶ Initiate analysis of the components and after-market sectors to identify diversification potential.
- ▶ Identify the emerging sectors that will be economic and employment drivers of the future – sectors in which South Australia and Victoria have comparative strengths.
- ▶ Investigate support of those sectors and regions through investment, regulatory change, business-research linkages, greater commercialisation efforts, and better access to private finance.
- ▶ Identify productivity-enhancing infrastructure, facilities and commercial settings required to encourage investment and growth in South Australia's and Victoria's industries and jobs of the future.

ANALYSIS OF THE SOUTH AUSTRALIAN AND VICTORIAN ECONOMIES

Key findings

- The closures of Ford, Holden and Toyota will result in the loss of up to 27,500 jobs nationally of which over 5,000 losses are expected in South Australia and over 18,000 in Victoria.
- The South Australian and Victorian economies remain strong and are in a good position to weather the closure of car making in Australia over the next three years.
- Growth in other sectors of the South Australian and Victorian economies is expected to exceed that needed to absorb workers displaced as a result of the closures of the car makers.

The South Australian and Victorian economies remain strong and have prospered through a period of structural change over the past 20 years. Each State has changed from an economy reliant on traditional manufacturing to one with a more diversified industry base.

South Australia has the fifth largest state economy with a Gross State Product of \$94.2 billion in 2012–13 or around 6 per cent of Australia's total Gross Domestic Product.⁷ Victoria's Gross State Product was \$333.4 billion in 2012–13, or around 22 per cent of Australia's total Gross Domestic Product.⁸ Both South Australia's and Victoria's Gross Domestic Product share is marginally below their population shares of seven per cent (South Australia) and 25 per cent (Victoria) respectively.⁹

Unemployment in these states remains low relative to historical levels. Like much of Australia, unemployment rates have increased in recent months. In South Australia, the unemployment rate averaged 5.7 per cent in 2012–13 but increased to 6.6 per cent in recent months. In Victoria, the unemployment rate averaged 5.6 per cent in 2012–13 but recently edged up to 6.4 per cent.¹⁰

While some industries continue to face challenging conditions, most industries experienced employment growth in the past year, reflecting the benefits of their diverse economies and the ability to provide jobs on an ongoing basis.

Recent employment trends in South Australia

The *Health Care and Social Assistance* industry is an increasingly important source of employment. Over the last decade this sector has grown to become South Australia's largest employer with 14 per cent of State employment. The *Retail* sector has also grown strongly increasing from 11 per cent to 12 per cent of total state employment.¹¹

Other sources of employment growth have been *Public Administration and Safety*, which has grown from just over 5 per cent to about 7 per cent and *Construction*, which increased its employment share in the past decade, from about 7 per cent to close to 9 per cent.

While continuing to contract as a proportion of the overall South Australian economy, the *Manufacturing* industry continues to be a significant source of employment. In November 2013, manufacturing's share of total employment in South Australia was 9.8 per cent, representing nearly 80,000 people.

7. ABS (Australian National Accounts: State Accounts, 2012-13, Cat. No. 5220.0) chain volume measure.

8. ABS (Australian National Accounts: State Accounts, 2012-13, Cat. No. 5220.0) chain volume measure.

9. ABS (Australian Demographic Statistics, June 2013, Cat., No. 3201).

10. ABS (Labour Force, Australia: Table 5 (Victoria) Cat. No. 6202.0) seasonally adjusted GDP measure used.

11. ABS (Labour Force, Australia, Detailed, quarterly, November 2013, Cat., No. 6291.0.55.003).

Recent employment trends in Victoria

Victoria's diversified industry base includes advanced manufacturing and a range of business services. Employment in the *Professional, Scientific and Technical Services* sector reflects this growing employment, providing 8.7 per cent of State employment, up from 6.8 per cent a decade earlier.¹²

The *Health Care and Social Assistance* industry is an increasingly important source of employment. Over the past decade this sector has grown to become Victoria's largest employer with 12 per cent of state employment. Although the *Retail* sector has declined in relative size, it remains important with 11 per cent of total state employment.

While continuing to contract as a proportion of the overall Victorian economy, the *Manufacturing* industry continues to be a significant source of employment. In November 2013, manufacturing's share of total employment in Victoria was 9.3 per cent, representing over 270,000 people.

Impact of the wind-down in car manufacturing

In the decade leading up to the announcements by the Australian-based car makers, the industry experienced a period of significant structural and productivity change. In 2004, the total value of Australia's production of passenger motor vehicles and derived light commercial vehicles was nearly \$8.9 billion. By 2012, it had declined to around \$5.4 billion, and production volumes for these vehicles had almost halved from nearly 408,000 units to around 221,000 units over the same period.¹³

Similarly, employment in automotive manufacturing peaked in 2006 at around 72,000 workers, but by 2013, the number of workers in the industry had almost halved to around 44,000.¹⁴ This figure includes not only manufacturing of passenger vehicles, but also truck, bus, trailer, caravan and aftermarket manufacturing. These other manufacturers are unlikely to be affected by the closures of Ford, Holden and Toyota.

With the car makers relatively well integrated into Australian supply chains, the effects of the closures are likely to spread beyond the car makers to affect suppliers of car components and their suppliers. Indirect effects extend to business and personal services purchased by all those directly employed in car manufacturing. These impacts will be largely concentrated in the car manufacturing hubs of Playford, Salisbury, Gawler and Onkaparinga in South Australia and Western Melbourne, North Western Melbourne, Geelong and South East Melbourne in Victoria.¹⁵

The closure of Australia's car makers is estimated to affect around 27,500 workers nationally, including approximately 5,000 workers affected in South Australia and approximately 18,000 in Victoria.¹⁶ Of these, 6,600 are directly employed by Toyota, Holden and Ford (2,500, 2,900 and 1,200 respectively) with the balance, in the order of 16,800, employed in the supply chain which services all three car makers jointly.¹⁷

While job losses of this magnitude are significant, the Australian economy has the capacity to absorb workers displaced from car manufacturing. Around 355,000 people were displaced by changed business conditions in Australia's workforce of 11.5 million in the year to February 2013. Over the same period, more than one million people started employment with a different employer. Over 55 per cent of the workforce had been with their employer for less than five years.¹⁸

With the closure of the car makers, many component suppliers will be rendered unviable unless they are linked into global supply chains or have diversified into other industries.¹⁹

12. ABS (Labour Force, Australia, Detailed, quarterly, November 2013, Cat. No. 6291.0.55.003).

13. Department of Industry (2014).

14. Department of Industry (2014).

15. Department of Industry (2014).

16. Estimate is based on firm-level data collected by the Department of Industry from the Automotive Transformation Scheme (ATS) as at 6 January 2014. This is an upper limit as it assumes that all passenger car manufacturing ceases in Australia (while design and engineering functions stay). Alternative estimate was provided by the Victorian Government (average 25,100 workers for the year ending August 2013, based on ABS data).

17. Productivity Commission (2014), Position Paper: Australia's Automotive Manufacturing Industry, page 5.

18. ABS (Labour Mobility, Australia, February 2013, Cat No. 6209).

19. Federation of Automotive Products Manufacturers submission.

One stakeholder explains the effect of the closures:²⁰

'Within the group of ~200 suppliers operating in Australia however, around 75% of all local components are supplied by only 35 companies.'

'...assuming that employment ratios are in line with the percentage of components supplied, then 21,750 people are employed by the largest 35 component manufacturing companies ... approximately half of... [these employees] are located in Victoria.'

'Most of [these] are either partially, or completely foreign owned.'

'All of the component companies are predominantly manufacturing products for local Australian vehicles only, and only 18% of the total revenues amongst all component manufacturers are derived from exports.'

'...closure of their Australian operations is the most probable scenario.'

Australian car component manufacturers in the automotive supply chain can improve their viability by diversifying into other markets. These markets include exports and domestic supply of parts and accessories and aftermarket products. Growth markets include diversifying into other products and services. Australia's Free Trade Agreements and export assistance can help with this, but diversification and transition take time.

The South Australian and Victorian economies remain strong

The South Australian and Victorian economies are in a good position to weather the closure of the Australian car makers.

South Australia

The wind down of the car making industry in South Australia is estimated to affect approximately 5,000 jobs over the next four years, equivalent to about 0.7 per cent of current employment.²¹

Department of Employment forecasts suggest that employment in South Australia will continue to grow. While these forecasts pre-dated the announced closure of Ford, Holden and Toyota, they indicated that employment in South Australia would increase by 4.9 per cent (or 40,200 workers) over the five years to November 2017. Large employment increases were projected to occur in *Retail Trade, Health Care and Social Assistance and Construction*,

20. Futuris submission and hearing evidence.

21. Derived from Department of Industry estimates of likely job losses and ABS (Labour Force, Australia: Table 7 (South Australia) Cat. No. 6202.0) seasonally adjusted GDP measure used.

with smaller contributions from *Accommodation and Food Services, Other Services and Education and Training*. The diversity of industries expected to contribute to employment growth suggests that opportunities will continue to be created even after the exit of the car makers.²²

Gross State Product is expected to return to trend growth rates in the next few years, with the 2013–14 South Australian Budget Update forecasting growth of 2.0 per cent in 2013–14, accelerating to 2.5 per cent in 2014–15.²³ This is consistent with the outlook from other commentators such as Deloitte Access Economics, who find that:

*Holden may crash but South Australia won't. Yes, Holden will hit manufacturing, meaning that neither new sectoral drivers (such as Olympic Dam) nor old ones (such as manufacturing) will generate much in the short term. Yet that points to slow growth rather than none at all.'*²⁴

Victoria

Victoria retains sound, stable finances, a triple-A credit rating, and prospects for significant economic benefit from a prospective pick-up in house construction.

Recent forecasts suggest the economy will continue to grow, although these pre-date the recent decisions by Holden and Toyota.²⁵ Gross State Product is expected to return to trend growth rates in the next few years, with the 2013–14 Victorian Budget Update forecasting growth of 2.0 per cent in 2013–14, accelerating to 2.75 per cent in 2014–15. The unemployment rate is expected to fall to 6.0 per cent by mid 2014, and 5.75 per cent by mid 2015. The forecasts projected that employment would increase by 1.0 per cent in 2013–14, and a further 1.5 per cent in 2014–15. The yearly employment growth is higher than the total projected jobs losses from the car makers' closures, which represent 0.6 per cent of total employment in Victoria as at January 2014.²⁶

22. Australian Government Department of Employment, 2013 Employment Projections by Industry, Occupation and Region.

23. South Australian Budget Update, accessed: <http://www.statebudget.sa.gov.au/mid-year.html>.

24. Deloitte Access Economics, Business Outlook; World Recovering but Oz Below Trend, September 2013.

25. 2013–14 Victorian Budget Update, accessed: <http://www.dtf.vic.gov.au/Publications/State-Budget-publications/Budget-Update>.

26. Derived from Department of Industry estimates of likely job losses and ABS (Labour Force, Australia: Table 5 (Victoria) Cat. No. 6202.0) seasonally adjusted GDP measure used.

Employment growth

Department of Employment projections suggest that over the next five years, Australian employment growth is most likely to be found in *Healthcare and Social Assistance*, *Construction* and *Retail Trade*, with smaller contributions from *Professional, Scientific and Technical Services* and *Accommodation and Food Services*.²⁷ Overall demand is expected to be strongest at higher qualification levels.

Growth across a diverse range of industries will create opportunities for displaced workers to gain sustainable employment, even after the closure of the car makers.

Strategic policy framework and direction

The Australian Government is taking steps to improve competitiveness and underpin future Australian growth. On 18 December 2013, the Australian Government announced a wide-ranging industry initiative that includes the development of an Industry Investment and Competitiveness Agenda. The Agenda will focus on building Australia's industries of the future in those sectors where the country and its workforce display competitive advantages.

A Taskforce is developing this Agenda. The Taskforce comprises the Prime Minister, the Treasurer, the Minister for Industry, and the Minister for Trade and Investment. It will consult closely with the Prime Minister's Business Advisory Council.

The Agenda will focus on potential measures to promote national competitiveness and productivity including:²⁸

- ▶ Economy-wide measures to boost the competitiveness of Australian manufacturing and lower the costs of doing business, such as options to reduce the costs of energy and regulation on Australian businesses;
- ▶ Options to encourage the growth of small to medium businesses through research and development, to improve productivity and commercialise good ideas; and
- ▶ Economy-wide incentive mechanisms to boost investment in Australia.

The Australian Government has established a whole-of-government approach to deliver on the Government's election commitment of reducing costs associated with red and green tape by at least \$1 billion per year to increase Australia's productivity and competitiveness. The Government has committed to tackle the volume of Commonwealth regulation, and identify those regulations that could be subject to future reform.²⁹

The Australian Government's red tape reduction programme will promote job creation by removing regulatory uncertainty and building business confidence. It will also remove the duplicated and overlapping regulation between different layers of government, particularly federal and state.

As part of this approach, the Department of Industry has created a Regulation Reform Taskforce to identify portfolio regulatory reform opportunities to eliminate inefficient or unnecessary regulation that imposes unwarranted burden on businesses.

In addition, the Council of Australian Governments identified manufacturing as one of four deregulation priorities, to be pursued by jurisdictions working together including through the Industry and Skills Ministerial Council.

27. Australian Government Department of Employment, 2013 Employment Projections by Industry, Occupation and Region.

28. Prime Minister of Australia and Minister for Industry joint media release 'Securing Australia's Manufacturing Future' of 18 December 2013.

29. Coalition Election Commitment 'Real Solutions for all Australians' 2013.

WORKER REDEPLOYMENT AND SKILLS DEVELOPMENT

Key findings

- ▶ Automotive manufacturing has been in structural decline for some time. Affected workers and regions are able, for the most part, to adapt to changed circumstances. Even in the worst affected regions the impact as a proportion of total employment has been less than 3 percentage points over five years.
- ▶ The skills and capabilities of more highly qualified workers are likely to be transferable to other sectors.
- ▶ Opportunity, and time, exists to retrain workers for new jobs. Well-designed, properly-targeted government redeployment and retraining schemes can help with this process.
- ▶ The Australian Government Minister for Industry plans to further consider the policy settings for developing the skills and capabilities of business and workers for industries.

People and regions will adjust over time to the changes from the closure of the car makers. The ability of people in affected regions to adjust depends in part on the options and opportunities available to them, but also on, for example, the skills and age of individuals.

Finding opportunities in localities close to the affected regions is a desirable outcome for many displaced workers. Where displaced workers are close to other labour markets, they will have access to a broader range of employment opportunities than those where car manufacturing is the predominant job.

Almost 26,000 people are employed in the automotive manufacturing industry in South Australia and Victoria. These workers are mostly male. In 2011, men employed in the industry outnumbered women by more than 5 to 1. A significant proportion of the automotive manufacturing workforce has experience and high level skills for their work. In 2011, more than half of automotive manufacturing workers had Certificate III qualifications or higher.³⁰ People with a Certificate III qualification have a broad range of knowledge and skills in varied contexts to undertake skilled work and as a pathway for further learning.³¹

The skills and capabilities of the more highly qualified workers affected by the closures may be transferable to other sectors. Recognition of prior learning will assist with this. However, some workers may need to undertake training to access alternative employment. For example,

a proportion of the workforce has low language, literacy and numeracy skills or have skills targeted specifically at manufacturing processing – although this differs between regions. Older workers might also face difficulties.³²

There are risks in the short term that displaced workers will suffer loss of income and incur financial and non-financial costs in finding another job, retraining and perhaps relocating. Redeployment assistance can help these people with their immediate needs. Retraining and relocation assistance can help them move to jobs in other sectors of the economy.

It can be expected that some affected workers will find alternative employment relatively quickly, others may retire early from full-time work, and a proportion will experience difficulty in transitioning to alternative employment. A survey conducted following the Mitsubishi plant closure in Australia in 2009 indicates that the proportion in each of these categories was roughly one-third in each.³³ Evidence also suggests that some affected workers move into lower-paid and/or part-time jobs requiring lower skills when faced with the prospect of unemployment.³⁴

30. Australian Census Longitudinal Data Set, 2006-2011 (ACL), ABS.

31. Australian Qualifications Framework, January 2013, refer <http://www.aqf.edu.au/wp-content/uploads/2013/05/AQF-2nd-Edition-January-2013.pdf>, last accessed 23 February 2014.

32. Australian Workforce and Productivity Agency advice, 13 January 2014.

33. Armstrong et al. (2008); Beer (2008); Beer et al (2006); and Pieters (2013), as cited in Productivity Commission (2014), Position Paper: Australia's Automotive Manufacturing Industry. A survey of workers retrenched during the 2004 Mitsubishi closure (700 at Lonsdale and 400 at Tonsley Park) was conducted in three waves. Wave 1 took place 6 months after retrenchment, wave 2 took place about a year after wave 1, and wave 3 took place about a year after wave 2. Of the 372 participants, 71 withdrew over the course of the survey.

34. Australian Census Longitudinal Dataset, 2006–2011 (ACL), ABS.

Redeployment statistical evidence from the 2006 and 2011 Censuses

The Australian Bureau of Statistics' recently released Australian Census Longitudinal Dataset sheds further light on the prospects for former automotive manufacturing workers. The data set enables the tracking of the movements of automotive manufacturing workers between the 2006 and 2011 censuses. This provides real evidence of the prospects for automotive manufacturing workers.

Between 2006 and 2011, automotive manufacturing employment dropped by almost one quarter from over 63,000 to less than 48,000 Australia-wide.

Table 1 shows outcomes for workers employed in the automotive industry in 2006. This data shows that 88 per cent of prime-aged (15–50 year old) workers were employed in 2011, including:

- ▶ 36 per cent remained employed in automotive;
- ▶ 15 per cent were employed in other manufacturing; and
- ▶ 37 per cent were employed in other industries.

Significantly more workers in the broader age category of persons aged 15 years or more had left employment in 2011. This is consistent with older workers choosing to leave the labour market through retirement.

Table 1: Employment outcomes for automotive workers between 2006 and 2011

| | Persons aged 15 or more | | | Persons aged 15 to 50 | | |
|---|-------------------------|------------|------------|-----------------------|------------|------------|
| | South Australia | Victoria | Australia | South Australia | Victoria | Australia |
| Employment outcome in 2011 | | | | | | |
| Still in automotive | 36% | 41% | 35% | 34% | 42% | 36% |
| Employed in other manufacturing | 14% | 13% | 14% | 16% | 15% | 15% |
| Employed in other industries | 35% | 27% | 33% | 38% | 30% | 37% |
| Total employed | 85% | 81% | 82% | 89% | 87% | 88% |
| Unemployed | 4% | 3% | 3% | 5% | 2% | 3% |
| Not in the labour force | 11% | 14% | 13% | 6% | 8% | 7% |
| <i>Labour force status not stated</i> | 0% | 1% | 1% | 0% | 1% | 1% |
| Total not employed | 15% | 18% | 17% | 11% | 11% | 11% |
| <i>Not stated or inadequately described</i> | 1% | 1% | 1% | 1% | 2% | 2% |

Source: Australian Census Longitudinal Dataset, 2006-2011 (ACLD), ABS. Age cohorts as in 2006, note. Note that totals may not equal 100 due to rounding. In this table, 'Unemployed' is the number of 2006 automotive workers not employed/unemployed in 2011 as a proportion of all workers in 2006. This is different to a traditional measure of unemployment that is calculated as a proportion of the labour market (that is only employed and unemployed)

Table 2 shows that workers who left the automotive industry had strong employment prospects.

Table 2: Employment outcomes for workers that left automotive between 2006 and 2011

| | Persons aged 15 or more | | | Persons aged 15 to 50 | | |
|-----------------------------------|-------------------------|----------|-----------|-----------------------|----------|-----------|
| | South Australia | Victoria | Australia | South Australia | Victoria | Australia |
| Employment outcome in 2011 | | | | | | |
| Total employed (non-automotive) | 77% | 70% | 74% | 84% | 81% | 83% |
| Not in the labour force | 17% | 24% | 20% | 9% | 14% | 11% |
| Unemployed | 6% | 5% | 5% | 7% | 4% | 5% |

Source: Australian Census Longitudinal Dataset, 2006-2011, ABS. Age cohorts as in 2006. Note that totals may not equal 100 due to rounding. In this table, 'Unemployed' is the number of 2006 automotive workers unemployed in 2011 as a proportion of all workers in 2006.

Of those prime-aged workers who were employed in the Australian automotive manufacturing industry in 2006 but had left the industry in 2011, about:

- ▶ 83 per cent were employed;
- ▶ 11 per cent had left the labour market; and

- ▶ only 5 per cent were unemployed³⁵.

Key findings from the analysis of the Australian Census Longitudinal Dataset are outlined in Box 1.

BOX 1 · What does the Australian Census Longitudinal Dataset tell us about automotive manufacturing workers' prospects?³⁶

Between 2006 and 2011, employment in automotive manufacturing fell by one quarter across Australia, from over 63,000 to under 48,000. The Australian Census Longitudinal Dataset was used to examine the outcomes for automotive manufacturing workers who left the industry in this period. This may provide an indicative guide to the prospects of workers and regions affected by the upcoming automotive closures. The analysis indicates that across Australia:

- ▶ Just over a third of 2006 automotive manufacturing workers remained in the industry in 2011, another third moved into industries outside manufacturing and 14 per cent switched to another form of manufacturing. Only 3.3 per cent of the 2006 automotive manufacturing workers were unemployed in 2011 while 13 per cent had left the labour market.
- ▶ Higher skilled workers were more likely to find alternative employment when displaced. Automotive manufacturing employees who held a bachelor degree (or higher) were less than half as likely to be unemployed as those that did not have a degree.
- ▶ Automotive manufacturing workers with a degree were considerably more likely to move into *Professional and Scientific Services, Health Care or Education*. Those with a Certificate III or Certificate IV were more likely to go to *Other Services or Construction*, while those without a tertiary qualification were more likely to move to *Transport, Postal and Warehousing or Wholesale Trade*.
- ▶ A larger proportion of women (58 per cent) held only Year 12 level qualifications or below compared to men (35 per cent). As such, female automotive manufacturing workers were more likely to move into industries that generally do not require tertiary qualifications, such as *Retail Trade*.
- ▶ In 2006, a larger proportion of men in automotive manufacturing were working as *Technicians and Trades Workers* (32 per cent) compared to women (5 per cent). Conversely, a larger proportion of women were working as *Clerical and Administrative Workers* than men (31 per cent compared to 4 per cent).
- ▶ While clerical skills are readily transferable to a range of other industries, female full-time automotive manufacturing workers in 2006 were three times more likely to be working part-time in 2011 than their male counterparts.
- ▶ Only 15 per cent of workers who took up employment outside of automotive manufacturing went to higher value add industries. About 73 per cent moved to a lower value add industry while about 12 per cent went to an industry with the same value added per employee.
- ▶ The vast majority of workers that moved to a higher value add industries were those that moved to another manufacturing sub-sector.³⁷
- ▶ Consistent with this, automotive manufacturing workers who transitioned into other forms of manufacturing were more likely to up-skill than those that stayed in automotive manufacturing or that moved to other industry sectors.

Source: Department of Industry

36. The Australian Census Longitudinal Dataset links individuals across the 2006 and 2011 Censuses. Noting that, this analysis covers all automotive manufacturing workers, not just those in Victoria and South Australia.

37. ABS Cat. No. 8155.0 Australian Industry, 2011–12 The Transport Manufacturing sub-sector, of which Automotive Manufacturing is part, had an estimated value added per employee of \$110,000 in 2011-2012. Value added per employee figures were not available for automotive manufacturing, as such, transport manufacturing was used as a proxy, which is the sub-sector to which automotive manufacturing belongs according to the ANZSIC 2006 industry classification.

35. Australian Census Longitudinal Dataset, 2006–2011 (ACL), ABS. Total does not equal 100 due to rounding.

Destination industries for South Australian and Victorian workers

Of South Australian and Victorian automotive manufacturing workers that moved to other employment, almost one-third stayed in manufacturing. For South Australian workers, the top destination for those transitioning into other types of manufacturing was *Primary Metal & Metal Product Manufacturing*. This was followed by *Beverage and Tobacco Product Manufacturing* and *Food Product Manufacturing*. For Victorian workers, the top destinations were *Machinery and Equipment Manufacturing*, *Primary Metal & Metal Product Manufacturing* and *Polymer & Rubber Product Manufacturing*.

Large numbers of workers also moved to other sectors. Almost 25 per cent of South Australian workers who took employment outside of automotive went to jobs in the *Public Administration and Safety*, *Retail Trade* or *Transport, Postal and Warehousing* industries (about 8 per cent to each). For Victorians, about 25 per cent of those who took up employment outside automotive went to jobs in the *Transport, Postal and Warehousing*, *Retail Trade* or *Wholesale Trade* industries (between 7 and 9 per cent to each).

South Australian men that left the automotive manufacturing industry and found alternative employment were more likely to stay in manufacturing (32 per cent) while those that took up jobs in other industries were more likely to work in the *Transport, Postal and Warehousing* or *Other Services* industries (over 8 per cent each). South Australian women that left the automotive manufacturing industry and found alternative employment were far less likely to stay in manufacturing (only 8 per cent), but were more likely to move to jobs in the *Health Care and Social Assistance* industry (30 per cent) or the *Retail Trade Industry* (16 per cent).³⁸

Victorian men that left the automotive manufacturing industry to take up jobs in other industries were more likely to work in the *Transport, Postal or Warehousing* industry (10 per cent) or the *Construction* or *Other Services* industries (almost eight per cent each). Victorian women who took up jobs outside automotive were less likely to stay in manufacturing (27 per cent), but were more likely to move to jobs in the *Professional, Scientific and Technical Services* industry (11 per cent) or *Wholesale Trade, Retail Trade*, or the *Health Care and Social Assistance* industries (9 to 10 per cent each).³⁹

The outcomes for these workers suggest that the closure of the car makers could see some workers moving to lower value added industry sectors. Growth in high value-added sectors like advanced manufacturing, will help to prevent the loss of skilled workers to lower value activities in the economy.

Impacts on local regions

The Australian Census Longitudinal Dataset enables an examination of the impact of the wind down of car makers on local regions. Labour market outcomes were examined for nine geographic areas in South Australia and Victoria with a large concentration of automotive workers in 2011. The areas chosen were those geographic locations in 2006 with the highest number of automotive manufacturing employees.

38. Australian Census Longitudinal Dataset, 2006–2011 (ALCD), ABS.

39. Australian Census Longitudinal Dataset, which links individuals across the 2006 and 2011 censuses.

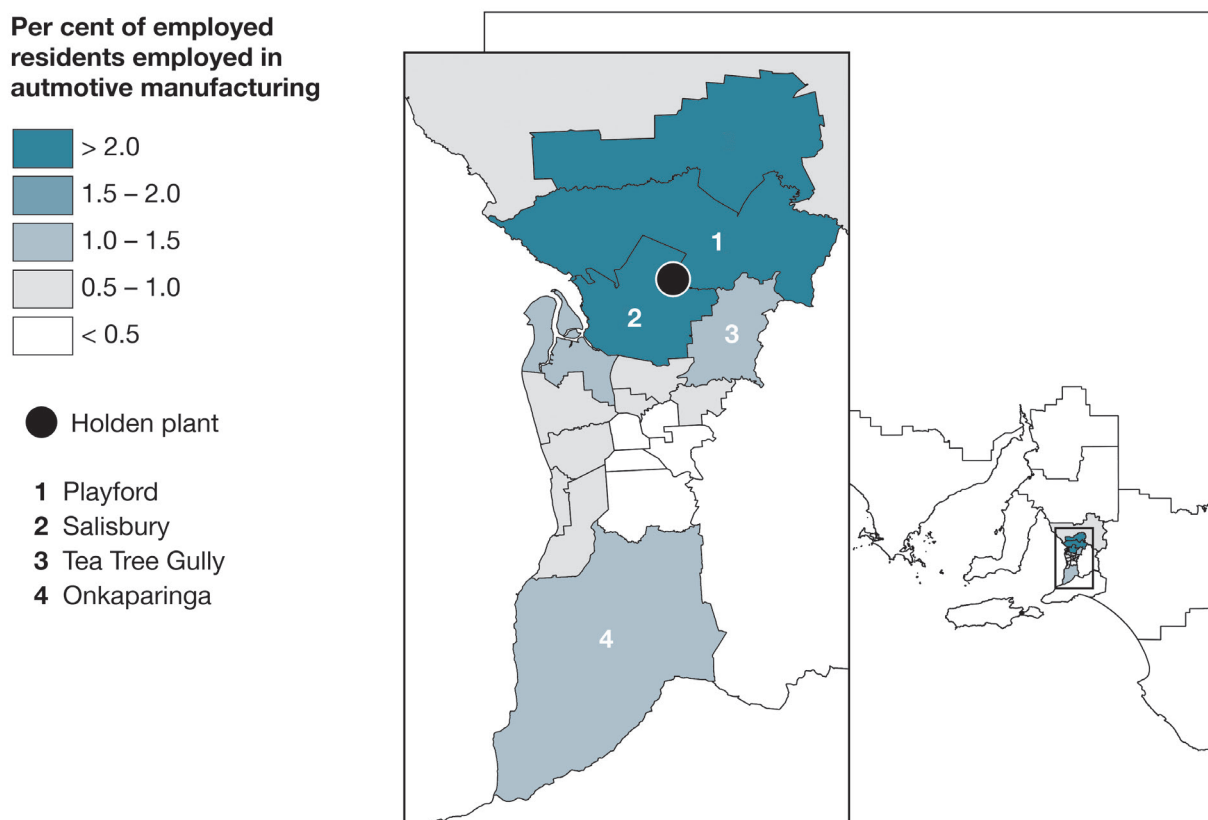
South Australian regions

Figure 1 shows the four geographic areas chosen in South Australia and their concentration of automotive workers in 2011, as well as the location of the Elizabeth Holden plant. Employees are concentrated in areas close to the plant, but in those areas they comprise only a small proportion of total employment.

From 2006 to 2011, surrounding regions displayed a sharp decline in concentration of automotive employees among employed residents, with Playford displaying the highest decline in concentration (2.8 percentage points).

Even with the impact of a declining automotive sector, three of the four South Australian regions outperformed the Australian economy in reducing unemployment. Playford, Salisbury and Onkaparinga showed almost no change in their unemployment rate over the period compared to a 0.4 per cent increase in unemployment Australia wide. Salisbury saw a 0.7 per cent increase in the unemployment rate, but still saw a 7.8 per cent increase in absolute employment (a net 4,000 jobs created) over the period (see Table 3). Overall, a net 9,000 jobs were created across the four regions over the period.

Figure 1: Concentration of automotive workers in South Australia in 2011



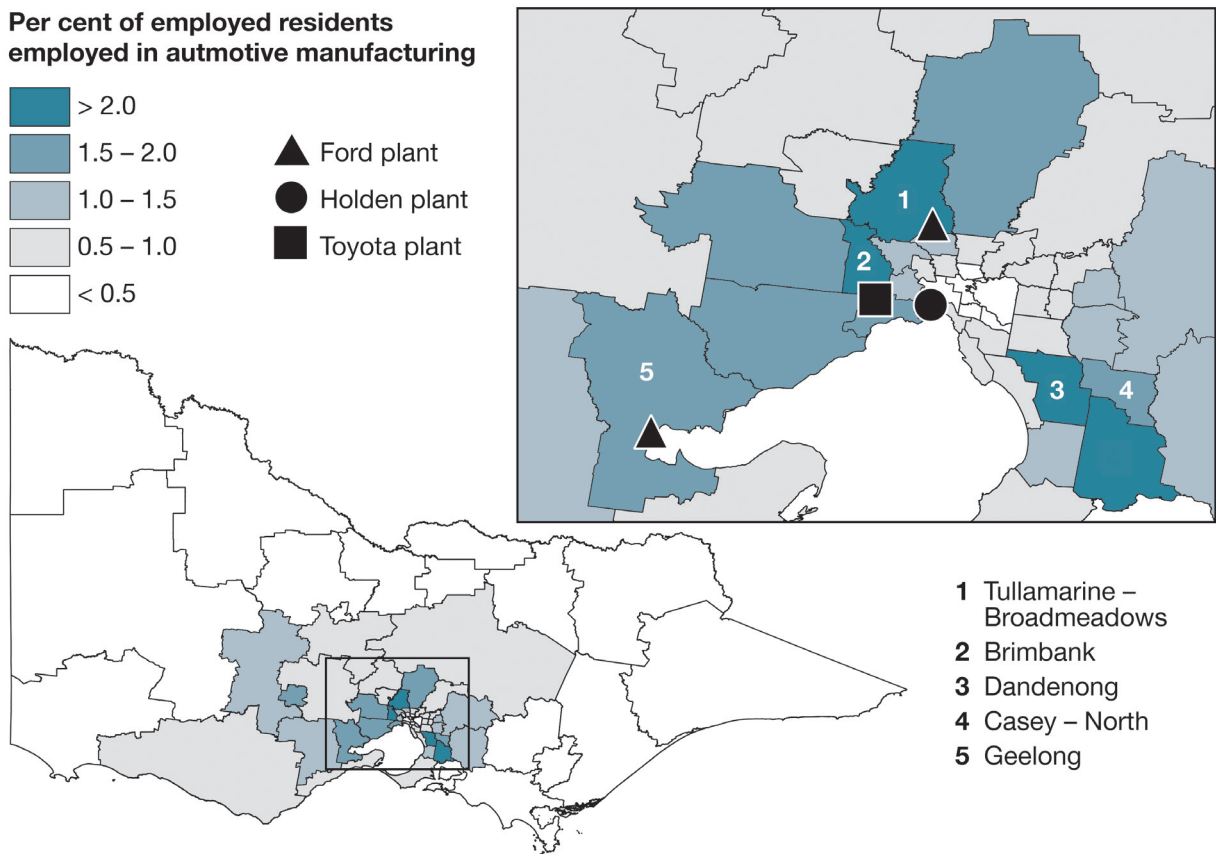
Source: The Productivity Commission (2014), *Australia's Automotive Manufacturing Industry, Position Paper*.

Victorian regions

Figure 2 shows the five regions that were examined in Victoria and their concentration of automotive workers in 2011 and the locations of the four major automotive manufacturing plants in Victoria. Employees are concentrated in areas close to manufacturing plants, but in those areas they comprise only a small proportion of total employment. All five regions displayed a decline in concentration of automotive employees among employed residents, with Dandenong and Brimbank showing the largest decline (both 2.4 percentage points lower than in 2006).⁴⁰

The five Victorian regions displayed evidence of relative disadvantage, with unemployment rates up to 4 per cent higher than the Australian average. However, contrary to expectations, in each of the five areas examined, unemployment *decreased* over the period, even while the Australian unemployment rate increased (see Table 3). Across the five regions there was a net increase in employment of 19,600 jobs in other industries.

Figure 2: Concentration of automotive workers in Victoria in 2011



Source: The Productivity Commission (2014), *Australia's Automotive Manufacturing Industry, Position Paper*.

40. Australian Census Longitudinal Dataset, 2006-2011, ABS.

Regions adapt to changed circumstances

An interesting feature across both states is the relatively small impact that the contraction of automotive manufacturing had on employment in regional labour markets. While the automotive industry in Australia contracted by almost one quarter in this period, even in the worst affected regions (together with a net 7,100

automotive jobs lost), the impact as a proportion of total employment was less than three percentage points.

These positive results from South Australia and Victoria highlight the ability of diversified labour markets to offer a wider variety of employment opportunities for displaced workers, and thus a greater ability to absorb them.

Table 3: Employment outcomes for highly effected regions from 2006 to 2011

| | Change in automotive jobs | Change in total employment | Employment growth | Unemployment rate (2011) | Change in unemployment rate (2006 to 2011) |
|------------------------|---------------------------|----------------------------|-------------------|--------------------------|--|
| South Australia | | | | | |
| <i>Playford</i> | -553 | 4,182 | 15.2% | 9.5% | 0.1% |
| <i>Salisbury</i> | -626 | 4,133 | 7.8% | 5.9% | 0.7% |
| <i>Tea Tree Gully</i> | -506 | -1,003 | -2.1% | 4.2% | -0.3% |
| <i>Onkaparinga</i> | -873 | 1,890 | 2.6% | 6.1% | 0.1% |
| Victoria | | | | | |
| <i>Broadmeadows</i> | -224 | 4,771 | 10.7% | 7.6% | -0.4% |
| <i>Dandenong</i> | -1,410 | -1,205 | -2.0% | 6.4% | -1.8% |
| <i>Brimbank</i> | -1,367 | 3,016 | 4.7% | 8.1% | -1.2% |
| <i>Geelong</i> | -1,056 | 4,819 | 6.5% | 5.4% | -1.4% |
| <i>Casey North</i> | -496 | 3,620 | 6.7% | 5.3% | -0.4% |
| Australia | -15,534 | 954,135 | 10.5% | 5.6% | 0.4% |

Source: Australian Census Longitudinal Dataset, 2006–2011 (ACL), ABS

Note, for Australia as a whole, all figures with the exception of the change in automotive employees are taken from the 2006 and 2011 Australian Censuses, these figures will differ from those taken from the ACL, which uses a subset of Census data.

Strategy for managing redeployment

Many workers faced with losing their job due to the car maker closures will already be planning to secure future work opportunities. The priority for governments is to ensure that training or employment services are targeted to those workers most in need of assistance.

There is opportunity, given the lead-in time, to take a methodical approach to prepare workers to transition to new jobs. Employers may be able to facilitate for their workers to have their current skills assessed (and where helpful, recognised as a qualification) and to receive advice about job opportunities and any training that would strengthen their prospects for work.

Under training arrangements in place in states and territories, workers are able to access government subsidised training up to a Certificate Level III through endorsed registered training organisations. Through the Australian Government's Vocational Education and Training FEE-HELP scheme, workers would also be able to receive a loan, backed by the Australian Government, to cover course fees with approved providers for training at the Diploma and Advanced Diploma level (and some Certificate IV qualifications) where they wish to pursue higher skill level jobs.

Key principles of any form of adjustment assistance are:⁴¹

- ▶ Target assistance to workers according to their need, in particular to those without formally recognised qualifications and those with low language, literacy and numeracy skills.
- ▶ Provide career advice and training to minimise the likelihood of long-term unemployment.
- ▶ Provide measures to strengthen the capacity of businesses and organisations to anticipate and adapt to adjustment pressures.
- ▶ In conjunction with employers, assess the skills of the potentially displaced workers while they are still in work and provide recognition of prior learning and advice about job prospects to help them plan their transition to new jobs.
- ▶ Support workers and their families to relocate to areas and industries where job opportunities exist.

A retraining strategy for helping displaced workers, based on experience from previous plant closures such as Mitsubishi, Bridgestone and BlueScope, includes:

Preparation for retraining

- ▶ Career advice and placement support require careful planning.
- ▶ Support is needed to map the skills and identify training needs.
- ▶ Recognition of prior learning plays a key role in successfully changing jobs.
- ▶ Provide guidance about what jobs are in demand beyond vacancy lists.
- ▶ High quality advice concerning employment and training opportunities are important for success.

Retraining

- ▶ Informal linkages are as important as formal institutional arrangements.
- ▶ Local coordinators are important for success.
- ▶ Recognition of prior learning plays a key role in successfully changing jobs.
- ▶ Training needs to be linked to jobs in demand, to increase employability.

Skills are an important factor in the ability of affected workers to be re-employed. The Australian Government Minister for Industry is examining options for reform of vocational education and training in Australia. The objective is to ensure that training and apprenticeships are targeted to jobs in need, that employers and businesses have a strong voice in the training system to ensure training relates to jobs, and that students and workers can access quality training providers. The capacity of the training system to support workers from the automotive sector will be a priority.

Further information on the occupations and skills profile of the automotive manufacturing industry is at *Appendix 4*.

Council of Australian Governments

In December 2013, the Council of Australian Governments recognised the importance of Australia's car and manufacturing capability. It noted the Australian, South Australian and Victorian Governments' priority and commitment to put in place a comprehensive structural adjustment package and co-investment package to support affected automotive manufacturing workers, their families, and regions. The Council recognised the substantial changes that the manufacturing sector will need to make in coming years.

An immediate priority for the Council of Australian Governments' new Industry and Skills Ministerial Council will be to help develop cooperative joint proposals to manage that change process and foster internationally competitive high end manufacturing in Australia for the Council's consideration by April 2014.

HIGH GROWTH OPPORTUNITIES

Key findings

- ▶ Manufacturing in **South Australia** and **Victoria** has a future, but it will be a different future in high value added manufacturing and industries.
- ▶ In **South Australia**, high growth and export opportunities exist in: advanced manufacturing; food and agriculture; health and biomedical products; oil and gas; mining equipment, technology and services; tourism; and education.
- ▶ In **Victoria**, high growth and export opportunities exist in: food and agriculture; advanced manufacturing; biomedical products; mining equipment, technology and services; financial and professional services; tourism; education and health services.
- ▶ Business must take the lead in developing these growth opportunities.
- ▶ Growing more mid-sized firms and growing mid-sized firms into larger firms is a priority. They have the highest potential for developing these growth opportunities and creating high skill jobs.
- ▶ Improving business access to finance and creating a more conducive business environment will enable them to diversify and capture these opportunities with new product solutions.
- ▶ Refocusing publicly-funded research to better meet business-driven needs will enable many of these new product solutions, and improve commercialisation outcomes from government investment in public research.

Growth and export opportunities exist in South Australia for:

- ▶ food and agriculture;
- ▶ advanced manufacturing including medical devices, aerospace and machined products;
- ▶ health and biomedical products;
- ▶ oil and gas;
- ▶ mining equipment, technology and services; and
- ▶ tourism and education.

Growth and export opportunities exist in Victoria for:

- ▶ food and agriculture;
- ▶ advanced manufacturing of scientific and medical equipment, aerospace and machined products;
- ▶ biomedical products;
- ▶ mining equipment, technology and services;
- ▶ financial and professional services;
- ▶ tourism;
- ▶ education; and
- ▶ health services.

Business must take the lead in developing the high growth and export opportunities in South Australia and Victoria.⁴²

Further information on the growth opportunities is at *Appendix 5*.

For **South Australia**, China, India, Indonesia, Malaysia and Vietnam provide exports opportunities. Between them, these growing Asian nations accounted for over 40 per cent of South Australia's merchandise exports in 2013. They are also markets growing at a rapid rate – South Australia's merchandise exports to Vietnam is over 12 times larger than at the turn of the century while China, India and Indonesia are between 6 and 8 times larger.⁴³

For **Victoria**, Thailand, China, India, Malaysia, Philippines, Indonesia and the United Arab Emirates provide exports opportunities. Between them, these nations accounted for over 35 per cent of Victoria's merchandise exports in 2013.

42. Australian Manufacturing Forum submission.

43. ABS, *Catalogue 5368.0 International Trade in Goods and Services, Australia*, table 36D: State of Origin South Australia, FOB Value.

They are also markets growing at a rapid rate – Victoria’s merchandise exports to China, India, Indonesia and United Arab Emirates are now between two and four times larger than at the turn of the century.⁴⁴

Successful mid-sized South Australian and Victorian companies have the greatest potential for capturing these opportunities with new product solutions that can be brought to market in the near term. Growing more mid-sized firms is therefore a priority.⁴⁵ This includes the growth of mid-sized firms into larger firms and the growth of small firms into mid-sized firms. Start-up enterprises have a higher failure rate, but are important for the renewal of manufacturing enterprises and growth of future industries.

Small and medium sized firms could encounter barriers to gaining access to regional value chains in Asian export markets. These barriers include:⁴⁶

- ▶ A low level of awareness of the opportunities or not responding to the opportunities presented by Asian markets.
- ▶ Difficulty in establishing and building collaborations, alliances, partnerships and joint ventures with other businesses in Australia or in Asian markets.
- ▶ A low level of capability, capacity, business acumen and inclination to pursue export opportunities if the firm perceives the opportunity will not provide a return commensurate with the effort and risk.

Successful companies have high performance entrepreneurship and management capabilities. They have effective working relationships with their workers, customers and other stakeholders.⁴⁷

The capacity to adapt to the changing economic environment, develop sustainable competitive advantages and successfully transform South Australia’s and Victoria’s manufacturing industries may need improved leadership and management skills within firms to apply new business practices and to engage workers in change.^{48, 49}

Research commissioned by the Department of Industry provides evidence that ‘Australia currently lags the rest of the world in management skills.’⁵⁰ It proposes that ‘...a cost-effective way of improving the productivity performance of Australian firms is to promote a transformation in the calibre of the management and leadership of our organisations.’⁵¹

‘Only 10–15% of firms have both the capacity and the desire to change the way they do business.’⁵²

Many South Australian and Victorian firms have transformed themselves by using their existing capabilities and developing new ones to find and exploit new business opportunities.⁵³

Examples of **South Australia’s** firms with world-class industrial capabilities include: Precise Advanced Manufacturing, Levett Engineering, Maptek, and Mayne Pharma. Examples of **Victoria’s** firms with advanced manufacturing capabilities include: Universal Biosensors, Marand and Textor (see case studies on the following pages).

44. ABS, *Catalogue 5368.0 International Trade in Goods and Services, Australia*, table 36b: State of Origin Victoria, FOB Value.

45. South Australian Government hearing evidence; Precise Advanced Manufacturing Group hearing evidence; Submissions (City of Salisbury and City of Playford) and hearings evidence.

46. Department of Prime Minister and Cabinet, in collaboration with Austrade; Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education; Department of Foreign Affairs and Trade; ‘Integrating into Regional Value Chains’, July 2013; Federation of Automotive Products Manufacturers submission.

47. Department of Industry, ‘Australian Innovation System Report 2013’, p. 61; Australian Workforce and Productivity Agency advice to review.

48. Hearing evidence from Panel meeting in Canberra; Australian Workforce and Productivity Agency advice.

49. Australian Workforce and Productivity Agency advice.

50. Green, R., ‘Management Matters in Australia: Just how productive are we?’, November 2009, <http://www.innovation.gov.au/Industry/ReportsandStudies/Documents/ManagementMattersinAustraliaReport.pdf>, last accessed 11 February 2014.

51. Green, R., ‘Management Matters in Australia: Just how productive are we?’, November 2009, <http://www.innovation.gov.au/Industry/ReportsandStudies/Documents/ManagementMattersinAustraliaReport.pdf>, last accessed 11 February 2014.

52. South Australian Government hearing; Roos, G., chair, Advanced Manufacturing Council.

53. McGurk, D., CEO, Codan, and Tinney, G., Precise Advanced Manufacturing at South Australian hearing; Submissions: Robinson, A.M.; Innofuture.

Industry and firm transformation

Manufacturing is a significant contributor to the Australian economy. It contributed over \$100 billion in value-add per annum over the past 10 years and exports of around \$85 billion per annum over the past five years. It employs around 940,000 people directly, supports regions and creates indirect employment in other sectors of the economy.⁵⁴

Manufacturing adds diversity and depth to economic activities that provide resilience to global and domestic economic changes. It makes large contributions to research and development, exports, productivity growth and jobs. Increasingly, manufacturing is integrated with the domestic economy and into global supply chains.⁵⁵

Manufacturing is an important element in South Australia's and Victoria's industry mix, both in terms of its size and the extent that it is linked closely with other industries through skills and technology transfer, as a supplier of inputs and through its importance to regional economies.^{56, 57} But, opportunities in traditional manufacturing in Australia are contracting.

*'The future for manufacturing will be a different future.'*⁵⁸

Those car component manufacturers in South Australia and Victoria that are sufficiently linked into global supply chains, or that have diversified into other industries will have a future. However, many of those that are dependent on Australian car manufacturers will be rendered unviable.⁵⁹

Australia's manufacturing future is in diversified high value-added manufacturing that competes globally in niche markets rather than commodity manufacturing that competes on price alone.⁶⁰

In niche markets, suppliers have more pricing power for their highly differentiated products and services that meet changing market demands.⁶¹

*'...[South Australian industry leaders nominated the basis for productivity and competition as being]: price; quality; innovation; performance; branding; supply chain architecture; substitution threat; packaging; accreditation/environmental and differentiation/customisation.'*⁶²

As manufacturing moves up the value chain, firms move more of their onshore activities to higher value-added services to remain competitive. Services include branding and marketing, research and development, product and organisation design, maintenance and engineering, logistics, customer relations management and other business and professional services.⁶³ Conventional official statistical collections do not capture these changes in manufacturing and under represent the contribution of manufacturing in modern economies.⁶⁴

Manufacturing is therefore becoming more complex requiring new ways of doing business and a wide range of high-level skills of employees and employers.⁶⁵

54. Victorian Government submission (pp. 15, 26) and hearing evidence.

55. Organisation for Economic Co-operation and Development, 'Australian manufacturing in the global economy', 2012, pp. 4, 9-15, 85-89, commissioned by the Department of Industry, Innovation, Science, Research and Tertiary Education.

56. Victorian Government submission (p. 14) and hearing evidence.

57. Roos, G., 2010-2011 South Australian 'Thinker in Residence', 'Manufacturing into the future', p. 8; and South Australian Government hearing evidence; Organisation for Economic Co-operation and Development, 'Australian Manufacturing in the Global Economy', 2012, pp. 8-16.

58. McKinsey&Company, 'Manufacturing the future: The next era of global growth and innovation', November 2012.

59. Federation of Automotive Products Manufacturers submission.

60. Chemlink submission.

61. Roos, G., 2010-2011 South Australian 'Thinker in Residence', 'Manufacturing into the future', p. 8; and South Australian Government hearing evidence; Organisation for Economic Co-operation and Development, 'Australian Manufacturing in the Global Economy', 2012, pp. 8-16.

62. Spoehr, J., 'State of South Australia, Turbulent Times', Wakefield Press, p. 304 - submitted at South Australian hearing.

63. Roos, G., 2010-2011 South Australian 'Thinker in Residence', 'Manufacturing into the future', pp. 8, 17, 23, 31-33 Department of Industry, Innovation, Science, Research and Tertiary Education, 'Innovation Systems Report - 2012', p. ix Committee for the Economic Development of Australia, Growth No. 58, 'Competing from Australia', 2007 University of Cambridge Institute for Manufacturing, 2006, <http://www.ifm.eng.cam.ac.uk/cig/documents/DefiningHVM.pdf> Organisation for Economic Co-operation and Development, 'Australian manufacturing in the global economy', 2012, p. 4, commissioned by the Department of Industry, Innovation, Science, Research and Tertiary Education Roos, G., 2010-2011 South Australian 'Thinker in Residence', 'Manufacturing into the future', pp. 8, 15-41, evidence to the reviews.

64. Roos, G., 2010-2011 South Australian 'Thinker in Residence', 'Manufacturing into the future', pp. 8, 15-17, 22, 27, 94.

65. McKinsey Global Institute, 'Manufacturing the future: The next era of global growth and innovation', November 2012; Green, R., 'Management Matters in Australia: Just how productive are we?', 2009, pp. 38-39, commissioned by Department of Innovation, Industry, Science and Research; Samson, D., 'Innovation for business success: Achieving a systematic innovation capability', 2010, commissioned by Department of Innovation, Industry, Science and Research.

CASE STUDY

Precise Advanced Manufacturing Group – diversified and tapped into global markets

Precise is a South Australian ‘Tier 3’ supplier of advanced manufacturing products and services including moulds, stamping dies, automation and precision machining used to make components for vehicles and other applications such as defence.

It has grown into a group of companies that offer customers a full range of services from product design, development to manufacture and after sales service of customised solutions.

Since its beginning, the company has continuously diversified to ensure its sustainable operation in South Australia. Precise’s diversification was initially spurred by changes in global operations of the USA car industry in the 1990s. These changes had impacts on the Australia’s car industry. Using the Export Market Development Grant (EMDG) program, Precise entered markets in Malaysia and expanded its product line to include quality packages of moulds and stamping tools at highly competitive prices and delivery times.

Again, in 1997, responding to the Asian Financial Crisis, Precise expanded to the USA car market. Now, around 25 per cent of the Precise group’s sales are in the car industry and more than 90 per cent of those sales are to the USA.

In 2004, the Precise group diversified further by expanding into defence markets. Precise has scaled-up production of a rapid response clamp to repair damaged pipes, originally developed for defence purposes, by finding applications for it in other industries including oil and gas, resources and food. Precise has utilised EMDG, the Automotive New Markets Program and the Automotive Transformation Scheme to assist with its diversification.

Precise continues to adapt to changing market conditions by exploiting new market opportunities, changing its product range, business models and internal organisation. Precise’s success and resilience can be attributed to its determination to find and supply clients with value-for-money solutions to their needs.

Precise received benefits or concessions from one or more Australian Government business programmes.

Source: Precise Advanced Manufacturing Group hearing; Department of Industry.

CASE STUDY

Levett Engineering – precision engineering for the aerospace, defence medical devices, electronics and related markets

Levett Engineering, an Adelaide based company, supplies precision engineered components for aerospace, defence, medical device, electronics and other commercial applications. It supplies components to production of the F-35 Strike Fighter and F-135 propulsion system.

Over the last decade Levett Engineering has transformed itself from mainly servicing local suppliers into a global supplier of aerospace quality machined components.

Levett demonstrates the ability of high performing businesses to apply their capabilities across different sectors.

Levett received benefits or concessions from one or more Australian Government business programmes.

Source: Levett Engineering submission; Department of Industry.

Business must lead in developing the growth opportunities in South Australia and Victoria.⁶⁶

*'My company [Precise Advanced Manufacturing Group] began diversifying out of automotive component manufacturing in the 1990s after investigating what was happening in the industry globally.'*⁶⁷

*'We have changed our products and operations to meet market demands.'*⁶⁸

Successful firms have a sound understanding of specific markets and the needs of their customers. They keep themselves informed of changes in the market continuously. Their business strategy balances factors such as access to low-cost transportation, consumer insights and employees' skills. Successful firms have built their research and development capabilities, and their expertise with analysing market information and product design. They use new business models centred on better managing their intangible assets such as brand, logistics and value-added services that yield higher returns.⁶⁹

*'Codan's success factors centre on management: value chain analysis, identifying niche market segments, business model innovation, and understanding the users' needs.'*⁷⁰

*'Codan understands the users' requirements, integrates the necessary equipment functions using current technologies, and combines offshore and onshore manufacturing activities and components to supply a solution to the users' needs.'*⁷¹

*'My company understands the need for it to have the full range of skills to bring a new product to market.'*⁷²

Governments can play a role in encouraging transformation of high potential businesses. The Australian Government's new \$50 million Manufacturing Transition Grant Programme is due to commence from 1 July 2014. The programme aims to assist those firms that are trying to change course into higher value or niche manufacturing activities, and that can demonstrate to other manufacturers how this may best be achieved.

Improving economic outcomes from research and development

New ideas and knowledge are key drivers of productivity and competitive advantage in firms.⁷³ This knowledge comes from within firms, from customers, suppliers, other firms, research agencies, universities and trade training organisations. Effective collaboration between the firm and external sources of new ideas enables the flow of ideas that help bring new products to market, and raise productivity growth and competitive advantage.⁷⁴

*'More market-driven research is needed – product developers help pull-through research to market.'*⁷⁵

*'Established manufacturing firms are better placed to exploit opportunities with new product and service offerings.'*⁷⁶

Education and applied research need to be closely integrated with industry.^{77, 78} Improving the collaboration between research and industry was identified as being critical to creating greater economic benefit for Australia from public investments in research and development. For example collaborative innovation with research organisations more than triples the likelihood of business productivity growth.⁷⁹

*'...for innovation to generate economic benefits, it needs an enabling environment that encourages both core nascent and application-focused R&D, collaborations within and between public and private sectors, and turning ideas into products and solutions that the market wants.'*⁸⁰

66. Submissions (City of Salisbury and City of Playford, pp. 6, 10, 12, 13–14, 18; Flinders University; Seeley international, p. 3; Mayne Pharma; Australian Institute for Innovation; Robertson, A.M.; Levett Engineering; Innofuture) and hearings evidence.

67. Tinney, G., Precise Advanced Manufacturing hearing evidence.

68. Tinney, G., Precise Advanced Manufacturing hearing evidence.

69. McKinsey&Company, 'Manufacturing the future: The next era of global growth and innovation', November 2012.

70. McGurk, G., CEO, Codan at South Australian hearing.

71. McGurk, G., CEO, Codan at South Australian hearing.

72. Tinney, G., Precise Advanced Manufacturing at South Australian hearing.

73. Spoehr, J., 'State of South Australia, Turbulent Times', Wakefield Press, p. 304; submitted at South Australian hearing.

74. Submissions (Seeley International, p. 2; Associated Electronic Services; Australian CleanTech; Levett Engineering, pp. 4-5; Innofuture; Mayne Pharma; Australian Institute for Innovation) and hearings evidence of 5 February 2014.

75. Universal biosensors submission and hearing evidence.

76. Universal biosensors submission and hearing evidence.

77. Pak-Poy, F., Director Adelaide Research and Innovation Pty Ltd.

78. Submissions (City of Salisbury and City of Playford, pp. 6, 10, 12, 13–14, 18; Flinders University; Seeley international, p. 3; Mayne Pharma; Australian Institute for Innovation; Robertson, A.M.

79. Department of Industry (2013) Australian Innovation System Report 2013, p. 53.

80. Submissions: Dow, see also <http://www.dow.com/publicpolicy/pdf/AMP-AusA4.pdf>, p. 15, last accessed 13 February 2014; Mayne Pharma quoting Dow Chemical Company' 2012 Advanced Manufacturing Plan for Australia.

CASE STUDY

Textor – soaking up global success and facilitating growth across Asia

Textor Technologies is a Victorian-based manufacturer of absorbent textiles for health care, personal hygiene and industrial products. Looking to position itself as a global supplier, it approached CSIRO for a solution-set which would enable it to compete with manufacturers in Asia.

The long-term partnership has resulted in a reduction in Textor's production cost, growth in turnover and the

launch of innovative new products including as part of Kimberley-Clark's Huggies 3D UltraAbsorb nappies.

Textor received benefits or concessions from one or more Australian Government business programmes.

Source: Textor and Department of Industry.

CASE STUDY

Universal Biosensors – established business continues to bring new products to market

Universal Biosensors, an established Rowville-based, Victorian, manufacturer, makes hand-held blood-analysis devices for point-of-care testing – the types of instruments that doctors and diabetics use to measure blood sugar levels.

Following the success of their first product, they have used this technology to develop a second range of products for the point-of-care coagulation testing market, which is currently in joint development with Siemens.

Universal Biosensors is also developing an immunoassay-based test strip, to bring this testing technique into the point-of-care market.

This test strip is progressing through the feasibility stage of the company's research and development pipeline.

Universal Biosensors is also combining their technologies with those of another Australian company to develop rapid molecular diagnostics testing.

Universal Biosensors received benefits or concessions from one or more Australian Government business programmes and a Victorian Government programme.

Source: Universal Biosensors; Department of Industry.

*'Networking businesses into universities gives researchers the opportunity to commercialise R&D quicker. It's an opportunity to give universities a front door to business.'*⁸¹

Encouraging greater linkages between researchers and business would improve the transfer rate of quality research with high potential for commercial applications in Australia and generate wealth.⁸²

*'Vice Chancellors agree to the need for greater industry focus. But, as you go down the academic chain, career advancement is measured by the number of papers.'*⁸³

*'...changes are needed to the existing rewards system for academics to ensure academia is more connected to industry and that their expertise can be used to unlock opportunities for South Australian businesses.'*⁸⁴

*[KPIs are needed] 'that measure academics' engagement with manufacturers.'*⁸⁵

Australia ranks poorly on the total proportion of businesses collaborating in bringing new products, processes, organisational arrangements and business models to market compared to other Organisation for Economic Co-operation and Development member countries.⁸⁶ Australia's manufacturing industry structure is dominated by smaller firms.⁸⁷ It is these firms that experience the greatest challenges to introducing new ways of doing business.⁸⁸

Precincts and hubs have a role in bringing together industry and research to accelerate growth of firms and new industries.⁸⁹

South Australia has a health and biomedical precinct on North Terrace, Adelaide.⁹⁰ Adelaide's health care and technology cluster at Tonsley Park provides opportunity to expand its scope to diversify into the production of medical devices using capabilities from the automotive industry.⁹¹

Victoria's well developed education system, its research institutions and its research-industry collaboration networks and precincts provide sources for new engines of growth and opportunities that will effectively enable its industrial transformation. Precincts that enable commercialisation of new ideas include: South East Melbourne Innovation Precinct at Clayton around CSIRO and Monash University, Bio21 Parkville Precinct around Melbourne University, Geelong Technology Precinct around Deakin University, Industrial Research Institute Swinburne around Swinburne University, Royal Melbourne Institute of Technology's Design Hub, North Precinct (based in and around Bundoora), Ballarat University Technology Park and Gippsland Education Precinct.⁹²

The most effective research and development will be led by the firms that actually use the technology in products or their manufacturing operations.⁹³

Refocusing publicly-funded research to better meet business-driven needs will supply many of these new product solutions, and has the potential to improve economic outcomes from government investment in research.

81. Spoehr, J., University of Adelaide, at South Australian hearing.

82. Submissions and hearings evidence.

83. Panel member, The Hon Mark Birrell, Chairman, Port of Melbourne Authority (President, Victorian Employers' Chamber of Commerce and Industry).

84. Pak-Poy, F., Director Adelaide Research and Innovation Pty Ltd; supported by submissions: Business SA, p. 5.

85. Panel member, Sarah Henderson MP, Federal Member for Corangamite, Victoria.

86. Department of Industry, Innovation, Science, Research and Tertiary Education 'Australian Innovation System Report – 2012', pp. 66–67.

87. ABS Catalogue Number 8165.0 – Counts of Australian Businesses, including Entries and Exits, Jun 2008 to Jun 2012 <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/8165.0Main%20Features3Jun%202008%20to%20Jun%202012?opendocument&tabname=Summary&prodno=8165.0&issue=Jun%202008%20to%20Jun%202012&num=&view=->.

88. Department of Innovation, Industry, Science and Research 'Australian Innovation System Report – 2011', p. 56.

89. Pak-Poy, F., Director Adelaide Research and Innovation Pty Ltd; Submissions (City of Salisbury and City of Playford, pp. 6, 10, 12, 13–14, 18; Flinders University; Seeley international, p. 3; Mayne Pharma; Australian Institute for Innovation; Robertson, A.M.

90. Submissions: South Australian Government submission, p. 25; Federal Member for Hindmarsh, Mr Matt Williams MP. http://www.bioinnovationsa.com.au/business_news/thebarton-technology-precinct, last accessed 4 February 2014; Business Competitiveness and Trade email of 7 January 2014.

91. Submissions (Flinders University) and hearings evidence.

92. Organisation of Economic Co-operation and Development, 2010, Higher Education in Regional and City Development – The State of Victoria, Australia, <http://www.oecd.org/edu/imhe/46643288.pdf> last accessed 26 January 2014.

93. Submissions and hearings evidence.

CASE STUDY

Maptek – mining technology for world markets

Founded and headquartered in Adelaide for over 30 years, Maptek provides software, hardware and services for the global mining industry with products in use at more than 1700 sites in over 65 countries. Maptek has offices in Adelaide, Brisbane, Newcastle, Perth and Sydney; Brazil; Calgary; USA; Chile; Mexico; UK; Peru and South Africa.

Products cover the whole mining cycle from exploration to reclamation, including 3-D mine planning and modelling and 3-D laser scanning, surveying and imaging.

Maptek received benefits or concessions from one or more Australian Government business programmes.

Source: Department of Industry.

CASE STUDY

Mayne Pharma – home grown business with global reach pharmaceuticals

Mayne Pharma Group Limited (Mayne Pharma), based in Adelaide, is an Australian Stock Exchange-listed specialty pharmaceutical company that develops and manufactures branded and generic products, which it distributes directly or through distribution partners and also provides contract development and manufacturing services.

Mayne Pharma has a 30-year track record of innovation and success in developing new oral drug delivery systems. Its products are used to treat fungal and bacterial infections, malaria, cardiovascular disease and chronic pain.

It is a technology driven company with a significant product portfolio and pipeline, global reach through

distribution partners in Australia, USA, Europe and Asia and two manufacturing facilities based in Salisbury, South Australia and Greenville, North Carolina, USA.

To extend its global reach, Mayne Pharma acquired USA-based contract development and manufacturing company Metrics, Inc. in November 2012 and USA-based Libertas Pharmaceuticals in July 2013.

Mayne Pharma or an antecedent of it received benefits or concessions from one or more Australian Government business programmes.

*Source:
Mayne Pharma submission and hearing evidence;
Department of Industry.*

Access to finance and a conducive investment environment

A supportive policy and financial environment will enable industrial firms to access finance necessary to grow their business in Australia and create more high skill jobs.

It can be difficult for businesses to access finance for product development and capital investment for expansion.

*'Turning a good idea into a product needs finance.'*⁹⁴

*'Financiers need a compelling value proposition and business case.'*⁹⁵

Attracting international investment is also an important growth opportunity.

*'Manufacturing of pharmaceuticals is heavily concentrated in multinationals.'*⁹⁶

*'Pharmaceuticals multinationals are rationalising and relocating their operations globally.'*⁹⁸

*'Companies that are located here must be encouraged to build their manufacturing.'*⁹⁶

Policy options could include:

- ▶ Incentives for commercialisation and manufacturing new products such as those used in other countries including the 'Patent Box'⁹⁷ – see **Boxes 2, 3 and 4**.
- ▶ Improving the operation of Australian Research Council grants.⁹⁸
- ▶ Improving tax treatment of employee share schemes and other equity schemes to attract and retain highly skilled staff – see **Box 5**.
- ▶ Mobilising more sources of commercial investment including superannuation funds⁹⁹ – see **Box 6**.

- ▶ Continuing the Research and Development Tax Incentive with changes to its thresholds for eligibility to the refundable component.
- ▶ Grant programmes providing a case manager to help firms.¹⁰⁰
- ▶ Improving the operation of Australia's early stage financing sector (including venture capital).
- ▶ Improving the finance sector's knowledge of sound investment opportunities in manufacturing.¹⁰¹
- ▶ Establishment of a loans-based scheme for high potential businesses to accelerate investment.¹⁰²

The Australian Government has committed to consideration of the 'Patent Box' model for commercialisation and manufacturing incentives as part of a review of the Research and Development Tax Incentive.¹⁰³ From submissions and hearings there was at least one example of a business moving manufacturing operations to the United Kingdom to take advantage of the patent box tax incentive.

The Australian Government is consulting on the tax arrangements for employee share schemes. Broader issues on employee share schemes will be addressed through the Australian Government's Industry Investment and Competitiveness Agenda.

Other tax concession arrangements that submissions to the South Australian and Victorian reviews considered were those of Canada and Thailand.

94. Richards, S., CEO, Mayne Pharma.

95. Richards, S., CEO, Mayne Pharma.

96. Panel member, Dr Jackie Fairley, CEO Starpharma Holdings Limited.

97. Pak-Poy, F., hearing evidence; Cook Medical submission; McGurk, D., CEO, Codan.

98. Pak-Poy, F., hearing evidence.

99. Pak-Poy, F., hearing evidence; Emergency Warning Systems, submission and hearing evidence.

100. Tinney, G., Chairman, Precise Advanced Manufacturing Group.

101. Pak-Poy, F., hearing evidence.

102. South Australian Government submission, Australian Manufacturing Workers Union submission, Australian Industry Group submission.

103. Liberal Party of Australia, *Boost the Competitiveness of Australian Manufacturing*, 2013.

BOX 2 · ‘Patent box’ model

The patent box initiative is a tax benefit to firms that own, trade or license patents or other registered intellectual property rights. It reduces the firm’s tax rate for income earned from its intellectual property rights. For example, in the United Kingdom, a 23 per cent corporate tax is normally levied on all profits. The patent box allows companies to apply a 10 per cent rate of corporations’ tax to all profits attributed to qualifying patents, whether paid separately as royalties or embedded in the sales price of products.

The patent box is intended to encourage companies to locate the high-value jobs associated with the

development, manufacture and exploitation of patents in country.

These schemes can go beyond patents, and schemes in the Netherlands, for example, include income made from any activity related to Dutch research and development, while Luxembourg’s scheme includes all registrable intellectual property rights, domain names and copyright protected content. Countries that have implemented a patent box regime include Belgium, China, France, Hungary, Ireland, Luxembourg, the Netherlands and Spain. The United Kingdom introduced a patent box in April 2013.

BOX 3 · Canadian tax arrangements that support commercialisation

The Canadian Scientific Research and Experimental Development Scheme provides a 35 per cent federal tax credit to small Canadian controlled private corporations for research and development expenditures up to \$3 million and a 15 per cent credit for research and development spending above this amount. Other firms receive a 15 per cent credit on research and development expenditures.

The rates for Canada’s scheme are additional to the normal tax deduction for research and development. As a result, the rates of support can be more generous than Australia’s. The total cost of the scheme is around

\$4 billion per annum. In addition to the federal scheme, there are also a number of provincial research and development tax incentives which have tax credits ranging from 4.5 per cent to 37.5 per cent.

According to the Organisation of Economic Cooperation and Development, Canada spends twice as much as a percentage of Gross Domestic Product (0.2 per cent) than Australia (0.1 per cent) on research and development tax incentives.

Source: 2011 comparison at <http://www.oecd.org/sti/rd-tax-stats.htm>.

BOX 4 · Thailand tax arrangements that attract foreign investment

A variety of tax and non tax incentives (i.e. special services, guarantees, approval and other protection) are offered to foreign investors in priority or promoted areas through the Thailand Board of Investment. Non tax benefits are available to all projects receiving Board of Investment promotion, regardless of location, type of production activity or conditions.

Tax based incentives depend on location, the nature of the activities and whether output is intended for export or domestic sale.

For example, to encourage export activities, a number of tax incentives are available. This includes value added tax applied at a rate of 0 per cent to exported goods and customs duties on exported goods are generally exempted, except for certain goods and agricultural products.

Source: <http://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-thailandguide-2013.pdf>.

BOX 5 • Employee share schemes

Employee share schemes give staff part ownership in the business. This can be an important tool for start-up businesses and small and medium sized enterprises, as it provides a way to help attract and retain talented people while keeping sufficient capital for the start-up to grow.

Employee share schemes also provide an effective incentive for people working in the business to put their passion and commitment into the new opportunity with a promise of benefit if the business is profitable.

Concerns have been raised that the current tax arrangements for employee share schemes are out of step with global practice and are creating challenges for start-up businesses. The 2009-10 Federal Budget introduced new rules including a requirement for tax to be paid on shares when an employee acquires them, rather than having an option to defer paying tax until a later time.

BOX 6 • Accessing superannuation fund capital

The question is frequently asked, how the large pool of Australian superannuation fund capital may be harnessed to invest in the growth of Australian companies. Superannuation funds have invested in venture capital funds that invest in early stage businesses.

However, poor returns from the Australian early-stage venture capital market have led to a growing reluctance on the part of superannuation funds to commit further capital.*

Investing in new high growth companies is highly specialised and carries a high risk of loss of capital. The scale of investment is also much smaller than other asset classes, making venture capital funds less attractive given the large amount of capital that superannuation funds need to invest.

* In the 2011–12 financial year, domestic superannuation funds accounted for 38% of total commitments to venture capital in Australia. This is the continuation of a downward trend from 56 per cent in 2008–09 (Venture Capital and Later Stage Private Equity Survey, Australia, 2011–12, Australian Bureau of Statistics Cat. No. 5678.0)

The investment attractiveness of a country to potential investors takes into account a range of factors, each of which has a weighting. Whilst a single tax instrument may appear attractive in isolation, it is the collective effect of the range of factors that will sway a decision in Australia's favour. Sovereign risk carries its own premium and some countries seek to offset this with incentives.

The operation of Australia's finance market is subject to the Australian Government's fiduciary and prudential regulatory framework that is designed for the efficient operation of that market to ensure the interests of investors are protected. The Australian Government is also conducting a Financial System Inquiry which will consider, among other matters, how to best balance competition, innovation and efficiency, with stability and consumer protection.¹⁰⁴

As a member of the World Trade Organisation, there are limitations to the assistance the Australian Government can provide to Australian industry.

The World Trade Organisation Agreement on Subsidies and Countervailing Measures determines the rules around the application of subsidies for member countries and regulates the actions countries can take to counter the effects of subsidies applied by other countries. The limitations on subsidies differ between developed and developing countries and between products.¹⁰⁵

Certain subsidies are prohibited because they are specifically designed to distort international trade, and are therefore likely to hurt other countries' trade.¹⁰⁶

104. Media release, Treasurer, the Hon Joe Hockey MP, of 20 November 2013, last accessed 18 February 2014 <http://joh.ministers.treasury.gov.au/media-release/023-2013/>.

105. Department of Industry.

106. Department of Industry.

CASE STUDY

Marand – high tech diversification

Marand is a Melbourne based, privately owned Australian company that extended and diversified its business beyond automotive to become a key supplier to the F-35 Joint Strike Fighter programme.

A leading supplier to industry of high-quality precision tooling, machine tools and engineered automated production solutions. Marand has one of the largest in country capabilities in automated facility engineering and feasibility studies with proven solutions in the aerospace, defence, rail and automotive and general manufacturing industries. Additionally Marand supplies entire assemblies or completed product to the Aerospace and Defence industry for infield final use.

Marand's primary design, engineering, manufacturing and assembly plant in Melbourne houses a wide range of special purpose tools and equipment, many unique to Australia, allowing them to manufacture the majority of their work in-house.

In May 2012, Marand was awarded Manufacturer of the Year (Large Business) at the Victorian Government's Manufacturing Hall of Fame awards.

On 24th August 2012, Marand signed agreements with Ford Motor Co. to lease the old Ford tool-room site in Geelong to support many Joint Strike Fighter F-35 and future defence activities. At the same time, Marand purchased the equipment assets within the tool-room.

Marand has also won three Lockheed Martin Excellence awards in quality and delivery performance for shipping in excess of 500 Aerospace tools around the globe for the F-35 programme.

Marand received benefits or concessions from one or more Australian Government business programmes.

Source: Marand and Department of Industry.

Defence manufacturing

The defence market is characterised by highly specialised, high quality, high value, low volume and non-continuous production. There are opportunities for Australian firms that meet the Department of Defence's requirements. Supply into defence markets can form part of the business model for capable, diversified manufacturing businesses.

The Department of Defence engages with globally competitive Australian small and medium sized manufacturing enterprises to supply defence procurement projects. The Defence Materiel Organisation's Global Supply Chain Program provides opportunities for competitive Australian suppliers to participate in the supply of equipment and components to defence procurement projects. The reputation that these companies build enables them to compete in the other global value chains of other multinational corporations. This effectively reduces any risk perceived by a prospective purchaser of their products in their bidding for supply contracts.

The Australian Government has committed to releasing an updated Defence White Paper within 18 months of taking office. Subsequent to this, the Australian Government aims to release an updated Defence Capability Plan that will provide further information to industry regarding Defence's capability development priorities, project schedules and local industry content.

The 2012 Public Defence Capability Plan outlines a forward, yet to be approved naval acquisition program valued in the order of \$55 billion between now and 2040. This Plan forecasts the delivery of the following vessels:

- Future Submarines (Project SEA 1000);
- Future Frigates (Project SEA 5000);
- Offshore Combatant Vessels (Project SEA 1180);
- A replacement for the Armidale Class patrol boats (Project SEA 1179);
- Supply Ships (Project SEA 1654 Phase 3); and
- Landing Craft Heavy (Joint Project 2048 Phase 5).

Under the Defence Cooperation Program, the Australian Government will also be considering the provision of up to 22 Pacific Patrol Boats over the next decade. There is scope for these vessels to be constructed in a number of shipyards around Australia and South Australian and Victorian shipyards could therefore be potential candidates for this project.

In addition, other maritime engaged Commonwealth agencies such as the Australian Antarctic Division within the Department of Environment and Australian Customs and Border Protection Service, have a need to acquire new vessels in the future.

It should be noted that each of the projects listed above are subject to substantial Australian Government considerations prior to any acquisition proposal being forwarded to industry. However, longer lead-in times would enable the selected or competitive regions to better prepare for the delivery of such major projects. An earlier signal of the regions likely to be considered under acquisition and building programs would allow business communities to build scale, supply chains and the scale required to better deliver on such contracts, when they are announced.

Overview of the Australian shipbuilding market

The Australian naval shipbuilding industry is dominated by four major Australian shipyards which comprise the majority of the Australian shipbuilding and repair market (74 per cent), and is characterised by primarily defence-related shipbuilding projects (65 per cent). Of the total shipbuilding and repair market, 78 per cent of revenue is generated by Defence related projects with 22 per cent coming from commercial opportunities.

Further information on the defence manufacturing opportunities is at **Appendix 6**.

Infrastructure

The Australian Government is committed to investing in productivity-enhancing infrastructure that Australia needs for the 21st century. Infrastructure investment is critical to Australia's economic growth and productivity; it opens up opportunities for jobs, access to markets and improves the efficiency and safety of our transport and freight networks. In total, the Australian Government has committed \$35.5 billion to fund key road, rail and intermodal projects over six years.

The Australian Government is working to enhance the attractiveness of private investment in infrastructure by:

- ▶ looking at alternative funding and financing options; and
- ▶ reducing the cost of building infrastructure through improving efficiency and removing red tape.

To this end, the Australian Government has commissioned the Productivity Commission to examine ways to reduce costs of major infrastructure projects and address barriers to private sector funding and financing of infrastructure. The Productivity Commission is expected to release its draft report in March 2014.

The Australian Government is also seeking to strengthen the role of Infrastructure Australia as an independent advisor to governments on infrastructure priorities. The Australian Government's proposed reforms will see Infrastructure Australia become a more independent, transparent and expert advisory body through a change in its governance structure and clarification of its functions.

Properly targeted Government investment, or facilitation of investment, in key regional infrastructure projects has the potential to assist transitioning business communities to new sectors of growth. Identification of the core strengths of different regions and assisting in the development of a roadmap for these regions could help communities to re-focus on the future of industry or manufacturing.

Relocating Australian Public Service functions to affected regions

The Australian Government could consider relocating Australian Public Service functions to the affected regions where appropriate and cost effective to do so.¹⁰⁷

The Australian Public Service is largely decentralised with close to 60 per cent of all ongoing staff located outside of the Australian Capital Territory. South Australia accounted for 9,077 ongoing Australian Public Servants in 2012–13, representative of 6 per cent of total employees. Victoria accounted for 24,297 ongoing Australian Public Servants in 2012–13, representative of 16 per cent of total employees. In 2012–13, the percentage of public servants based in Canberra decreased for the first time since 2000 (from 40.8 per cent to 40.3 per cent).¹⁰⁸

107. Prime Minister of Australia and Minister for Industry joint media release 'Securing Australia's Manufacturing Future' of 18 December 2013.

108. Australian Public Service Commission, Australian Public Service Statistical Bulletin 2012–13, p. 8.

CONCLUSION

Manufacturing in South Australia and Victoria has a future, but it will be a different future in high value added manufacturing and industries.

The skills and capabilities of the more highly qualified workers affected by the closures may be transferable to other sectors. However, some workers may need to undertake training to access alternative employment. For example, a proportion of the workforce has low language, literacy and numeracy skills or have skills targeted specifically at manufacturing processing.

Business must take the lead in developing the high growth and export opportunities.

In **South Australia**, opportunities are in the sectors of: advanced manufacturing; food and agriculture; health and biomedical products; oil and gas; mining equipment, technology and services; tourism; and education.

In **Victoria**, opportunities are in the sectors of: food and agriculture; advanced manufacturing; biomedical products; mining equipment, technology and services; financial and professional services; tourism; education; and health services.

Growing more small and mid-sized firms is a priority for future growth. Small and mid-sized manufacturing firms have the highest potential for capturing these growth opportunities in high value added production where the firm sets the market price. Start-up enterprises will also be important for future industry renewal and growth.

Improving business access to finance and markets, particularly for small and medium sized enterprises, will enable them to diversify with new product solutions that offer excellent value for money.

The capacity, particularly for small to medium sized firms, to move in new directions is often likely to need improved leadership and management skills with the ability to apply new business practices and to engage workers in change.

Encouraging greater linkages between researchers and business, and refocusing publicly-funded research to better meet business-driven needs will enable many of these new product solutions. It will also improve commercial and economic outcomes from government investment in public research.

Ensuring certainty around government spending on defence and infrastructure will help with the timely transition of skilled workers to other job opportunities.

The Australian Government will create a conducive business environment for future industries by:

- ▶ reducing red and green tape by at least \$1 billion per year;
- ▶ establishing a Growth Fund, to which the Victorian Government and Holden have contributed. The Australian Government is in consultation with the South Australian Government and Toyota regarding their contributions;
- ▶ developing an Industry Investment and Competitiveness Agenda by mid 2014;
- ▶ investing \$50 million in the new national Manufacturing Transition Grant Programme due to commence from 1 July 2014; and
- ▶ reforming Australia's vocational education and training system to deliver high quality training outcomes for students that better meet industry skill needs now and in the future.

APPENDICES

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APPENDIX 1

South Australian and Victorian Economic Review Panel members

South Australian Economic Review Panel members

The Hon Ian Macfarlane MP, Minister for Industry (Chair)

The Hon Christopher Pyne MP, Minister for Education,
 Member for Sturt, South Australia

Senator the Hon Simon Birmingham, Parliamentary
 Secretary to the Minister for the Environment,
 Senator for South Australia

Mr Raymond Spencer, Chairman, South Australian
 Economic Development Board

Mr Robert Champion de Crespigny AC,
 respected South Australian business figure

Ms Jane Yuile, ANZ Chairman, South Australia

Victorian Economic Review Panel members

The Hon Ian Macfarlane MP, Minister for Industry (Chair)

The Hon Andrew Robb AO MP,
 Minister for Trade and Investment,
 Member for Goldstein, Victoria

Senator the Hon Michael Ronaldson,
 Minister for Veterans' Affairs, Senator for Victoria

Ms Sarah Henderson MP,
 Member for Corangamite, Victoria

Dr Jackie Fairley, Chief Executive Officer,
 Starpharma Holdings Limited

Mr Frank Costa OAM, Chairman, Costa Group

The Hon Mark Birrell, Chairman, Port of Melbourne,
 and President Victorian Employers' Chamber
 of Commerce and Industry

APPENDIX 2

Terms of Reference for the Economic Reviews of South Australia and Victoria

Role of the Panel for the Review of South Australian and Victorian Economies

The Review Panel was chaired by the Hon Ian Macfarlane MP, Minister for Industry, and included Members of Parliament and industry leaders in the South Australian and Victorian business communities.

The reviews will inform the Australian Government's response to regions affected by the wind-down of Holden's manufacturing operations in 2017 that will include the development of a Growth Fund. The scope of the reviews was broadened following Toyota's announcement that it will close its Australian manufacturing operations by 2017.

The final design of the Growth Fund will be informed by the outcomes of the reviews, consultation with South Australian and Victorian Governments and advice from the Review Panels.

The outcome of the reviews will support the work of the Council of Australian Governments Industry and Skills Ministerial Council.

The reviews will look at ways to boost the competitiveness of the South Australian and Victorian economies including by:

- ▶ Encouraging investment and innovation in high growth sectors in the affected regions;
- ▶ Supporting the diversification of automotive supply chain companies; and
- ▶ Supporting the training and redeployment of workers displaced by closures.

Source: Media Release, Prime Minister, the Hon Tony Abbott MP, and Minister for Industry, the Hon Ian Macfarlane MP of 18 December 2013 refer <http://www.pm.gov.au/media/2013-12-18/securing-australias-manufacturing-future> last accessed 15 January 2014 and media release, Minister for Industry, the Hon Ian Macfarlane MP of 10 February 2014, refer <http://minister.industry.gov.au/ministers/macfarlane/media-releases/australias-industry-future>, last accessed 14 February 2014.

APPENDIX 3

Consultation list

The Review Panel received submissions from organisations and individuals.

South Australia Panel interviews

- ▶ South Australian Government
- ▶ Adelaide Research and Innovation Pty Ltd
- ▶ ASC (formerly Australian Submarine Corporation)
- ▶ BAE Systems
- ▶ Business SA
- ▶ Cities of Playford and Salisbury with the University of Adelaide
- ▶ Codan
- ▶ Flinders University
- ▶ Haigh's Chocolates
- ▶ Mr Joel Parrish
- ▶ Mayne Pharma
- ▶ Precise Advanced Manufacturing Group
- ▶ Regional Development Australia – Murraylands and Riverland
- ▶ Samvardhana Motherson Reflectec (SMR Automotive Australia Pty Ltd)
- ▶ Seeley International

Victoria Panel interviews

- ▶ Victorian Government
- ▶ AusBiotech
- ▶ Cotton On
- ▶ Defence Materials Technology Centre
- ▶ Emergency Warning Systems Ltd
- ▶ Futuris Automotive Group
- ▶ G21 Geelong Regional Alliance
- ▶ GlaxoSmithKline
- ▶ Lauriston Consulting
- ▶ Marand Precision Engineering
- ▶ MtM Automotive Components
- ▶ R&D Connect
- ▶ South East Melbourne Manufacturers Alliance
- ▶ Universal Biosensors

Joint South Australian and Victorian Panel interviews

- ▶ Australian Chamber of Commerce and Industry
- ▶ Australian Food and Grocery Council
- ▶ Australian Forest Products Association
- ▶ Australian Industry Group
- ▶ Australian Manufacturing Workers' Union
- ▶ Business Council of Australia
- ▶ Holden
- ▶ Federal Chamber of Automotive Industries
- ▶ Federation of Automotive Products Manufacturers

All submission received

- ▶ Academy of Technological Sciences and Engineering
- ▶ Adelaide Training and Employment Centre
- ▶ Agricultural Institute Australia SA division
- ▶ Airspeed Pty Ltd
- ▶ ASC (formerly Australian Submarine Corporation)
- ▶ Associated Electronic Services and Laragon Pty Ltd
- ▶ Astrological Research Australia
- ▶ Australian Academy of Technological Sciences and Engineering
- ▶ Australian CleanTech
- ▶ Australian Design Integration Network
- ▶ Australian Forest Products Association
- ▶ Australian Industry Group
- ▶ Australian Institute for Innovation
- ▶ Australian Made Campaign Limited
- ▶ Australian Manufacturing Forum
- ▶ Australian Manufacturing Workers' Union – South Australia
- ▶ Australian Manufacturing Workers' Union – Victoria
- ▶ Australian National Retailers' Association
- ▶ Australian Paper
- ▶ Australian Self-Medication Industry
- ▶ Australian Technology Innovation Alliance
- ▶ Benitec Biopharma
- ▶ Bionics Institute

- ▶ Brown Coal Innovation Australia
- ▶ Business SA (South Australian Chamber of Commerce and Industry)
- ▶ Capstone Partners Pty Ltd
- ▶ Cement Industry Federation
- ▶ Century Engineering
- ▶ Chemlink Pty Ltd
- ▶ Cities of Playford and Salisbury
- ▶ Cook Medical Australia
- ▶ Cotton On
- ▶ Cutlass Consulting
- ▶ de Bruin Engineering
- ▶ De Zhen Corporation
- ▶ Defence Teaming Centre Inc.
- ▶ Docklands Science Park
- ▶ Dow Chemical Australia and New Zealand
- ▶ Emergency Warning Systems
- ▶ Engineers Australia – SA
- ▶ Engineers Australia – VIC
- ▶ Federal Member for Hindmarsh
- ▶ Federation of Automotive Product Manufacturers
- ▶ Flinders University
- ▶ Furniture Cabinets Joinery Alliance
- ▶ Futuris Automotive Group
- ▶ G21 Geelong Regional Alliance
- ▶ Gas Energy Australia and the Victorian Automobile Chamber of Commerce
- ▶ Geelong Chamber of Commerce
- ▶ Geelong Manufacturing Council
- ▶ GlaxoSmithKline
- ▶ Golden Plains Shire
- ▶ Ms Heather Mcfarlane
- ▶ Inner West Business Enterprise Centre
- ▶ InnoFuture
- ▶ Institute of Public Affairs
- ▶ Mr Joel Parrish
- ▶ Kagome
- ▶ Lauriston Consulting
- ▶ Levett Engineering
- ▶ Low Carbon Mobility International
- ▶ Luke Ryan Family Trust
- ▶ Mayne Pharma
- ▶ Medicines Australia
- ▶ Melting Moments Café and Catering
- ▶ Mincham Aviation
- ▶ Mirrai Project Services
- ▶ Mobile LNG Pty Ltd
- ▶ Neuplex Pty Ltd
- ▶ Plastics And Chemicals Industries Association
- ▶ PPB Advisory
- ▶ Professionals Australia
- ▶ Project Microcar
- ▶ R&D Connect
- ▶ Raytheon Australia
- ▶ Regional Development Australia Barossa
- ▶ Regional Development Australia Murraylands and Riverland
- ▶ Seeley International
- ▶ Shiluvim, Israel
- ▶ Shinka Management
- ▶ South Australian Chamber Of Mines and Energy
- ▶ South Australian Freight Council
- ▶ South Australian Government
- ▶ South Australian Liberal Party
- ▶ South East Melbourne Manufacturers Alliance
- ▶ St Laurence
- ▶ Surf Coast Shire
- ▶ TAFE SA
- ▶ Tony M Consulting
- ▶ Universal Biosensors
- ▶ University of South Australia and TAFE SA
- ▶ Victorian Association of Forest Industries
- ▶ Victorian Centre for Advanced Materials Manufacturing
- ▶ Victorian Government

APPENDIX 4

Occupations and skills profile for manufacturing workers

Four occupations account for three-quarters of employment in the Motor Vehicle and Motor Vehicle Parts Manufacturing sector: Technicians and Trades Workers; Labourers; Machinery Operators and Drivers; and Managers. The sector has a much larger proportion of Technicians and Trades Workers (30.4 per cent) and Labourers (20.9 per cent) and a much smaller proportion of Professionals (11.1 per cent) compared with employment across all industries (14.4 per cent, 9.6 per cent and 21.7 per cent respectively).¹⁰⁹

Two of the occupations are heavily concentrated in the Motor Vehicle and Motor Vehicle Parts Manufacturing sector: Vehicle Body Builders and Trimmers (40.3 per cent of this occupation is employed in the sector) and Product Assemblers (24.8 per cent). This suggests that displaced workers from these occupations will have the greatest difficulty finding alternative employment without retraining.

In the motor vehicle manufacturing sector, there is a relatively high proportion of workers with trade-level skills (at the Certificate III and IV levels) (25.1 per cent) as well as a significant proportion with professional qualifications (Bachelor Degree) (17.0 per cent). However, there is a proportion of workers with no post-school qualifications (41.2 per cent). Many of those workers are located in local government areas that have labour markets with higher unemployment and lower participation rates than the national average.

The skills of the automotive manufacturing workforce are utilised in other sectors of the economy such as in the resources, defence and aerospace sectors. Importantly, automotive is an urban based industry, enabling skills to be learned and developed in cities in close collaboration with universities and technical institutes, with those skills at a later stage re-deployed to regional and remote areas.

Those currently employed in South Australia and Victoria by car manufacturers are relatively well placed to compete for alternative employment (compared with other jobseekers in the affected regions) given their recent work experience and current skills. However, given the occupational concentration discussed above, there is a concern that the skills of some automotive manufacturing workers may not be easily identified as transferable.

Even for workers who are not displaced, ensuring the breadth and universality of skills is important. As the speed at which new technologies are adopted increases, workers will need to acquire a broader range of skills, undertake multiple tasks, and learn quickly and work flexibly.

109. Department of Employment, 2013.

APPENDIX 5

High growth potential industry sectors

South Australia

The growth opportunities in South Australia to accelerate the transition from traditional manufacturing are:¹¹⁰

- ▶ Food, wine and agriculture – supplying the emerging Asian middle class with higher value-added food and wine.¹¹¹
- ▶ Advanced manufacturing.¹¹²
- ▶ Defence manufacturing – production of naval surface vessels, submarines, non-defence vessels and military vehicles.¹¹³
- ▶ Health and biomedical products.
- ▶ Oil, gas and resources – copper, gold and iron production, and developing offshore and onshore oil and gas including unconventional gas.
- ▶ Mining equipment, technology and services.
- ▶ Services sectors including tourism and international education.

Victoria

High growth and export opportunities that would help Victoria's economic transformation include:¹¹⁴

- ▶ Food, fibre and agriculture.
- ▶ Advanced manufacturing of scientific equipment, medical devices, aerospace and machined products.
- ▶ Bioscience research and products – including supply to multinational pharmaceutical and life science companies.
- ▶ Mining equipment, technology and services.
- ▶ Services sectors including financial and professional services, tourism and education.

Part of Australia's growth

These sectors align with the Australian Government's '5-pillar' economy agenda:¹¹⁵

- ▶ manufacturing innovation – including providing better links between government, business and research institutions;
- ▶ agriculture exports;
- ▶ advanced services exports – including financial services, health, engineering and architectural services;
- ▶ world-class education and research; and
- ▶ mining exports.

High growth opportunities

Food and agriculture

The food sector produces a range of food and beverage products from meat, dairy, grain, fruit, vegetables, beer and wine. Agribusiness includes inputs to agricultural production such as fertilisers, pesticides, veterinary products and services, and agricultural equipment and machinery.¹¹⁶

Growth opportunities include: new markets in Asia's growing middle class; consolidation of Australia's market share in mature markets; new product opportunities from the transformation of primary production enterprises; and development of new products specifically tailored to new and growing markets.

South Australia

Food and wine industries are an important part of South Australia's economy. They generate more than \$16 billion a year and employ one in five South Australian workers. Agriculture, food and wine merchandise exports have grown from \$3.9 billion to \$4.3 billion over the past six years to 2013.

110. South Australian Government submission, 'Building a Stronger South Australia: Our Jobs Plan' (pp. 67, 17–19) and hearing evidence.

111. Business SA hearing evidence.

112. Deloitte Access Economics, 'Business Outlook, December Quarter 2013, pp. 107-108, http://www.deloitte.com/view/en_AU/au/news-research/luckycountry/prosperity-next-wave/index.htm, last accessed 2 February 2014.

113. Geelong Chamber of Commerce submission.

114. Victorian Government submission (pp. 7–8, 23, 49–52) and hearing evidence.

115. Liberal Party of Australia. 'Our Plan, Real Solutions for all Australians, The direction, values and policy priorities of the next Coalition Government', 2013.

116. Department of Industry.

In 2012–13, alcoholic beverages were South Australia's second largest source of export income (after wheat) reaching almost \$1.2 billion. China shows particular promise, with exports of alcoholic beverages increasing by 21 per cent in the year from 2011–12 to 2012–13 alone, to reach \$134 million.¹¹⁷

South Australia "has a good reputation for being 'clean and green' and businesses are finding niches like gluten-free pasta".¹¹⁸ The high value opportunities are in premium products, particularly for supply into Asian markets. Areas such as Playford have the potential for growth in food processing with food production nearby.¹¹⁹

Victoria

The food industry represents one of Victoria's largest manufacturing sectors. Exports of food products have seen growth, particularly wheat and crops used in food oil production. Food exports from Victoria in 2011–12 were \$7 billion, accounting for 26 per cent of Australia's total food exports.¹²⁰ Food Innovation Australia Limited brings together the food industry's value chains to enable transformational change in the industry.

Advanced manufacturing

Advanced manufacturing activities are spread across numerous industry sectors. They encompass leading edge practices and technologies, such as advanced materials, robotics and automation technologies. Industry segments that are known to be involved in advanced manufacturing activities include but are not limited to: aerospace; precision engineering; scientific instruments; machinery and equipment; electronic and electrical equipment; and specialised textiles.¹²¹

Advanced manufacturing capabilities help manufacturing to adapt to the changing manufacturing landscape by enabling manufacturers to diversify their products and services in order to capture new markets and customers. The novel high value-added products, services, technologies and processes provide Australian firms with competitive advantages that help to offset low-wage, low-skilled labour economies with larger economies of scale.

South Australia

Advanced manufacturing is a priority of the South Australian Government's Jobs Plan of January 2014. The state government proposes to accelerate the transition from traditional manufacturing to advanced manufacturing in South Australia with a range of initiatives that include:¹²²

- ▶ Industry roadmaps;
- ▶ Clusters and precincts;
- ▶ Small and medium sized enterprise innovation building programme;
- ▶ Emerging technologies programme;
- ▶ Voucher programmes to provide businesses with transformative services; and
- ▶ Manufacturing leaders network to provide mentoring of smaller firms.

Victoria

Manufacturing will continue as a key part of Victoria's economy and has the potential to generate substantial pockets of export business in Australia.¹²³ The Advanced Manufacturing Cooperative Research Centre, CSIRO, the Victorian Centre for Advanced Materials Manufacturing, Australian Carbon Fibre Research Facility, and Manufacturing Excellence Taskforce Australia (META) provide support for developing advanced manufacturing capabilities.

Health and biomedical products

The health and biomedical sectors develop and manufacture health-related products. This includes medicines as well as medical, surgical and dental products and equipment. Assistive technologies include the broad range of products to assist people in their daily lives, such as those who are ageing or have disabilities. This includes products such as walking frames, prosthetic limbs and personal monitoring and alarm systems. The range of products in this category offers diversification opportunities to a broad range of manufacturers with different capabilities.¹²⁴

117. Department of Foreign Affairs and Trade, *Australia's Trade by State and Territory 2012–13*.

118. Haigh, A., CEO, Haigh's Chocolates, hearing evidence.

119. Jackson, T., CEO, City of Playford, hearing evidence.

120. The State Government of Victoria, Business Victoria, 10 April 2013, <http://www.business.vic.gov.au/industries/food-and-beverage/overview> (accessed 7 January 2014) – advice from Business Competitiveness and Trade Division, received 8 January 2014.

121. Department of Industry.

122. South Australian Government submission.

123. Deloitte [2013] *Positioning for prosperity? Catching the next wave* (preview), p 40 – advice from Business Competitiveness and Trade Division, received 8 January 2014.

124. Spoehr, J., University of Adelaide, hearing evidence.

Medical devices

A medical device or technology is any article, including software, intended to be used by humans for the diagnosis, prevention, monitoring or treatment of a disease, injury or physiological process.¹²⁵

Australia's medical device industry employs around 17,500 people and in 2011 the total value of medical device exports was approximately \$1.9 billion. The medical device industry is expected to continue to grow, driven mainly by ageing populations globally, changes in wealth and lifestyle in the region and disease.

According to the Australian Bureau of Statistics in 2010–11: South Australia had around 280 medical technology companies including 11 manufacturing companies; and there were around 1,025 medical technology companies in Victoria.¹²⁶ Around 85 per cent of Australian medical device companies are small to medium sized firms. Larger firms include Cochlear, ResMed, Ansell and Cook Medical. Other companies, such as Invetech, have a more general focus, but include a medical device manufacturing component and use engineering and related skills in their product development and automation business.

In 2012, a peak medical device industry association stated that the lack of a skilled workforce was identified by manufacturers in particular as a significant challenge. The skills required for manufacturing of medical devices are similar to those used in the automotive industry. These include high skilled engineering, componentry, miniaturisation, computerisation and materials science.

The growing medical devices industry uses many of the capabilities of the automotive industry, and there are instances of businesses transferring from automotive to medical devices manufacture.

South Australia

The South Australian Government has supported the bioscience and related sectors by establishing Bio Innovation (SA) in 2001 to build the bioscience and related industries in the state. Also, the South Australian and Australian Governments are collaborating in the development of a health and biomedical precinct on North Terrace, Adelaide.

The North Terrace precinct will house the South Australian Health and Medical Research Institute, University of South Australia's inter-professional health clinic, the Centre for Cancer Biology, and the University of Adelaide's Integrated Clinical School next to Adelaide Hospital¹²⁷. The Cooperative Research Centre for Cell Therapy Manufacturing was established in Adelaide with funding from the Australian Government and Bio Innovation (SA).

Adelaide's health care and technology cluster at Tonsley Park provides opportunity to expand its scope to diversify into the production of medical devices using capabilities from the automotive industry.¹²⁸

Victoria

The Victorian Government supports enabling technologies, such as biotechnology, as drivers of economic development. Over 300 Victorian companies or organisations are active across the broad biotechnology sector, specialising in particular capabilities or interests— from environmental biotechnology to diagnostic equipment manufacturers to cancer research specialists.

In late 2011, the Victorian Government announced its \$150 million strategy: *Victoria's Technology Plan for the Future*. The Plan takes a market-driven approach in the critical areas of capability development; and technology-enabled innovation.

Victoria's four major bioscience precincts are: the Central Precinct, the South East Precinct, the South West Precinct and the North Precinct.

125. <http://www.innovation.gov.au/INDUSTRY/PHARMACEUTICALSANDHEALTHTECHNOLOGIES/MEDICALDEVICESANDTECHNOLOGY/Pages/default.aspx>, last accessed 6 February 2014.

126. <http://www.innovation.gov.au/industry/PharmaceuticalsandHealthTechnologies/MedicalDevicesandTechnology/Pages/MedicalDevicesDataCard.aspx>, last accessed 3 February 2014.

127. Submissions: South Australian Government submission, p. 25; Federal Member for Hindmarsh, Mr Matt Williams MP. http://www.bioinnovationsa.com.au/business_news/thebarton-technology-precinct, last accessed 4 February 2014; Business Competitiveness and Trade email of 7 January 2014.

128. Submissions (Flinders University) and hearings evidence.

Oil and gas

The oil and gas industry will soon make up about 2 per cent of Australia's economy, with the majority of that now coming from gas. Australia's output of liquefied natural gas is expected to rise by 250 per cent between 2013 and 2017–18.¹²⁹ The oil and gas research sector has a strong centre of excellence at the University of Adelaide.¹³⁰

In South Australia, major investments in onshore and offshore oil and gas exploration and production are being made by Statoil, Santos, Beach Energy, Senex Energy and Chevron Australia. Onshore, companies have committed to investing \$3.5 billion to develop gas in the Cooper Basin over the next five years. Offshore, BP, Chevron, Statoil and Santos are investing more than \$2 billion in the Bight Basin over the next four years.¹³¹

The sector is well placed to leverage off Australia's strong international reputation as a reliable supplier of equipment, technology and services to access growth markets including Asia, Africa and South America.

Areas for growth and investment within the oil and gas sector include: floating liquefied natural gas operations and maintenance, including advanced construction technologies; onshore shale gas exploration and extraction; subsea pipeline repair and maintenance; process automation, optimisation and debottlenecking; brownfields expansion and technical upgrades; environmental management and monitoring; produced water disposal and reuse (particularly in the coal seam gas to liquefied natural gas sector); carbon dioxide capture and sequestration.

Mining equipment, technology and services

Mining equipment, technology and services is a diverse sector and includes associated services (such as contract mining and specialist oilfield services), suppliers, equipment and technologies for the mining and oil and gas sectors.¹³²

Firms in this sector provide specialised products and solutions to the mining and minerals industry. Spanning manufacturing to engineering and professional services companies, it is a highly diverse sector in size and scope, but linked by a core competency in mining and minerals.¹³³

The sector employs about 396,000 people and has a high level of technological development. It has gross annual revenues of \$90 billion and is export oriented, with 55 per cent of firms exporting goods to the value of \$27 billion.¹³⁴

Firms in the sector are leveraging their strong reputation internationally in growth markets including Asia, Africa and South America to enter new markets. Areas for growth and investment opportunities include: adoption and continued development of new technologies to drive productivity; international growth of services into Asia and Africa; and diversification through high value-add technologies into other sectors. In Australia, this sector is diverse and adaptable and thus well placed to take advantage of these growth opportunities.

Services sectors

Services sectors represent around 79 per cent of industry value added and 87 per cent of employment for Australia as a whole, and are continuing to grow.¹³⁵ Tourism and education have been identified as important areas for future growth in South Australia and Victoria.¹³⁶ Growth in Victoria is also expected in the wealth management, information and communications technology, engineering, accounting, legal and health services.

Tourism and education

The Organisation for Economic Co-operation and Development ranks Australia as the fifth biggest market for international tertiary education, behind only the United States, United Kingdom, Germany and France. Up until 2009 international student education was a strongly growing sector in Australia, however it was negatively affected by the high Australian dollar.¹³⁷ The recent downward shift in the value of the Australian dollar will take some of the pressure off trade exposed sectors such as international education and tourism.

129. Deloitte [2013] *Positioning for prosperity? Catching the next wave* (preview), p 24.

130. Gas Energy Australia and the Victorian Automobile Chamber of Commerce submission.

131. South Australian Government submission, p. 25.

132. Price Waterhouse Coopers (2013) *Industry sectors: Analysis and forecasting*, report for the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education, pp39.

133. Austmine (2013) *Australia's New Driver for Growth: Mining Equipment, Technology and Services*.

134. Austmine (2013) *Australia's New Driver for Growth: Mining Equipment, Technology and Services*.

135. Assessed using data from ABS catalogue 5206.0, Table 6, Original series type – June 2012; Assessed using data from ABS catalogue 6291.0.55.003, Table 4, original series type – August 2013.

136. South Australian Government submission. Victorian Government submission. Hearings evidence.

137. Deloitte Access Economics, 'Business Outlook, World recovering, but Oz below trend', September 2013, p. 49.

South Australia

Education-related travel remains an important export earner bringing in over 42 per cent of South Australia's total service exports in 2012–13 and worth well over \$800 million.¹³⁸ The South Australian Government has identified tourism and international education as priorities in the services sectors. It will leverage South Australia's comparative advantages to grow exports and jobs.

Victoria

Education and tourism are of particular importance to the Victorian economy. *Education related travel* was Victoria's largest source of services export income reaching over \$4.3 billion while *Personal travel excluding education* was Victoria's second largest services export earner, bringing in almost \$2.6 billion. Between them, these two sources of exports provided over 5.5 times the export income that flowed from *Passenger motor vehicles* in 2012–13.¹³⁹

Information and communications technology services

Thirty per cent of Australia's 543,992 employees in the information and communications technology sector are in Victoria.¹⁴⁰ Victoria is home to more than 8,400 information and communications technology companies, including the Asia Pacific operations of a number of large global multinational corporations such as Alcatel Lucent, Cisco, Hewlett-Packard, Oracle and Microsoft.¹⁴¹ IBM has a significant role in employment of new graduates, conducting research and development and providing remote technical support, e-security, business processing, information and communications technology support and consulting. It has strong links with educational institutions.

Engineering services

Engineers are employed in a wide range of service sectors such as mining, architecture, information and communications technology, health care and education and training. The engineering services sector is currently experiencing skills shortages in mining and petroleum. The market for other engineering skills eased in 2013. Engineers in the automotive sector could transfer or retrain for positions in other kinds of engineering, however, those that seek to move are likely to experience difficulties in transferring because of competition from engineers who have sector-specific experience.¹⁴²

138. Department of Foreign Affairs and Trade.

139. Department of Foreign Affairs and Trade, *Australia's Trade by State and Territory 2012–13*.

140. Australian ICT Statistical Compendium 2012.

141. 'IBM To Build Global R&D Lab at University of Melbourne', October 2012, <http://www.invest.vic.gov.au/20101014-ibm-to-build-global-rd-lab-at-university-of-melbourne>.

142. Department of Employment.

APPENDIX 6

Defence manufacturing opportunities

The Department of Defence makes an important contribution to shipbuilding and heavy manufacturing in South Australia and Victoria. Defence's major contracts are associated with the construction, maintenance and refits of major capabilities. The size and equipment needs of the Australian Defence Force necessarily mean that Defence's most substantial construction and refit activity is non-ongoing in nature and the manufacturing industry that supports Defence experiences peaks and troughs of demand.

Current shipbuilding and other defence heavy manufacturing

Under Project SEA 4000 Ph3, three HOBART Class Air Warfare Destroyers are being built at the Techport shipyard in Adelaide through to mid-2019, with a number of ship blocks being manufactured by BAE Systems in Melbourne. This activity, which includes construction of the ships, and integration of ship and combat systems, has an approved budget of more than \$8 billion. Defence, ASC and Raytheon Australia currently employ about 1600 personnel in Adelaide on the Air Warfare Destroyer Program. ASC employs about another 800 personnel in Adelaide to sustain the COLLINS Class submarine fleet.

BAE Systems Australia is completing the build of two CANBERRA Class Landing Helicopter Dock ships at its Williamstown, Melbourne shipyard through to mid-2015. BAE Systems currently employs around 670 in direct support of the Landing Helicopter Dock build, approximately 200 of which are subcontracted. BAE Systems also employs about 200 personnel at the Williamstown shipyard manufacturing ship blocks for the Air Warfare Destroyers program.

Thales will have manufactured around 1015 Bushmaster Protected Mobility Vehicles at its Bendigo, Victoria, facility when it completes the last production contract in mid-2015. Thales is also designing and developing a new light protected mobility vehicle, Hawkei, at Bendigo. Thales intends to propose this design in the Project Land 121 Phase 4 competition. While the Government is yet to approve any acquisition of light protected mobility vehicles under Land 121 Ph 4, Thales has advised that it hopes to have the design sufficiently mature for low rate initial

production to follow on from Bushmaster production. Thales employs around 250 project managers, engineers and production workers at Bendigo.

Under LAND 121 Phase 3B Defence will acquire approximately 2700 medium and heavy vehicles along with associated modules and trailers for the Australian Army. Many of the 3800 modules will be designed and manufactured in Victoria under a subcontract through Marshall Land Systems to Rheinmetall MAN Military Vehicles Australia.

Most of Australia's domestic explosives/propellant and munitions manufacturing is undertaken by Thales at its Mulwala and Benalla facilities in north-east Victoria. These two sites currently employ more than 700 personnel, with around 80 per cent of the propellant, and 50 per cent of the munitions produced, being exported primarily into the commercial market in the US. Defence is currently engaged in a \$300 million redevelopment of Mulwala under Joint Project 2086.

Future work packages

The 2012 Public Defence Capability Plan outlines a forward, yet to be approved naval acquisition program valued in the order of \$55 billion between now and 2040. This Plan forecasts the delivery of the following vessels:

- ▶ Future Submarines (Project SEA 1000);
- ▶ Future Frigates (Project SEA 5000);
- ▶ Offshore Combatant Vessels (Project SEA 1180);
- ▶ A replacement for the Armidale Class patrol boats (Project SEA 1179);
- ▶ Supply Ships (Project SEA 1654 Phase 3); and
- ▶ Landing Craft Heavy (Joint Project 2048 Phase 5).

Under the Defence Cooperation Program, Government will also be considering the provision of up to 22 Pacific Patrol Boats over the next decade. There is scope for these vessels to be constructed in a number of shipyards around Australia and South Australian and Victorian shipyards could therefore be potential candidates for this project.

It should be noted that each of the projects listed above are subject to substantial Australian Government considerations prior to any acquisition proposal being forwarded to industry.

In addition, other maritime engaged Commonwealth agencies such as the Australian Antarctic Division within the Department of Environment, and Australian Customs and Border Protection Service, have a need to acquire new vessels in the future.

Key challenges and opportunities - shipbuilding

Challenges

The Australian naval shipbuilding industry is dominated by four major Australian shipyards which comprise the majority of the Australian shipbuilding and repair market (74 per cent), and is characterised by primarily defence-related shipbuilding projects (65 per cent). Of the total shipbuilding and repair market, 78 per cent of revenue is generated by Defence related projects with 22 per cent coming from commercial opportunities.

Along with other Australian manufacturing sectors, the Australian shipbuilding and defence industry is facing the challenges of a high and volatile Australian dollar, rising costs for inputs and raw materials, and subdued market demand both domestically and in export markets. In addition, there exists monopsonistic market elements whereby the Australian Government (primarily the Department of Defence) is the sole customer with the interest and resources to purchase many of the shipbuilding industry's products and services.

The high volatility evident across the industry can be attributed to the large but isolated naval acquisition projects which tend to be large and 'lumpy', with peaks and troughs in the workload for shipyards. With a heavy reliance on naval shipbuilding work this makes it difficult for industry to retain key shipbuilding skills and world-class productivity during production downturns. Some of these skills can take up to ten years to develop, and this capability is difficult and costly to rebuild when it diminishes during a downturn in production demand.

This has been an enduring feature of the Defence shipbuilding market for many years. Australian Defence requirements have not been in the recent past, and are unlikely in the foreseeable future, to be solely sufficient to allow the ongoing production of naval vessels necessary to sustain the full spectrum of skills and capability across the shipbuilding sector on an ongoing basis.

There is an anticipated gap in naval shipbuilding orders between the completion of both the Royal Australian Navy's Air Warfare Destroyer and Landing Helicopter Dock projects in 2015-16 and the commencement of the Future Submarine Program. It should be noted that, while the Air Warfare Destroyer shipbuilding in Adelaide is not due to complete until 2019, the manufacture of ship blocks and other key elements of the supply chain will be completed much earlier.

Opportunities

As stated earlier, Defence has a significant naval acquisition and build program over the next two decades with major investment potential for Australian industry.

With the Australian Government substantially controlling the domestic shipbuilding and defence market and industry reliant on steady demand for shipbuilding and defence projects to remain viable, Defence is working with industry to seek to better align Australia's shipbuilding program through a smoother and more coordinated shipbuilding acquisition schedule to maximise the retention of critical skills for future projects.

Other opportunities – defence and aerospace

In addition to naval shipbuilding projects there are other important future Defence land and aerospace acquisitions, one or more of which has the potential to involve substantial work for South Australian or Victorian industry.

AIR 6000 F-35 Joint Strike Fighter

The F-35 Joint Strike Fighter is being developed for the United States and eight international partner nations, including Australia. To date, 29 Australian companies have been awarded contracts to the value of \$329 million. Of these 29 companies, 19 are from South Australia and Victoria.

LAND 400 - Land Combat Vehicle System

Over the next ten years LAND 400 – Land Combat Vehicle System is forecast to be the largest and most expensive Australian Army acquisition to date with a projected value at more than \$10 billion. Defence will seek from this program the delivery of a range of combat vehicle systems to replace the existing Australian Light Armoured Vehicle and M113 Armoured Personnel Carrier by 2025.

When the Government considers the Land 400 project, Defence will provide options for Australian industry involvement. South Australian and Victorian industry is heavily involved in the manufacture and assembly of the Australian Army's existing combat vehicle systems, and depending on the final capability decisions of Government, these companies maybe well placed to participate in the LAND 400 acquisition program. Companies include Thales Australia (Bendigo, Victoria), BAE Systems Australia (Bandiana and Williamstown, Victoria, and Wingfield, South Australia) and General Dynamics Land Systems Australia (Adelaide, South Australia).

