Chapter 3

Importance of Australia's rail industry

3.1 An efficient, modern rail system, which is central to Australia's transport infrastructure future, requires a competitive, innovative and viable rail industry. This chapter considers the importance of Australia's rail industry to the national transport system and the nation's economy.

3.2 Australia's rail system is critical to the nation's economy.[1] Without rail, the country would face significant logistic and congestion challenges which would affect our national competiveness. A growing resurgence in rail in Australia, supported by considerable investment in rail infrastructure, provides both a challenge and an opportunity for the nation's rail industry. This chapter explores these challenges.

A world class industry

3.3 In 2014, the ARA observed that Australia's geography and geology requires a world class rail capability. It noted that the:

> Australian rail industry can demonstrate world's best practice in terms of design, innovative technologies, signalling, and the infrastructure that underpins it.[2]

3.4 Increasing globalisation, and the rise of manufacturing capabilities outside of Australia, has provided a number of challenges to the Australian rail sector including competition from cheaper imported products.[3] Yet, in terms of quality, many such imports have proven to be inferior in design, reliability and safety when compared to Australia's standards or have proved unsuitable to Australia's conditions. At the same time, evidence to the committee confirmed that Australian rail design, project management and IT systems, which also contribute to the performance of a train, are world class.

3.5 As detailed in Chapter 2, Australian manufacturers, unable to compete with overseas competitors on price, have been forced to modify, repair and maintain imported products and address what is often a myriad of defects, safety and operational problems. As Mr Amedeo D'Aprano, Industrial Officer of the ARTBIU observed:

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1 Department of Infrastructure and Regional Development, *Submission 14*, p. 2.

2 Australasian Railway Association, *Rail: Growing the Australian Economy. Six platforms to stimulate growth in the Australian rail industry*, November 2014, Executive Summary, https://ara.net.au/sites/default/files/pdf/6-Platforms-full-report-WEB.pdf (accessed 22 September 2017).

3 As an example, since 2000, 986 passenger rail power cars and carriages have been manufactured in Australia compared to 1482 manufactured overseas for Australia. Department of Infrastructure and Regional Development, *Submission 14*, p. 13.

> When we source trains from overseas suppliers we not only sacrifice local jobs and opportunities for our own economy; we sacrifice safety and put lives at risk through poorer standards.[4]

Growing importance of rail in Australia

3.6 Historically, increased demand for transport services in Australia was met by road rather than rail. However, there is growing recognition that rail has a clear cost advantage in high volume passenger markets, such as densely populated areas, in transporting bulk materials, and in relation to long hauls of freight.[5] The point was also made that Australia has the least energy efficient road passenger transport amongst members of the International Energy Association.[6]

Passenger transport

3.7 Evidence to the committee suggested that rail transport has been growing steadily in Australia and at a higher rate than other forms of transport over the last ten years.[7]

3.8 Demand for passenger transport services has grown considerably, driven in part by population growth and density. With almost 66 per cent of the Australian population living in an area equivalent to only 1 per cent of Australia's land mass, and 74 per cent of Australia's population expected to live in capital cities by 2061, rail is increasingly recognised as an efficient means of passenger transport.[8]

3.9 Annually, almost "one billion passenger journeys transport Australians on heavy and light rail networks" in both capital cities and regional areas.[9] In 2014-15, there were approximately 849 million urban passenger journeys in Australia, of which 646 million were urban heavy rail journeys across the country's largest cities.[10]

3.10 Victoria alone has witnessed a 50 per cent increase in public transport use over the last ten years. In that state, there are now 76 million more trips per year on the metropolitan rail network compared to ten years ago while there are 2.5 times as many passengers on the regional rail network across country Victoria compared to ten

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4 Mr Amedeo D'Aprano, Australian Rail Tram and Bus Industry Union, *Committee Hansard*, 16 June 2017, p. 8.

5 Australasian Railway Association, *Submission 7;* Deloitte Access Economics, *The true value of rail*, October 2011, pp 21–22.

6 Australasian Railway Association, *Submission 7;* Deloitte Access Economics, *The true value of rail*, October 2011, p. i.

7 Australasian Railway Association, *Submission 7;* Deloitte Access Economics, *The true value of rail*, October 2011, pp 21–22.

8 Australasian Railway Association, *Submission 7*, p. 7.

9 Australasian Railway Association, *A National Rail Industry Plan for the Benefit of Australia*, September 2017, p. 6.

10 Department of Infrastructure and Regional Development, *Submission 14*, p. 5.

years ago. Over the past two years, there has been a 24 per cent increase in the number of people travelling on the regional Victorian rail network.[11]

3.11 The fundamental benefits of rail as a method of passenger transport reach well beyond that of immediate cost, as it has a positive impact on:

- road congestion – one passenger train takes 525 cars off the road and one freight train takes 110 long haul trucks off the roads;
- economic and social costs – less congestion, fewer accidents and reduced road maintenance;[12]
- emissions – by producing lower carbon emissions compared to road transport;
- commuting times and liveability in growth corridors and in our regions; as well as
- social inclusion, health and amenity.[13]

3.12 As total passenger travel in Australian cities has grown almost ten-fold over the last 70 years, road vehicles still account for 87 per cent of the aggregate urban passenger task. The associated costs of congestion are staggering as the Bureau of Infrastructure, Transport and Regional Economics (BITRE) explained:

> BITRE estimates of the 'avoidable' social costs of congestion (where the benefits to road users of some travel in congested conditions are less than the costs imposed on other road users and the wider community) for the 8 Australian capitals (using an aggregate modelling approach) total approximately $16.5 billion for the 2015 financial year, having grown from about $12.8 billion for the 2010 financial year.
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> This 2015 metropolitan total is comprised of approximately $6 billion in private time costs, $8 billion in business time costs, $1.5 billion in extra vehicle operating costs and $1 billion in extra air pollution costs.[14]

3.13 As a method of relieving city congestion in a safe and cost-effective way, while also addressing environmental concerns, rail in Australia is coming to the fore. Estimates suggest that if rail achieves a 40 per cent market share, by 2030, the savings from accidents and carbon pollution could reach over $500 million a year.[15]

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11 Mr Jeroen Weimar, Public Transport Victoria, *Committee Hansard*, 16 June 2017, p. 19.

12 Australasian Railway Association, *Submission 7;* Deloitte Access Economics, *The true value of rail*, October 2011, p. iii.

13 Australasian Railway Association, *A National Rail Industry Plan for the Benefit of Australia*, September 2017, p. 7.

14 Bureau of Infrastructure, Transport and Regional Economics, *Traffic and congestion cost trends for Australian capital cities*, Department of Infrastructure and Regional Development, Information Sheet 74, November 2015, p. 1, https://bitre.gov.au/publications/2015/files/is_074.pdf (accessed 27 September 2017).

15 Australasian Railway Association, *Submission 7;* Deloitte Access Economics, *The true value of rail*, October 2011, p. iii.

Freight transport

3.14 Rail provides an important means of transporting freight between cities, towns and rural communities. Freight rail is significant to the domestic economy, as well as providing an enabler to major export supply chains. Its benefits include that of safety, efficiency and reduced congestion.[16]

3.15 The share of interstate, non-bulk freight met by road transport rose from 22 per cent in 1970 to approximately 70 per cent in 2011. Over the same period, the share met by rail fell from 45 per cent to less than 30 per cent. Today, Australia is the most intensive user of road freight in the world.[17]

3.16 However, the volume of freight moved by rail, as measured in billion tonne kilometres has been growing at an average rate of 5.8 per cent each year. It rose from approximately 136.9 billion tonne kilometres in 2000-01 to around 198.7 billion tonne kilometres in 2006-7, thereby accounting for around 39 per cent of total freight transported.[18]

3.17 The committee was informed that in 2013-14, Australian railways carried almost 1.3 billion tonnes of freight, which was a 25 per cent increase from the previous year. The task, which is dominated by bulk movements (primarily iron ore and coal), accounted for 98 per cent of the overall freight task.[19] The freight task is expected to double by 2030.[20]

3.18 The Freight on Rail Group (FORG) provided evidence that the rail freight industry added $13.2 billion to the Australian economy and made up 0.7 per cent of the total national economy in 2013. Further, it noted that the sector employs almost 15 000 people across the country, many of whom are based in regional areas, and pays over $1.2 billion in wages.[21] Given the strong presence of rail freight in rural and regional Australia, any job losses in the sector are acutely felt in regional areas and are compounded by flow-on effects within local communities and along the supply chain.[22]

3.19 Freight transport is critical to Australian industries, including agriculture. The transportation of agricultural products from rural areas to ports, predominantly for export, is a significant component of the railway industry. DIRD noted that rail has traditionally dominated grain transport over long distances. In September 2016, an

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16 Australasian Railway Association, *Submission 7*, p. 5.

17 Australasian Railway Association, *Submission 7;* Deloitte Access Economics, *The true value of rail*, October 2011, p. i.

18 Australasian Railway Association, *Submission 7;* Deloitte Access Economics, *The true value of rail*, October 2011, p. 20.

19 Australasian Railway Association, *Submission 7*, p. 4; Department of Infrastructure and Regional Development, *Submission 14*, p. 5.

20 Australasian Railway Association, *Submission 7*, p. 7.

21 Freight on Rail Group, *Submission 17*, p. 5.

22 Freight on Rail Group, *Submission 17*, pp 5–6.

estimated 5100 route-km of operational railway track was predominantly used for grain haulage.[23]

3.20 CBH, a cooperative of 4200 grain growers, informed the committee that approximately 70 per cent of its freight task is transported by rail.[24] As noted in the previous chapter, in 2010-11, it invested $175 million in new rolling stock (locomotives and wagons) to be operated by a new 'above rail' operator, Watco WA Rail, for a dedicated service of grain haulage.

3.21 DIRD noted that improvements in rail freight productivity have the potential to lower the cost of moving freight and contribute to increased national economic output. It was also noted that increasing the use of freight rail at ports can reduce costs and increase the competitiveness of export supply chains. At the same time, however, it was acknowledged that there are a still a number of challenges to strengthening the rail sector. While this is discussed further in the following chapter, it is worth noting that access, pricing and interoperability, as well as funding and investment are some of the primary challenges.[25]

Employment and income generation

> I am the fifth generation. My grandfather, great grandfather and great-great grandfather all worked on the railways. It was a job for life, because the work would steadily come through.[26]

3.22 According to the ARA, close to 200 000 people work in the rail industry which has close to $45 billion in committed investment over the next five years.[27]

3.23 Underpinning Australia's rail sector, the rail manufacturing industry directly employs 5000 workers. According to the CFW, the 5000 Australians employed in the manufacturing industry attract superior incomes (just under $80,000 per employee including wages, salaries and benefits). The CFW argued that this reflects the "relatively high productivity of the sector (over $180,000 of value-added per worker per year), and specialized skills required".[28]

3.24 The sector also indirectly supports an estimated 15 000 additional jobs in over 330 companies working in areas including maintenance, supply, input and downstream consumer industries, and thereby generates an overall annual turnover of nearly $4 billion.[29]

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23 Department of Infrastructure and Regional Development, *Submission 14*, p. 5.

24 CBH, *Submission 8*, p. 1.

25 Department of Infrastructure and Regional Development, *Submission 14*, p. 17.

26 Mr Paul Candy, Australian Manufacturing Workers' Union, *Committee Hansard*, 16 June 2017, p. 11.

27 Australasian Railway Association, *Submission 7*, p. 2.

28 Centre for Future Works, *Submission 10*, pp 4–5.

29 The Australia Institute, Centre for Future Works, *Submission 10*, p. 3 and Australasian Railway Association, *Submission 7*, p. 2.

3.25 In terms of income generation more broadly, in the 2013-14 financial year, the sector ordered approximately $2 billion worth of parts, inputs, supplies, and services from other industries in Australia. At the same time, it purchased just under $800 million in inputs and supplies from foreign suppliers with the imported inputs directly making "around 20 per cent of the industry's gross output measured by sales".[30]

3.26 Of the $2 billion in total purchases of Australian-made inputs, the five largest suppliers to railway rolling stock manufacturing (in order) were:

- fabricated metal products industries;
- professional, scientific and computer services;
- wholesale and retail services;
- finance, insurance, and leasing; and
- primary metals.[31]

3.27 The CFW made the point that the importance of the professional, scientific and computer services, which is the second largest supply sector, attests to the "innovation-intensity of the industry, which is constantly incorporating new product and process technologies into its activity".[32] Furthermore, the CFW noted that there are about 7000 jobs across those first-order or Tier 1 suppliers depending on their sales to railway equipment manufacturing. The CFW continued:

> This does not include the subsequent higher-order supply jobs which, in turn, depend on goods and services sold to those Tier 1 supply sectors (the "suppliers to the suppliers"). So we can already see that the employment benefits arising from rolling stock production in Australia extend well beyond the boundaries of the sector itself: in fact, there are more jobs outside of the sector that depend on this work, than direct jobs in the sector itself.[33]

3.28 According to the CFW, for every direct job in the railway rolling stock sector alone, there are an average 1.4 additional jobs in first-order suppliers dependent on the business generated by rolling stock manufacturing. The CFW noted that there were even more jobs 'upstream' in the companies and industries that supply the suppliers. It estimated that a total of 17 410 jobs were created in this way.[34] The CFW provided the following information regarding employment:

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30 The Australia Institute, Centre for Future Works, *Submission 10*, p. 4.

31 The Australia Institute, Centre for Future Works, *Submission 10*, p. 6.

32 The Australia Institute, Centre for Future Works, *Submission 10*, p. 6.

33 The Australia Institute, Centre for Future Works, *Submission 10*, p. 6.

34 Centre for Future Works, *Submission 10*, p. 8.

Table 3.1 Railway Rolling Stock Manufacturing [35]

Key Australian Inputs Purchased (2013–14)		
Supply Industry	**Purchases ($m)**	**Derived Employment**[36]
Primary Metals	144	114
Fabricated Metal Products	398	1,708
Transportation Equipment[37]	103	n.a.
Electrical & Electronic Equipment	55	127
Other Equipment	111	102
Wood, Paper & Glass Products	51	166
Petroleum, Coal, Chemical & Rubber Products	84	112
Other Goods	29	82
Construction	17	51
Energy & Utilities	46	72
Wholesale & Retail Trade Services	208	1,350
Transportation Services	85	294
Communication & Telecom Services	98	206
Finance, Insurance & Leasing	151	130
Professional, Scientific & Computer Services	263	1,175
Other Services	148	1,307
Total Australian-Made Inputs	**1,993**	**6,997**

35 The Australia Institute, Centre for Future Works, *Submission 10*, p. 7. The table is derived from the CFW calculations from the Australian Bureau of Statistics Catalogues.

36 Includes direct Tier 1 input suppliers only (not counting employment associated with indirect inputs or "suppliers to suppliers"). Centre for Future Works, *Submission 10*, p. 7.

37 Mostly consisting of purchases from other railroad rolling stock manufacturers, hence derived employment is not calculated. The Australia Institute, Centre for Future Works, *Submission 10*, p. 7.

Imported Inputs	784	
Value Added in Rolling Stock Sector[38]	908	4,974
Total Australian Production	**3,686**	

Industry decline and consequences

3.29 Despite a growing awareness of the importance of rail to Australia, the local rail industry faces a series of challenges and threats. This is evidenced by a decline in the number of jobs in the sector. The CFW noted that industry employment had declined by 3000 jobs since the mid-2000s. It attributed the decline to a "dramatic and sustained rise in imports of finished railway equipment". The CFW explained that until the mid-2000s, most of the rail equipment purchased by the industry was manufactured in Australia while imports were modest. However:

> Several developments at that time – including the implementation of several free trade agreements, the dramatic appreciation of the Australian currency (during the mining boom), the liberalization of public procurement decisions, and the broader decline of Australian manufacturing – all contributed to a rapid increase in import penetration.[39]

3.30 Railway rolling stock imports reached a peak in 2013-14 at around $1.5 billion or five times higher than the import levels a decade earlier. In 2013-14, the total value of imports equalled nearly 40 per cent of the value of domestic production. At the same time, exports of railway equipment from Australia remained small, averaging less than $100 million per year over the past decade.[40] According to the Rail Manufacturing CRC this trend is set to continue.[41]

3.31 The point was also made to the committee that the lack of national consistency in procurement, design and standards had created vast inefficiencies for local manufacturers, which directly undermined jobs.[42] Indeed, considerable evidence to the committee focused on the decline of employment in the rail industry. The committee was informed that over the past decade, a growing preference for imported equipment has reduced employment in Australian railway equipment manufacturing by 40 per cent.[43]

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38 This includes indirect taxes less subsidies. The Australia Institute, Centre for Future Works, *Submission 10*, p. 7.

39 The Australia Institute, Centre for Future Works, *Submission 10*, p. 5.

40 The Australia Institute, Centre for Future Works, *Submission 10*, p. 5.

41 Rail Manufacturing CRC, *Submission 9*, p. 5.

42 Australian Council of Trade Unions, *Submission 13*, p. 2.

43 The Australia Institute, Centre for Future Works, *Submission 10*, p. 14.

3.32 Mr Shaun Goss, an electrician in the rail industry informed the committee that the two big companies in Newcastle – Downer EDI and UGL – employ around 200 staff between them. Yet five years ago, they employed approximately 1000 staff. For the Hunter region of NSW, as a case in point, the decline in rail jobs, coupled with uncertainty with regard to other industries, has created a youth unemployment rate of around 22 per cent.[44]

3.33 Mr Phillip Walters of the AMWU explained that in NSW, the rail build industry is "evaporating", leaving workers on short-term contracts and facing the real prospect of retrenchment. He detailed the consequences at the Newcastle-based Downer EDI company:

> We have constantly downsized since 2012—since the end of the OSCar contract. It drops off 20 or 30 people at a time. We had our last retrenchments last year. It is a slow spiral down. Blokes say to me, 'How bad can it get?' And one way or another it seems to get a little bit worse. There is no job security.[45]

Lovells Springs

3.34 The experience of local manufacturing company, Lovells Springs, is representative of the state of the entire sector.

3.35 Lovells Springs produces new springs for new built locomotives, freight wagons and passenger trains and provides a refurbishment and replacement service for maintenance purposes to keep existing fleets on the rails. It is the only company left in Australia with the capacity to manufacture the entire range of components required for the Australian rail industry.[46]

3.36 While the rail sector represented 60 per cent of the company's business five years ago, it has now declined to 30 per cent. According to the company, the substantial fall in rail business resulted from the near total cessation of new-build rolling stock manufacturing in Australia coupled with sourcing of spare parts for large scale refurbishment locomotive projects from overseas.[47] In terms of the impact on the company, Mr Simon Crane, Managing Director, explained that:

> …my family has been involved in manufacturing for 150 years without a break, and I am the last man standing that dynasty. Our great family company ceased to exist as of five years ago; it employed 9,000 people. So I am just one tiny echo of a great dynasty that has gone.[48]

3.37 Lovells Springs argued that its rolling stock suspension components which are manufactured with locally produced steel are "equal or superior to any sourced

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44 Mr Shaun Goss, *Submission 3*.

45 Mr Phillip Walters, Australian Manufacturing Workers Union', *Committee Hansard*, 1 May 2017, p. 11.

46 Lovells Springs, *Submission 20*, p. 2.

47 Lovells Springs, *Submission 20*, p. 1.

48 Mr Simon Crane, Lovells Springs, *Committee Hansard*, 1 May 2017, p. 25.

internationally". However, it made the point that if the local market dries up in favour of lower quality and cost alternatives, the company would be forced to "reduce its work force by 15 full time employees" and this would have a significant flow-on effect for its suppliers.[49]

3.38 While a number of regional rolling stock manufacturers have closed over recent years, a number of small to medium businesses such as Lovells Springs have focused on component manufacture, installation and fit-out, and maintenance. According to DIRD, this rail equipment manufacturing work is likely to stay in Australia, whereas the "import of lower value-added products such as rolling stock shells is likely to increase". It further noted that:

> Several export opportunities will exist over the next five years with rail manufacturing consulting having the highest potential for significant growth due to valuable intellectual property developed by Australian firms. These firms should be able to generate revenue by providing specialist advice on foreign projects and, in some cases, taking part in component manufacturing.[50]

3.39 However, the development of intellectual property and specialist advice are premised on the basis of a skills-based industry. The committee heard that it was vital that rolling stock maintenance, as well as manufacturing, remain in Australia.

3.40 According to the AMWU, the impact of a total shutdown of rail equipment manufacturing in Australia would be nothing short of "disastrous". It noted that the total loss of production in the sector, along with indirect job losses experienced in supply industries and downstream consumer industries would result in:

> …the elimination of nearly 20,000 jobs in total, the loss of $1.5 billion in national GDP, and a decline in national incomes totalling $1.75 billion.[51]

3.41 DIRD recognised manufacturing as integral to Australia's economic performance, through its contribution to national output, employment, research and development, performance and export income.[52]

Apprenticeships, training and skills

3.42 A key component of the rail industry is that of apprenticeships and training. The decline in jobs in the rail industry has witnessed with it the decline of apprenticeships, which in some companies, have completely dried up.

3.43 Mr Darren Mitchell worked on the Millennium and Waratah train projects at Downer Rail. He noted that while both projects required specific skills, some of the workers were able to learn and develop their skills over the term of the contract.

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49 Lovells Springs, *Submission 20*, p. 2.

50 Department of Infrastructure and Regional Development, *Submission 14*, p. 9.

51 Australian Manufacturing Workers' Union, *Submission 11*, p. 10.

52 Department of Infrastructure and Regional Development, *Submission 14*, p. 11.

However, as the company is no longer under contract, all employees have had to search for work elsewhere.[53]

3.44 The point was repeatedly made to the committee that procurement policy alone can have a direct and significant impact on the industry, particularly as government decisions to purchase from overseas has an impact on jobs and apprenticeships in Australia. Mr Glenn Thompson, Assistant National Secretary of the AMWU argued that when the NSW Government decided to spend $2.3 billion to build 500 train carriages, it created thousands of jobs in Korea rather than in regional NSW, where there are unemployed skilled workers. In direct contrast, the Victorian Government's $2 billion spend on 65 seven-car trains created with it 1100 jobs in Victoria and more than 100 apprentices, while also growing the local supply chain and giving local industry a chance to compete in a global market.[54]

3.45 One good example of the use of apprenticeships was that of the Oscar project.

Case Study: Outer Suburban Rail Car (OSCAR) project

An Oscar is an outer-suburban electric passenger railcar which runs between various cities in NSW. From 2006 to 2012, UGL built 220 Oscar railcars, employing 260 people at its Broadmeadow site, supporting 200 jobs in the Newcastle area, over 50 jobs in Taree and additional employment of local subcontractors and suppliers.[55]

Each car took approximately 5000 hours involving more than 250 Australian suppliers. At its peak in 2010, the project engaged 37 apprentices. Throughout the six-year build there were always approximately 30 apprentices employed at any one time.[56]

Oscar is currently the only passenger rail vehicle in NSW that has "demonstrated that it meets NSW Trains' stringent 55km/hr crashworthiness test standards".[57]

Lovells Technology, which employed 26 people, made the electrical systems for the Oscar trains. However, after two years of operation, a change of government in NSW ended the contract and Mr Crane, Managing Director of Lovells Technology, closed

53 Mr Darren Mitchell, *Submission 4*, p. 1.

54 Mr Glenn Thompson, Australian Manufacturing Workers' Union, *Committee Hansard*, 16 June 2017, p. 9.

55 UGL, Case Study: Oscar Stage 3 Electric Multiple Units for RailCorp, p. 2, https://uglcdn.ugllimited.com/Asset/cms/Case_Study/Rail/Passenger/Oscar_PassRail_CaseStudy_V2_WEB.pdf,(accessed 22 September 2017).

56 Mr Phillip Walters, Australian Manufacturing Workers' Union, *Committee Hansard*, 1 May 2017, p. 10.

57 UGL, Outer Suburban Rail Car (OSCAR), https://www.ugllimited.com/double-deck-electric-multiple-unit (accessed 22 September 2017).

the facility.[58] Mr Crane, observed that under current policy settings, the Oscar may be the "last passenger train ever to be produced in NSW after 120 years of production".[59]

3.46 The AMWU argued that procurement policy and the overall procurement culture in Australia has to change from one based on 'cheapest up front price' to one grounded in a national rail industry plan with a centralised wage process at its heart.[60]

Critical skills training and development

3.47 In 2015, the Victorian Government took the opportunity to invest in local suppliers and local jobs by way of a Victorian Industry Participation Policy (VIPP). All Victorian Government procurement activities are underpinned by the VIPP, whereby local content requirements are set for projects valued over $50 million and commitments to local industry development and supply chain engagement are considered in the tender process. Under Victoria's policy, projects valued over $20 million are required to use local apprentices, trainees or engineering cadets for at least 10 per cent of the total estimated labour hours under the Major Projects Skills Guarantee.[61]

3.48 A focus on local content, including jobs, coupled with a focus on training and development – by way of collaborative initiatives – provides greater opportunities for skill development. One such example is Victoria's High Capacity Metro Trains (HCMT) Project.

High Capacity Metro Trains Project

3.49 Delivered by way of a public private partnership with Evolution Rail, as part of the HCMT Project, the Victorian Government is investing in 65 next-generation high capacity trains for Melbourne.

3.50 The trains will be built in Victoria using at least 60 per cent local content. The HCMT contract requires that 15 per cent of the 1100 workforce comprise apprentices, trainees or cadets and that a further seven per cent comprise workers from disadvantaged backgrounds including the long-term unemployed.[62] A range of training and education opportunities will accompany the project including the following:

- a partnership with Chisholm TAFE to offer industry specific training for workers, to provide career pathways for people currently working in the rail industry and the broader manufacturing sector;

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58 Mr Simon Crane, Lovells Springs, *Committee Hansard*, 1 May 2017, p. 24.

59 Lovells Springs, *Submission 20*, p. 3.

60 Mr Glenn Thompson, Australian Manufacturing Workers' Union, *Committee Hansard*, 16 June 2017, p. 18.

61 Victorian Government, *Submission 19*, p. 4.

62 Ms Wendy McMillan, Transport for Victoria, *Committee Hansard*, 16 June 2017, p. 25.

- a partnership with Swinburne University of Technology to deliver 30 engineering rolling stock cadetships over five years, with the first cadets commencing in July 2017;
- opportunities to assist workers transition from the automotive industry to the Victorian rolling stock industry;
- dedicated training facilities at the Newport manufacturing facility and Pakenham East depot; and
- apprentices to be seconded to the China Railway (CRRC) to gain experience with the world's largest rolling stock manufacturer. [63]

3.51 Another key aspect of training and development recognised in evidence was the need for industry and research institutions to work more closely together.[64] As Mr Daniel Broad, CEO of the ARA noted, there is need for greater collaboration between industry and government to "attract a young, diverse and talented workforce to the industry".[65] Furthermore, there must be investment in the skills for the future as Mr Broad explained:

> The industry employs around 200,000 people in a wide range of occupations, disciplines and professions, but when one looks at the extraordinary amount of investment planned in the rail industry, the critical question that needs to be addressed is where the extra resources are coming from. Furthermore, a skills gap is already apparent, as well as changing skills needs, for meeting emergent technologies. This challenge needs a national solution. Between the federal and state governments, investment in both passenger and freight rail projects is likely to exceed $100 billion over the next 15 to 20 years. A well-skilled local industry is critical to maximising the benefits of this investment and to delivering efficient outcomes for industry, governments and the community.[66]

3.52 The decline in the rail industry over a 20 year period has discouraged university graduates from entering the industry. Dr Stuart Thomson, CEO of the RMCRC, noted in this regard that there was a need to move beyond the boom and bust cycle to create a pipeline whereby companies were willing to invest in people, capital and innovation on the one hand, while graduates were encouraged to enter the industry with career prosects on the other.[67]

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63 Department of Economic Development, Jobs, Transport and Resources, *Bigger trains for a better Melbourne. Jobs and Investment Fact Sheet*, Victorian Government, May 2017, http://economicdevelopment.vic.gov.au/__data/assets/pdf_file/0004/1479136/HCMT-Project-jobs-and-investment-fact-sheet.pdf (accessed 26 September 2017).

64 Dr Stuart Thomson, Rail Manufacturing CRC, *Committee Hansard*, 16 June 2017, p. 7.

65 Mr Daniel Broad, Australasian Railway Association, *Committee Hansard*, 30 August 2017, p. 8.

66 Mr Daniel Broad, Australasian Railway Association, *Committee Hansard*, 30 August 2017, p. 8.

67 Dr Stuart Thomson, Rail Manufacturing CRC, *Committee Hansard*, 16 June 2017, p. 7.

3.53 The ARA recognises critical skills training and development as one of the six platforms directed at stimulating growth in the rail industry.[68] To this end, the ARA recommended that:

> Scholarships, exchange programs and related incentives will help build expertise and the potential for innovative ideas in design, manufacturing and maintenance. With an ever-changing market, a 'whole-of-life' approach to skills development will address both the provision and maintenance of leading edge technologies and infrastructure irrespective of origin.[69]

Research, development and innovation

3.54 The lack of certainty with regard to employment and contracts in the Australian rail industry has also impacted investment in research and development.

3.55 The RMCRC noted that a lack of certainty about future contracts has negatively impacted industry investment in new technology. While acknowledging a range of grant programs to support collaboration between industry and research organisations, it noted that there is "reluctance in rail manufacturing businesses to seize the opportunity to invest in innovation".[70]

3.56 Submitters to the inquiry recognised that Australia's rail industry has the opportunity to contribute to the growing demand for rail products in the Asia-Pacific region, while also leveraging Australian skills, expertise and experience in these new and emerging markets. However the RMCRC warned that "without increased application of innovation, the Australian rail industry will not keep pace with the application of new technology to global platforms".[71]

3.57 The RMCRC suggested that tenderers for rolling stock should "mandate a level of innovation in the procurement sought", in exchange for supportive government procurement policies and local content requirements, as well as significant investments through grant programs. It argued that such an approach sought an 'innovation dividend' from government procurements which should encourage industry to collaborate on new technology in rail manufacturing and thereby become more globally competitive.[72] To this end, it recommended that the Commonwealth "seek an 'innovation dividend' from all rail procurement contracts".[73]

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68 Australasian Railway Association, *Rail: Growing the Australian Economy. Six platforms to stimulate growth in the Australian rail industry*, November 2014, Executive Summary, https://ara.net.au/sites/default/files/pdf/6-Platforms-full-report-WEB.pdf (accessed 22 September 2017).

69 Australasian Railway Association, *Rail: Growing the Australian Economy. Six platforms to stimulate growth in the Australian rail industry*, November 2014, p. 3.

70 Rail Manufacturing CRC, *Submission 9*, p. 3.

71 Rail Manufacturing CRC, *Submission 9*, p. 4.

72 Rail Manufacturing CRC, *Submission 9*, p. 3.

73 Rail Manufacturing CRC, *Submission 9*, p. 3.

Government / industry collaboration – Infrastructure Skills Centre

3.58 The NSW Infrastructure Skills Centre (ISC) was cited as an example of a collaborative partnership directed at providing infrastructure-focused training and skill development with integrated employment services. The centre is a response to a $73 billion infrastructure investment committed over a four year period by the NSW Government, to deliver major infrastructure, including rail; in addition to a $6 billion Commonwealth Government commitment over ten years to construct Sydney's second airport.

3.59 Designed as a collaboration between TAFE NSW, the Commonwealth Department of Employment, and Australia's largest public transport project – Sydney Metro – the purpose of the centre is to address gaps in infrastructure skills training and apprentice and trainee mentoring, as well as to provide direct access to jobs.[74]

3.60 As part of the program, many of the workers employed by Sydney Metro and its contract partners will undertake accredited pre-commencement training at the ISC. With more than 60 courses, workers can learn and earn on the job. In addition to skilling workers for Sydney Metro:

> It is anticipated the NSW ISC will address skills and jobs requirements across other major infrastructure programs such as the Western Sydney Airport and large construction projects such as Barangaroo, Darling Harbour, WestConnex, NorthConnex Parramatta Square and the Western Sydney Stadium.
>
> The delivery of the Sydney Metro Workforce Development program is part of a demonstration pilot with the NSW Department of Industry's Infrastructure Legacy Program. The NSW Infrastructure Skills Centre will support new industry entrants, existing workforces, apprentices and local communities well into the future.[75]

Investing in innovation

3.61 The committee was informed that there is a lack of in-house R&D expertise in rail manufacturing businesses that are receptive to the innovation imperative. It was noted, for example, that a 2011 ACIL Tasman report had found that less than one per cent of employees in the rail industry are scientists or researchers.[76] At a time when the high speed rail and inland rail projects are getting off the ground, and there are growing opportunities in the Asia-Pacific region, it is fundamentally important that Australian rail manufacturers invest in innovation. To this end, the RMCRC recommended the creation of a national Rail Innovation Hub which would be responsible to:

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74 TAFE NSW, Infrastructure Skills Centre, https://www.tafensw.edu.au/industry/infrastructure-skills-centres (accessed 27 September 2017).

75 TAFE NSW, Infrastructure Skills Centre, https://www.tafensw.edu.au/industry/infrastructure-skills-centres (accessed 27 September 2017).

76 Rail Manufacturing CRC, *Submission 9*, p. 6.

> …coordinate the adoption of new technology and innovation, to assist the industry with strategic growth opportunities and to facilitate enhanced supply chain operation to benefit niche manufacturing businesses.[77]

Local innovation – MRX Technologies

3.62 Siemens Ltd recently acquired Perth-based MRX Technologies, a high tech company focused on visual inspection and condition monitoring of rail vehicles and rail infrastructure. Comprising an innovative team of scientists and engineers – with 100 employees in Perth and 40 in the UK – the company developed technology in Australia for export which predicts the moment when maintenance or repair is required.

> MRX Technologies has a comprehensive portfolio for digitalized condition monitoring of rolling stock components and rail infrastructure. It delivers extensive measurement data used to optimize the maintenance of rail systems and make them more cost-efficient.[78]

3.63 According to Siemens, the technology enables the minimisation of unplanned disturbances, and at the same time, operators and customers can benefit from predicable schedules.[79]

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77 Rail Manufacturing CRC, *Submission 9*, p. 7.

78 Siemens Acquires Perth Based MRX Technologies, *Press Release*, 26 June 2017, http://corporate.siemens.com.au/en/home/news-centre/press-releases/siemens-acquires-perth-based-mrx-technologies.html (accessed 26 September 2017).

79 Siemens Ltd, Additional Information provided on 12 September 2017, pp 2–3.