

Chapter 4

Australian naval shipbuilders

4.1 The previous chapter traced the development of Australia's naval shipbuilding industry to the mid-1980s. This chapter concentrates on how Australia's prime contractors have developed their capacity over the past 20 years. It looks closely at the build of six Collins class submarines by the Australian Submarine Corporation (ASC) at Osborne, ten ANZAC frigates by Tenix at Williamstown and six Huon class minehunters by ADI at Newcastle. It notes the niche naval markets of two highly successful commercial aluminium shipbuilders in Austal and Incat. Finally, the chapter looks at the air warfare destroyer (AWD) and amphibious ship (LHD) projects, which are now in their early stages.

4.2 These past and current projects were referred to by a majority of witnesses to explain Australia's current capacity to construct large naval vessels. The projects will be mentioned throughout this report, particularly in connection with the role of small and medium sized enterprises (chapter 5), the pattern of infrastructure development (chapter 6), the productivity of the Australian naval shipbuilding industry (chapter 9) and the wider economic benefits from naval shipbuilding in Australia (chapter 11).

The prime contractors

4.3 Australia's major naval shipbuilders face the challenges of their counterparts worldwide. Their survival depends on finding the most cost-effective way to produce modern warships with highly sophisticated and expensive systems. They must keep pace with the rapid advances in technology in the face of falling demand for ships, escalating costs associated with the increasing pressure for improved capability and the need to develop and retain highly skilled workers. As noted in Chapter 2, shipbuilding is no longer about metal shaping or fabrication: shipbuilders need specialist skills to integrate modules in the final assembly. Australian naval shipbuilders have the added problem of servicing a relatively small market. The following section looks at the recent performance of Australia's three major primes—ASC, Tenix and Thales (ADI).

ASC and the Collins-class submarines: high achievement and high risk

4.4 The Australian Submarine Corporation (later ASC) was established in 1985 and chosen in 1987 as the prime contractor for the design, manufacture, upgrade and delivery of the Collins class submarines.¹ The Collins class project was the most

1 ASC, *Annual Report 2005*, p. 2.

ambitious and highest profile naval shipbuilding project in Australia in the past two decades.² It was ultimately a success on four key counts.

4.5 First, the May 1987 decision to award the \$A5 billion Collins class contract to ASC established a highly capable prime contractor. The decision reflected Navy's view that considerable benefits would accrue from having one organisation build and maintain the vessels.³ An Australian build with close access to the building yard promised reduced operating and maintenance costs and increased length of service between refits.⁴ In addition, it was argued that building the vessels in-country would economise on the high initial capital outlay on the integrated logistics support needed to bring the submarines into military service.⁵ ASC delivered on these benefits.

4.6 As a result of the Collins class project, ASC was the likely choice for the 25 year, A\$5 billion contract for the through-life support of the submarines, announced in 2003.⁶ There had been some concern prior to the completion of construction on the submarines that Australia would lose the skills and design capabilities that had merited the decision to build in-country. Writing in 1998, for example, Dr Paul Earnshaw commented:

If a further two submarines are not acquired and there are no follow on submarine projects, the design development capabilities established are likely to diminish over time...Consequently, if Australia wishes to design and build the next generation of submarines in about 20 to 30 years time, we will likely again need to import key skills and capabilities, probably pay a substantial premium, and experience a significant learning curve that will

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- 2 The original proposal was for ten vessels. By May 1999, this number was reduced to six. Mr Derek Woolner, *Getting in early: Lessons of the Collins Submarine Program for Improved Oversight of Defence Procurement*, Research Paper No. 3, 2001–02, Parliamentary Library, p. 12.
 - 3 Mr Derek Woolner, *Getting in early: Lessons of the Collins Submarine Program for Improved Oversight of Defence Procurement*, Research Paper No. 3, 2001–02, Parliamentary Library, p. 5. Patrick Walters, 'The Cutting Edge: The Collins experience', *Strategic Insights*, Australian Strategic Policy Institute, February 2006, p. 4.
 - 4 Mr Derek Woolner, *Procuring change: How Kockums was selected for the Collins class submarine*, Research Paper No. 4, 2001–02, Parliamentary Library, p. 3.
 - 5 Mr Derek Woolner, *Procuring change: How Kockums was selected for the Collins class submarine*, Research Paper No. 4, 2001–02, Parliamentary Library, p. 3.
 - 6 ASC, *Submission 17*, p. 1. Upon announcing the through-life support contract, the Defence Minister, the Hon. Robert Hill, and the Minister for Finance and Public Administration, the Hon. Nick Minchin, explained that 'ASC will integrate capability enhancements, such as a new combat system and a heavyweight torpedo, to ensure that the technical capabilities of the submarines are maintained'. The Hon. Robert Hill, Minister for Defence, and the Hon. Nick Minchin, Minister for Finance and Public Administration, 'Submarine refit contract signed today', *Media Release*, 8 December 2003.

ultimately pose a high level of risk in terms of capability performance, project schedule and project cost.⁷

4.7 Despite earlier well-publicised problems, ASC's ultimate success in completing the six vessels and securing the through-life support contract means that these concerns were successfully resolved. The company's expertise in the construction and repair of the Collins class submarines means it is well-placed to develop the next generation of submarines. As the Executive Director of the Australia Defence Association, Mr Neil James, told the committee:

If the next generation of Australian submarines are not to be nuclear powered then it is highly likely they will have to be built in Australia because there will be no-one else to build them. Therefore the capacity of ASC to continue to build submarines is in a different setting to the capacity of the rest of the industry to build surface ships...⁸

4.8 Furthermore, in 2004 ASC secured access to the intellectual property rights for the submarines, ending a series of long-running legal disputes with the Collins class designer Kockums.⁹ Although Kockums still owns the intellectual property (IP), ASC has full access to it. As Chapter 8 discusses, this access is crucial to ASC's long-term viability as a constructor and repairer of the RAN's submarines.

4.9 A second gauge of the Collins class project's success is that it proved and improved the capacity and productivity of the Australian industrial base to build complex warships to a high quality, from scratch.

- All six vessels, with the exception of the bow of the lead boat, were constructed in Australia to a high standard of workmanship. In terms of poor construction work, the main fault was with welding done in Sweden on the bow of the first ship.¹⁰
- The Collins class project achieved 73.5 per cent Australian industry content for the new platforms, exceeding the government's minimum target of 70 per

7 Dr Paul Earnshaw, 'Australian Naval Shipbuilding—1960s to the present', *Journal of the Australian Naval Institute*, January–March 1998, p. 41.

8 Mr Neil James, *Committee Hansard*, 3 July 2006, p. 44.

9 The Australian Submarine Corporation (later ASC) was formed in August 1985 through a joint venture between Kockums, the Australian Industry Development Corporation, Wormalds International and Chicago Bridge and Australia Iron. Kockums was a 49 per cent shareholder of ASC when ASC was selected as the prime contractor for the submarines in May 1987.

10 Mr Patrick Walters, 'The Cutting Edge: The Collins experience', *Strategic Insights*, Australian Strategic Policy Institute, February 2006, p. 6.

cent.¹¹ In so doing, the project promoted the establishment and development of many second and third tier Australian companies. As ASC's Managing Director Mr Greg Tunny told the committee: 'I think there are something like two-and-a-half thousand significant suppliers on the Collins and over 1000 substantial suppliers'.¹²

- The Collins class project greatly enhanced the skill base of the naval construction and design industry. Institutions such as the defence science facility and the local TAFE at Port Adelaide were important in the training process.¹³ The project has provided the design and engineering skills that will assist in ASC's development of the three air warfare destroyers and will be crucial should Australia commit to a new generation of submarines.
- The project indicated that ASC was more productive than its overseas counterparts. It produced one submarine per year, a faster rate of vessel construction than in Dutch and British yards.¹⁴

4.10 A third measure of the success of the Collins class project was its final product—a technologically and strategically important asset. The June 1999 report by Mr Malcolm McIntosh and Mr John Prescott on the problems with the Collins project acknowledged that the submarines 'constitute, on the one hand, probably Australia's most important strategic asset for the decades starting 2000, and on the other, Australia's most ambitious and technically advanced defence project ever'.¹⁵

4.11 ASC, in cooperation with the Defence Science and Technology Organisation (DSTO), developed submarine technology that in some cases led that of the U.S. and British navies.¹⁶ Most notably, DSTO developed sound-absorbing anechoic tiles

11 Mr Patrick Walters, 'The Cutting Edge: The Collins experience', *Strategic Insights*, Australian Strategic Policy Institute, February 2006, p. 5. Derek Woolner noted that the project was 'revolutionary in that it required those companies bidding for the RFT [Request For Tender] to provide detailed information on their plans to involve Australian industry'. Mr Derek Woolner, *Procuring change: How Kockums was selected for the Collins class submarine*, Research Paper No. 4, 2001–02, Parliamentary Library, p. 11.

12 Mr Greg Tunny, *Committee Hansard*, 19 April 2006, p. 13. Patrick Walters has noted that ASC managed 1600 individual contractors, of which nearly 80 per cent were Australian. 'The Cutting Edge: The Collins experience', *Strategic Insights*, February 2006, p. 5.

13 Mr John O'Callaghan, *Committee Hansard*, 28 June 2006, p. 21.

14 Mr Derek Woolner, *Getting in early: Lessons of the Collins Submarine Program for Improved Oversight of Defence Procurement*, Research Paper No. 3, 2001–02, Parliamentary Library, p. 14.

15 *Report to the Minister for Defence on the Collins class submarine and related matters*, June 1999, p. 5 www.minister.defence.gov.au/1999/collins.html (accessed 20 June 2006).

16 Mr Derek Woolner, *Getting in early: Lessons of the Collins Submarine Program for Improved Oversight of Defence Procurement*, Research Paper No. 3, 2001–02, Parliamentary Library, p. 13.

which exceeded the performance of those used by the northern hemisphere navies.¹⁷ Moreover, the Collins class vessels are now acclaimed as world class. Mr John O'Callaghan, Head of the Australian Industry Group Defence Council, told the committee:

...you would only have to ask the current commander-in-chief of the Pacific fleet and a number of his predecessors what they think about the Collins class submarine and there would be the unanimous view coming out of Pearl Harbor that it is the best conventional submarine in the world.¹⁸

4.12 In similar vein, Professor Gregory Copley, Director of Future Directions International, wrote in his submission to this inquiry:

Despite the media's desire to repeatedly transform developmental challenges into "problems", and repeat them, *ad nauseum*, as clichés, the *Collins*-class built by ASC has proven to be almost unparalleled in terms of its silence of operation...[and] repeatedly proven its capability to defeat even US anti-submarine warfare sensors in rigorous fleet exercises.¹⁹

4.13 A fourth—albeit indirect—measure of the Collins project's ultimate success is that its well-publicised difficulties led to important changes in Defence's procurement procedures.²⁰ The creation of the Defence Materiel Organisation (DMO) in 2001 was partly a response to the project's poor management. As the McIntosh–Prescott report had recommended, the new procurement agency prioritised the recruitment of experienced professionals and provided the basis for the vetting process established in the Kinnaird reforms. These issues will be discussed in detail in Chapter 16. The difficulties with the Collins class build are discussed below.

Contractual problems

4.14 The Collins class project demonstrated the capacity of the Australian industrial base to construct complex naval vessels, but exposed serious flaws in Defence's procurement processes. The contract was framed:

- to fix the project's technical specifications;
- to fix the project's cost; and
- within an inflexible procurement strategy.

In combination, these conditions significantly increased the project's risk and cost.

17 Mr Derek Woolner, *Getting in early: Lessons of the Collins Submarine Program for Improved Oversight of Defence Procurement*, Research Paper No. 3, 2001–02, Parliamentary Library, p. 15.

18 Mr John O'Callaghan, *Committee Hansard*, 28 June 2006, p. 18.

19 Mr Gregory R. Copley, Future Directions International, *Submission 28*, pp. 8–9.

20 Mr Patrick Walters, 'The Cutting Edge: The Collins experience', *Strategic Insights*, Australian Strategic Policy Institute, February 2006, pp. 2 and 9.

4.15 The project's key technical specification was for a world-class combat data system (CDS). An early decision was made to prioritise a CDS independently of the vessels' design, 'rather than the traditional procedure of selecting from contending boat designs with whatever system was fitted as standard'.²¹ Navy rejected a commercial off-the-shelf (COTS) design for the CDS and insisted on its multi-source specification. The CDS was to have a series of smaller computers, instead of a large mainframe computer, which would enable several (rather than one) crew stations to acquire and process data.²²

4.16 This choice—to develop a unique product to match the RAN's ideal specifications rather than acquiring a proven overseas design—has been described as 'the most important single decision of the program'.²³ The McIntosh–Prescott report noted: 'by including the combat system with the platform in the single prime contract, with a unique military specification, Defence left itself wide open to...technological problems'.²⁴ The authors argued that the main problem with the development of all combat systems is the rapid rate of technological change, giving rise to new technologies during the course of the contract.²⁵

4.17 The Collins class project had the added difficulty of working within a 'fixed cost' contract. The fixed cost of \$3.9 billion (in June 1986 prices) was the Labor government's response to the cost over-runs on past defence procurement projects.²⁶ It aimed to prevent suppliers from receiving compensation for changes in the cost of inputs and specifications as they had done under 'cost-plus' contracts.²⁷ However, as the difficulties with the CDS became apparent, project costs inevitably inflated. In 2001 prices, the project's cost as at December 1999 was \$5.1 billion.²⁸ The McIntosh–

21 Mr Derek Woolner, 'The air-warfare destroyer: Managing defence procurement', *The business of defence: Sustaining capability*, CEDA Growth No. 57, August 2006, p. 72.

22 Mr Derek Woolner, *Getting in early: Lessons of the Collins Submarine Program for Improved Oversight of Defence Procurement*, Research Paper No. 3, 2001–02, Parliamentary Library, p. 9.

23 Mr Derek Woolner, *Getting in early: Lessons of the Collins Submarine Program for Improved Oversight of Defence Procurement*, Research Paper No. 3, 2001–02, Parliamentary Library, p. iv.

24 *Report to the Minister for Defence on the Collins class submarine and related matters*, June 1999, www.minister.defence.gov.au/1999/collins.html (accessed 20 June 2006).

25 *Report to the Minister for Defence on the Collins class submarine and related matters*, June 1999, www.minister.defence.gov.au/1999/collins.html (accessed 20 June 2006).

26 The fixed price figure comes from Dr Paul Earnshaw, 'Australian Naval Shipbuilding—1960s to the present', *Journal of the Australian Naval Institute*, January–March 1998, p. 40.

27 Mr Derek Woolner, 'The air-warfare destroyer: Managing defence procurement', *The business of defence: Sustaining capability*, CEDA Growth No. 57, August 2006, p. 72.

28 Mr Derek Woolner, 'Getting in early: Lessons of the Collins Submarine Program for Improved Oversight of Defence Procurement', *Research Paper No. 3, 2001–02*, Parliamentary Library, p. 12.

Prescott report identified the 'fixed cost' contract as a major shortcoming of the Collins class project:

For a large, complex and new project, for which a design does not exist in detail, and for which generous up-front payments are made, its effect can be deleterious. Particularly in the later stages, it can encourage the supplier to contest the specifications...to avoid responsibility. Conversely, it can encourage the buyer to incorporate everything possible into the contract...Difficulties in these areas epitomise the submarine project...²⁹

4.18 The problems arising from the project's fixed specifications and fixed costs were compounded by an inflexible procurement strategy. By 1993, it had become clear that Rockwell, the combat system designer, was unable to comply with Navy's specifications for the CDS. In keeping with the terms of the contract, however, Defence did not allow a replacement COTS technology and ASC effectively lost control of the Rockwell sub-contract.³⁰ In 1996, when first ship HMAS *Collins* was provisionally accepted into service, the CDS remained uncompleted. In 1998, these difficulties forced the last of the Oberon class submarine to be held over past its original commissioning date. Writing in September 2001, Mr Derek Woolner, a Visiting Fellow at the Strategic and Defence Studies Centre, concluded:

The most compelling lesson that can be learnt from the Collins submarine program is the importance of selecting the procurement strategy to suit the nature of the project. In hindsight, at the point where it was decided to develop a unique design for the new submarines, was the time to change the procurement strategy.³¹

4.19 The McIntosh–Prescott report concluded that the CDS should be replaced, preferably with a COTS option.³² Although a COTS-based combat system was (again) rejected, the Coalition government did pursue the report's recommendation for a new CDS contractor through open competition. However, in July 2001, the government scrapped the tender process and awarded the contract for the tactical command and control system to Raytheon. In September 2001, the RAN and U.S. Navy signed an agreement maximising submarine interoperability, equipment production and logistic

29 *Report to the Minister for Defence on the Collins class submarine and related matters*, June 1999, p. 17, www.minister.defence.gov.au/1999/collins.html (accessed 20 June 2006).

30 *Report to the Minister for Defence on the Collins class submarine and related matters*, June 1999, www.minister.defence.gov.au/1999/collins.html (accessed 20 June 2006).

31 Mr Derek Woolner, *Getting in early: Lessons of the Collins Submarine Program for Improved Oversight of Defence Procurement*, Research Paper No. 3, 2001–02, Parliamentary Library, p. 47. Mr Woolner also noted that building a prototype is 'what Navy now recognises should have been done'. Rear Admiral William Rourke (retired) put the same argument to the committee: 'there is a need to have an increased gap between the lead ship of a class and its successor. The lead ship needs to be evaluated and given the all clear before the successor is completed'. *Committee Hansard*, 3 July 2006, p. 101.

32 *Report to the Minister for Defence on the Collins class submarine and related matters*, June 1999, www.minister.defence.gov.au/1999/collins.html (accessed 20 June 2006).

support. STN Atlas was later awarded the contract for sonar and navigation equipment.

4.20 Ironically, according to Mr Patrick Walters, the delays and difficulties experienced with the CDS over the past decade 'will now result in an even more advanced system being progressively fitted into the Collins Class boats by 2010'.³³ Navy is currently replacing the system at a cost of A\$500 million.³⁴ The Managing Director of ASC Pty Ltd, Mr Greg Tunny, told the committee that:

...Defence itself has essentially primed that [the combat data system replacement] program...finding the information from overseas, taking delivery of the FMS provided software and working with ASC, Raytheon, Atlas Electronics and Thales Underwater Systems to bring it all together. They have not had all the answers from day one but they have been very diligent in seeking them out and pulling it together. I think that is a demonstration of Defence being able to not only work very closely with industry but take the lead on a program which had a lot of difficulties and a lot of challenges.³⁵

4.21 Indeed, in terms of contract management, both Defence and ASC have learnt valuable lessons from the Collins class experience. This is evident from the alliance contract model for the AWDs and the staggered selection of key contractors (discussed later in this chapter).

Tenix and the ANZAC class frigates: on time and on budget

4.22 The ANZAC Frigate Project established Tenix as a leading Australian prime contractor. The project was developed in the mid-1980s to replace the RAN's River class frigates (see Appendix 7). As with the Collins class project, an early decision was made to build the ships in-country. The original objective was to build twelve ships; eight for the RAN and four for the Royal New Zealand Navy (RNZN). The final contract was for ten ships, with only two for the RNZN. At a total cost of \$7 billion, it remains the largest single defence contract awarded in Australia.³⁶

4.23 The ANZAC project was based on a design and a construction contract, with two companies competing for each tender. In December 1987, the Australian and New Zealand defence ministers announced that Australian Warships Systems Pty Ltd (AWS) and Australian Marine Engineering Corporation (AMEC) would compete for the construction contract.

33 Mr Patrick Walters, 'The Cutting Edge: The Collins experience', *Strategic Insights*, Australian Strategic Policy Institute, February 2006, p. 7.

34 See Commander Rob Elliot, 'Replacement Combat system for the Collins class soon to be operational!', *Navy Engineering Bulletin*, March 2006, <http://www.navy.gov.au/publications/engineering/march2006/replacementcombat.html>

35 Mr Greg Tunny, *Committee Hansard*, 4 September 2006, p. 5.

36 The Hon. Dr Brendan Nelson, 'Pride in the ANZAC spirit', *Herald Sun*, 15 June 2006, p. 62.

4.24 In 1989, the Australian government announced that the AMEC–Blohm+Voss teaming had been successful. The frigates were to be built to the Blohm+Voss MEKO 200 design at AMEC's newly acquired yard at Williamstown. The government supported Navy's confidence in the MEKO 200 design and the capability of the frigates.³⁷ The sale of the Williamstown dockyard and AMEC's early launch of Australia's first naval ship in more than 20 years indicated that the company was capable of delivering the ANZACs. Still, there has been some indication that the German designer had early concerns about AMEC's lack of construction experience.³⁸ Even the prime's founder and Chairman, Mr Carlo Salteri, acknowledged: 'we had never even built a rowing boat, let alone ten super sophisticated modern naval frigates'.³⁹

4.25 AMEC's ownership of the Williamstown dockyard came through a series of takeovers associated with the ANZAC frigate tender and enabled by the dockyard's privatisation. In 1989, AMEC changed to Australian Marine Engineering Consolidated Limited (AMECON) and, in 1993, to Transfield Shipbuilding Ltd. In 1997, following a reorganisation of the Transfield Group, the ownership of the dockyard and the frigate project was in the name of Tenix Defence Marine Division.⁴⁰

The key features of Tenix's role in the ANZAC build

4.26 The ANZAC Ship Project was a 15-year contract to design, construct, test and trial ten vessels.⁴¹ All ten ships were delivered on time and on budget, with some of the frigates delivered ahead of schedule.⁴² The ships were commissioned between March 1996 and June 2006 (see Appendix 7). Mr Salteri reflected on the success of the project in the following terms:

We had faith in ourselves, and in the faith that some people—especially people in the Government and the Navy—had in our Company. We won their trust and support by running the Project so that it met international best practice in terms of quality, price and adherence to schedule.⁴³

37 The Hon. Kim Beazley, Minister for Defence, *House of Representatives Hansard*, 15 August 1989, p. 5.

38 The Allen Consulting Group Pty Ltd, *Future of Naval Shipbuilding in Australia: Choices and Strategies*, May 2005, pp. 25–26.

39 Tenix Defence Pty Ltd, *Submission 26*, p. 1.

40 Tenix Marine Division is one of four divisions within Tenix Defence, which is a branch of the Tenix Group. See <http://www.tenix.com/Main.asp?ID=27> (accessed 10 September 2006).

41 Ms Denise Ironfield, *Impact of major defence projects: A case study of the ANZAC Ship Project*, Tasman Asia Pacific, February 2000, p. 6.

42 The Allen Consulting Group Pty Ltd, *Future of Naval Shipbuilding in Australia: Choices and Strategies*, May 2005, p. 23.

43 Tenix Defence Pty Ltd, *Submission 26*, p. 2.

4.27 In constructing the ships to this schedule, Tenix's main challenge was to develop and integrate the sensor, weapons and communications systems.⁴⁴ The key to overcoming this challenge was the technique of constructing modules in different locations before final assembly (see Chapter 2). The modules for the ANZACs were fabricated by Transfield at Newcastle and by Tenix at Williamstown and at Whangarei in New Zealand.

4.28 Several sources corroborate the importance of Tenix's construction techniques to the ANZAC project. Notably, a 2005 Allen Consulting Group report to the Victorian government stated:

One issue where Tenix took the lead was in making substantial advances in the modular build concept in what was the first surface combatant to be constructed in this way in Australia. Not only were modules for the ships' hulls and superstructure built in other parts of Australia, but some were also constructed in New Zealand by Tenix. This sharing of the work allowed ten ships to be delivered in a much shorter period of time than otherwise would have been the case; at one stage of the project ships were being completed almost every year.⁴⁵

44 Ms Denise Ironfield, *Impact of major defence projects: A case study of the ANZAC Ship Project*, Tasman Asia Pacific, February 2000, p. 7.

45 The Allen Consulting Group Pty Ltd, *Future of Naval Shipbuilding in Australia: Choices and Strategies*, May 2005, p. 24.



The committee inspected the ANZAC frigate HMAS *Perth* at Tenix's premises at Williamstown on 27 April 2006. Commissioned in June 2006, HMAS *Perth* was Tenix's tenth and final ANZAC ship.

4.29 Another crucial factor in the success of the ANZAC project was the decision to test the combat system prior to installation. The Allen Consulting report and a 2000 Tasman Asia Pacific report by Ms Denise Ironfield both highlighted this decision. The Tasman Asia Pacific report noted that the construction of a combat support centre to refine and test the combat system prior to its installation 'played an important role in the delivery of the first ANZAC frigate on time with a fully functional combat system'.⁴⁶ The Allen Consulting report noted that 'the cooperation between Tenix and SAAB in designing and installing the combat system has been one of the keys to success in this project'.⁴⁷

4.30 Tenix's success in delivering the frigates to schedule must also be attributed to the availability and expertise of Australian subcontracting companies. Chapter 5 elaborates on the role of small and medium sized enterprises (SME's) in the project. Their involvement was aided by an effective Australian Industry Involvement (AII) program. The program was a key element in the ANZAC contract and part of the

46 Ms Denise Ironfield, *Impact of major defence projects: A case study of the ANZAC Ship Project*, Tasman Asia Pacific, February 2000, p. 9.

47 The Allen Consulting Group Pty Ltd, *Future of Naval Shipbuilding in Australia: Choices and Strategies*, May 2005, p. 24.

government's broader objective 'to foster Australian prime contractors able to achieve high levels of local content without subsidies'.⁴⁸



Senator David Johnston aboard HMAS *Perth* at Williamstown, 27 April 2006

4.31 In 1989, Tenix (then AMEC) established an Industry Development Unit which assigned companies a clearly defined role. Tenix was also assisted to subcontract and maximise local industry content through the role of the Industrial Supplies Office (ISO). Tenix has noted that the ISO's role in identifying Australian subcontractors enabled the prime to secure local content at a lower cost and over a shorter timeframe than would otherwise have been the case.⁴⁹ At the same time,

48 The Hon. Kim Beazley, Minister for Defence, *House of Representatives Hansard*, 10 May 1989, p. 2343.

49 Ms Denise Ironfield, *Impact of major defence projects: A case study of the ANZAC Ship Project*, Tasman Asia Pacific, February 2000, p. 11.

Tenix's ability to meet Defence's high quality standards influenced subcontractors down the supply chain to implement best practice programs.⁵⁰

4.32 Tenix and SAAB are responsible for the in-service support of the ANZACs. In July 2001 Defence signed a long-term alliance agreement with both companies covering the development of all future capability change packages for the ANZAC class.⁵¹ This was the first time that Defence had pursued an alliance arrangement for a through-life support contract.⁵² The alliance underlines the benefits that local construction offers for through life support for Defence, the prime and its sub-contractors.

Tenix and HMAS Sirius

4.33 Tenix's credentials as a successful prime contractor have also been evident in the A\$60 million project to convert the commercial auxiliary oil tanker *Delos* into an underway-refuelling ship. Tenix performed all the conversion work at the Australian Marine Complex's Common User Facility in Henderson, south of Perth. It was awarded the contract in February 2005. The ship was commissioned on 16 September 2006, nearly three years ahead of schedule and on budget.⁵³

4.34 Lieutenant General David Hurley described the project to the committee as 'one of [Defence's] most successful shipbuilding projects in 50 years'.⁵⁴ Mr Kim Gillis, the DMO's project manager for HMAS *Sirius*, partly attributed this success to the contractual incentives that DMO offered. He told the committee:

We proposed a scheme that would indicate that if Tenix delivered four weeks ahead of schedule they would receive \$1 million and if they delivered three weeks ahead of schedule the bonus was \$750,000. So it was \$250,000 a week.

One of the reasons why we went through this task is that traditionally naval vessels, especially first of class, do have considerable blow-outs in time and there is a propensity to make lots of changes. With a time constraint, it meant that Tenix had no incentive to make changes to the vessel.⁵⁵

50 Ms Denise Ironfield, *Impact of major defence projects: A case study of the ANZAC Ship Project*, Tasman Asia Pacific, February 2000, p. 19.

51 Defence Materiel Organisation, 'Projects', <http://www.defence.gov.au/dmo/msd/sea1348/sea1348p2.cfm> (accessed 8 November 2006).

52 Mr Bob Wylie, 'Supplying and supporting Australia's military capability', *The Business of Defence: Sustaining Capability*, CEDA Growth No. 57, August 2006, p. 58.

53 See Department of Defence, 'HMAS Westralia passes the weight to Nuship Sirius', *Media Release*, 16 September 2006, <http://www.defence.gov.au/media/DepartmentalTpl.cfm?CurrentId=6010> (accessed 2 November 2006).

54 Lieutenant General David Hurley, *Committee Hansard*, 18 August 2006, p. 1.

55 Mr Kim Gillis, *Committee Hansard*, 18 August 2006, p. 43.

4.35 Defence places importance on companies being able to meet its deadlines. In the case of Tenix and HMAS *Sirius*, the bonus scheme reflected the imperative of delivering on schedule. Apart from a decision to de-gas the vessel, Defence did not waiver from its original requirements.⁵⁶ Mr Robert Salteri, CEO of Tenix Defence, noted:

The program has again demonstrated Tenix Defence's capability to successfully modify an existing ship design to meet Navy's needs within tight schedule and budget constraints. The successful completion of this complex project is a tribute to our outstanding workforce, and a positive and effective working relationship with our Customer, as well as a clear demonstration of what can be achieved with the facilities at Henderson.⁵⁷

Thales Australia (ADI)

4.36 In October 2006, the French military company Thales increased its 50 per cent share in Australian Defence Industries (ADI) to full ownership.⁵⁸ This acquisition is discussed shortly. As a prime contractor in the Australian naval shipbuilding market, ADI's main projects were the build of six minehunter vessels and the ongoing upgrade of the FFG-7 Adelaide class frigates.

ADI and the Huon class minehunters

4.37 In May 1989, Australian Defence Industries (ADI) was created as a government-owned corporation to take over the major defence industry facilities still in government ownership.⁵⁹ Its four operating divisions were naval engineering at the Garden Island dockyard, ammunition and missiles, weapons and engineering and military clothing. The Defence Minister explained that the launching of ADI was part of broader process to 'step away from the bureaucracy and politics' and make government factories and dockyards 'an integral part of Australian industry'.⁶⁰ The Minister went on to detail the government's approach of managed competition in the naval shipbuilding sector:

56 Kim Gillis explained to the committee that the decision to take the fuel out was to make it safe for welding, 'which meant that we only did that infrequently—once every four or five years'. *Committee Hansard*, 18 August 2006, p. 44.

57 Tenix, 'DELOS delivered early', 21 August 2006, <http://www.tenix.com/News2.asp?ID=192> (accessed 2 November 2006).

58 References to ADI throughout this report reflect the company name at the time the evidence was taken.

59 ADI superseded the Office of Defence Production which had been established within the Department of Defence to improve the competitiveness of government owned dockyards and defence establishments. Graeme Cheeseman, *The Search for Self-Reliance, Australia's Defence since Vietnam*, 1993, p. 42.

60 The Hon. Kim Beazley, Minister for Defence, *House of Representatives Hansard*, 10 May 1989, p. 2345.

Defence, like the economy at large, is best served by an industry structure that can hold its own in the world market... We have not abandoned the idea of nurturing particular capabilities in special circumstances, but government support of that kind is no longer an easy way out for firms unable to compete in the commercial area... Our objective is to foster Australian prime contractors able to achieve high levels of local content without subsidies. The ship building, ship repair and engineering industries exemplify this approach.⁶¹

4.38 ADI's key project was as the prime contractor for the Huon class Minehunter contract. Defence awarded the \$917 million project to ADI in 1994 to build six Minehunter coastal vessels. ADI built the vessels at the greenfield site of Carrington in Newcastle, employing 'a completely new greenfield workforce for the...project'.⁶² It delivered all six ships on schedule.



A model of the Huon class Minehunter, ADI Headquarters, Garden Island

4.39 ADI's achievement in keeping to schedule was all the more impressive given it had design authority and pursued a concurrent design and build program. It was the first Australian-sourced naval defence project in which the prime contractor was given design authority. A January 2002 report by Tasman Economics noted that ADI had estimated that 80 per cent of the design work had been undertaken in Australia. ADI and its subcontractors modified the Italian design to include an upgrade to the sonar, a new combat system, an upgraded air conditioning system, improved accommodation

61 The Hon. Kim Beazley, Minister for Defence, *House of Representatives Hansard*, 10 May 1989, p. 2345.

62 Lieutenant General David Hurley, *Committee Hansard*, 18 August 2006, p. 26.

and an extension of the upper deck. The first composite hull was manufactured in Italy; all subsequent hulls were completed at the new Carrington facility.⁶³

4.40 A key to ADI's success in the project was its investment in an onshore integration facility to integrate the combat system. This facility was able to simulate the CDS technology in the environment that the ships would encounter. The 2002 Tasman Economics report noted that this approach 'minimised the risk associated with this complex task and enabled the conduct of the first-of-class trials to be undertaken within a tight contract schedule'.⁶⁴

4.41 ADI also relied on a strong skills base, drawn from various subcontractors and small and medium sized enterprises. The Tasman Economics report noted that nearly 85 per cent of businesses supplying the Minehunter project were located in New South Wales.⁶⁵ The project also exceeded the specified 68.4 per cent of the contract value required as local content.⁶⁶ As with Tenix's build of the ANZAC frigates, a key factor in the high level of AII was the role of the Industrial Supplies Office. The Tasman Economics report noted that ADI worked closely with an ISO consultant for five years. As a result of this interaction, 'at least \$55 million of the initially proposed imports were replaced with products manufactured by local industry'.⁶⁷

4.42 The Minehunter project is the most significant example to date of ADI's ability to manage large naval shipbuilding projects. Apart from its local skill base and infrastructure, the company's capability was enhanced through its joint ownership by the French Group Thales. Mr Geoff Smith, ADI's former Director of Naval Sales and Marketing, told the committee:

Our group is a highly experienced naval systems developer, integrator, designer and prime contractor, as evidenced by our successful delivery of the \$1 billion minehunter project and our activity as the nation's leading naval repair, maintenance and upgrade contractor. Our prime contracting creditability is further significantly enhanced by our reach-back capability to our part owner, Thales, which has prime contracting experience in complex projects throughout the world, including the UK aircraft carrier project.⁶⁸

63 Tasman Economics, *Impact of major defence projects: A case study of the minehunter coastal project*, Final report, January 2002, p. 9.

64 Tasman Economics, *Impact of major defence projects: A case study of the minehunter coastal project*, Final report, January 2002, p. 9.

65 Tasman Economics, *Impact of major defence projects: A case study of the minehunter coastal project*, Final report, January 2002, p. 13.

66 Tasman Economics, *Impact of major defence projects: A case study of the minehunter coastal project*, Final report, January 2002, p. 10.

67 ADI quoted in Tasman Economics, *Impact of major defence projects: A case study of the minehunter coastal project*, Final report, January 2002, p. 11.

68 Mr Geoff Smith, *Committee Hansard*, 28 June 2006, p. 2.

4.43 However, the Department of Defence noted that while ADI is viable in the ship repair and upgrade activity, it is having problems in meeting schedule and performance specifications.⁶⁹ These difficulties have been most apparent in ADI's project to upgrade the Adelaide class frigates.

The FFG Upgrade

4.44 The FFG Upgrade project is a A\$1 billion contract for the upgrade of four frigates' combat systems. The first ship, HMAS *Sydney*, was returned to the Navy on 28 April 2006; HMAS *Melbourne* completed the docking phase in August 2006. The committee inspected progress on the upgrade of HMAS *Melbourne* during its visit to Garden Island in June 2006. It is expected that sea trials and the formal hand back to the Navy would take place in early 2007.⁷⁰

4.45 ADI describes the FFG Upgrade project as 'the most sophisticated naval systems integration task ever undertaken by an Australian company...'⁷¹ Mr Smith told the committee that ADI was the only company in Australia to have performed the complex design and engineering required to replace operating systems through the FFG's hull.⁷² In terms of the technology required to perform the upgrade, the key is the ADI-designed and developed Australian Distributed Architecture Combat System. In terms of project management, the DMO's deputy CEO, Mr Kim Gillis, recently noted that 'with the cooperative working relationship now existing between DMO and ADI, I am confident of our ability to successfully deliver the FFG Upgrade Project'.⁷³

4.46 However, the early stages of the FFG upgrade program were significantly delayed at considerable expense to the taxpayer. The upgrade of HMAS *Sydney* was originally scheduled for delivery in August 2003. However, work on the vessel at Garden Island only commenced in September 2003 before it was eventually delivered to the RAN in April 2006. The upgrade contract has been significantly redrawn, reducing the number of ships from six to four and extending the delivery schedule. A June 2005 Australian National Audit Office report noted that by August 2002, DMO had had to revise ADI's contract schedule on six separate occasions. The report also noted:

A high level of audit assurance is not able to be provided on the FFG Upgrade Project given deficiencies in the FFGSPO information management systems and deficiencies in the level of design and

69 Department of Defence, *answer to question on notice*, 28 March 2006 (received 29 May 2006), p. 28.

70 'Big achievements in FFG Upgrade project', *Pursuit* 68, August 2006, p. 5, <http://www.adi-limited.com/default.asp?page=228>

71 'HMAS Melbourne upgrade progress', *Login to ADI-Thales Australia*, May 2006, p. 7.

72 Mr Geoff Smith, *Committee Hansard*, 28 June 2006, p. 10.

73 'Big achievements in FFG Upgrade project', *Pursuit* 68, August 2006, p. 5, <http://www.adi-limited.com/default.asp?page=228>

development disclosure provided to SPO personnel by the FFG Upgrade Prime Contractor.⁷⁴



The committee visited the Captain Cook Dry Graving Dock at Garden Island on 28 June 2006 where it viewed progress on the upgrade of HMAS *Melbourne*.

4.47 The committee understands that ADI has overcome most of its project management difficulties. Defence told the committee that 'the experience and expertise gained by the Prime Contractor during the first FFG platform upgrade has provided a higher degree of confidence in their ability to complete the upgrade'.⁷⁵ The *Navy* magazine commented in January 2006 that 'thanks to a reshaped project organisation, new management team and sharper project management focus, the FFG Project upgrade has turned the corner'.⁷⁶ ADI anticipates that subsequent upgrades of the FFGs are likely to run to, or ahead of, schedule. Defence is currently renegotiating

74 Australian National Audit Office, *Management of Selected Defence System Program Offices*, Audit Report No. 45, 2004–05, p. 20. FFGSPO: Fast Frigate Guided System Program Office.

75 Department of Defence, *answer to question on notice*, 28 March 2006 (received 29 May 2006), p. 28.

76 'SEA1390—The FFG Upgrade Programme', *The Navy*, Vol. 68, No. 1, January–March 2006, p. 4.

the contract to base payment on achievement of capability milestones rather than earned value.⁷⁷

The issue of foreign ownership

4.48 In 1999, the French company Thales and Transfield bought ADI from the federal government for \$360 million in a 50–50 joint venture. In October 2006, the Treasurer, the Hon. Peter Costello, cleared the proposed acquisition by Thales Australia Holdings Pty Ltd from Transfield Holdings Pty Ltd of the remaining 50 per cent of the shares it does not own in ADI Limited.⁷⁸ ADI has now joined other fully owned Thales subsidiaries—Thales Underwater Systems, Air Traffic Management, Training and Simulation—under the single organisation of Thales Australia.⁷⁹

Summary

4.49 At a cost per vessel of US\$500 million, US\$375 million and US\$122 million respectively, the Collins, ANZAC and Minehunter projects were the most expensive vessels built in Australia over the past decade.⁸⁰ They were important acquisitions for Australia's self-reliance, and central to the government's aim of increasing the private sector's share of defence outlays and the local defence industry's capacity and international competitiveness.⁸¹ They have shaped the capability and viability of Australia's three main prime contractors. As Lieutenant General David Hurley told the committee: 'despite claims that ongoing work is required to ensure a competitive and skilled industry base, none of the major companies have workforces or shipbuilding projects that pre-date the mid 1980s'.⁸²

The aluminium shipbuilders—Austal and Incat

4.50 Australia's naval shipbuilding sector also has two innovative and successful commercial shipbuilders in Austal and Incat. Given their specialisation in lightweight,

77 Department of Defence, *answer to question on notice*, 28 March 2006 (received 29 May 2006), p. 28.

78 The Hon. Peter Costello, 'Foreign Investment Proposal: Thales Australia Holdings Pty Ltd—Acquisition of remaining 50 per cent interest in ADI Limited', *Media Release*, 12 October 2006.

79 Thales Australia, 'Treasurer gives the go ahead to Thales Australia', *News Release*, 13 October 2006, p. 1.

80 Australian Shipbuilders Association Ltd., *Submission 36*, Annex B.

81 See the Hon. Kim Beazley, Minister for Defence, *House of Representatives Hansard*, 10 May 1989, p. 2345; The Hon. Kim Beazley, Minister for Defence, *House of Representatives Hansard*, 22 March 1988, p. 1110.

82 Lieutenant General David Hurley, *Opening Statement*, Public Hearing, 18 August 2006.

multi-hull aluminium vessels, Austal and Incat should be differentiated from builders of steel warships.⁸³

Austal

4.51 Austal is the largest commercial shipbuilder in Australia. The company established operations at Henderson in Western Australia in 1998 and at Mobile in Alabama in 2001. In Western Australia, the company employs 1 100 staff at three sites, while it intends to grow its U.S. workforce to over 1 000 staff by December 2006.⁸⁴ Despite its recent growth, Austal is relatively small compared to the other primes. Its turnover is \$65 million compared to ASC (\$229 million), ADI Limited (\$656 million) and Tenix Defence (\$650 million).⁸⁵

4.52 In 2003, Austal won the \$553 million contract to supply the RAN with 12 Armidale class patrol boats.⁸⁶ Mr Bob Wylie, a Visiting Fellow at the Australian Defence Force Academy, has noted that Defence's contract for the Armidale class helped Austal enter the Australian defence market. Instead of insisting on mandatory specifications for the vessels, Defence framed the tender in terms of the operational performance that it wanted.⁸⁷ Austal met these performance requirements and has already delivered five vessels to the RAN.⁸⁸

4.53 Austal's key U.S. naval contract is as the designer and builder of the Littoral Combat Ship (LCS) platform. It supplies the LCS as a trimaran solution for the U.S. Navy. Austal's LCS ship has a scheduled production timeframe of two years, compared with around four years for a regular combat ship. As the designer and builder of the vessels, Austal is able to tailor construction for its shipyard's build processes, and thereby minimise modifications. If the LCS program proceeds as planned the US Navy may require up to 60 vessels with an estimated project value of US\$15 billion.

4.54 Austal's submission to this inquiry stated that the largest potential for growth in its shipbuilding business is in the patrol/defence sector.⁸⁹ It emphasised that

83 This is not to say that Austal and Incat are unable to compete with builders of large steel warships in terms of certain Defence capability requirements.

84 *Submission 7*, p. 1.

85 Mr Bob Wylie, 'Supplying and supporting Australia's military capability', *The Business of Defence: Sustaining Capability*, CEDA Growth No. 57, August 2006, p. 58.

86 Defence has since ordered two further patrol boats from Austal. This was approved in the 2005 federal budget.

87 Mr Bob Wylie, 'Supplying and supporting Australia's military capability', *The Business of Defence: Sustaining Capability*, CEDA Growth No. 57, August 2006, p. 58.

88 Austal, 'Enhanced protection for Australian waters', *Media Release*, 5 May 2004, <http://www.austal.com/index.cfm?objectId=44AB08E1-A0CC-3C8C-D9C40983CCA33C24> (accessed 2 October 2004).

89 Austal, *Submission 7*, p. 1.

Australia is world competitive in the construction of high speed aluminium vessels. However, the submission noted that most foreign builders of very large steel naval vessels 'would be able to produce the vessels within a similar or better cost and time delivery envelope than Australian industry could reasonably be expected to offer'.⁹⁰ This issue is discussed later in the report. It should be noted that although Austal specialises in lightweight, fast speed aluminium vessels, it would compete for resources and skills should Australia opt to build very large steel naval ships in-country.

Incat Australia

4.55 Incat is a Tasmanian-based company specialising in high speed aluminium vessels for commercial applications. As with Austal, Incat has captured a niche in the overseas market for fast ferries and other lightweight commercial vessels. For more than 20 years, Incat has developed the design of Wave Piercing Catamarans. In 1990, it pioneered large high-speed craft with a 74 metre fast ferry. These vessels have increased in length to 112 metres today.⁹¹

4.56 Incat has successfully sold the high-speed transport application of these commercial Catamarans to military buyers. It has leased three water jet propelled vessels to the U.S. Army.

- In 2001, Incat formed a strategic alliance with Bollinger Shipyard Inc. of Louisiana and in partnership, won a U.S. military contract for a high speed craft. The Bollinger–Incat USA alliance leased a 96 metre Catamaran, HSV-X1 Joint Venture, which participated in operations in the Persian Gulf.
- In 2002, Bollinger and Incat leased a 98 metre Theatre Support Vessel—TSV-1X Spearhead—to the U.S. Army. The Army has used the vessel to assist with rapid pre-positioning of supplies and troops.
- In 2003, Bollinger and Incat delivered a HSV 2 Swift (Incat Hull 061) to the U.S. Navy. The HSV 2 Swift—also a 98 metre vessel—will conduct a series of demonstrations that will develop interoperability potential of high speed vessels with amphibious ships.⁹²

4.57 Incat Australia's Managing Director, Mr Craig Clifford, told the committee that the 'fact we have had vessels available to lease to military programs in the past has been more good fortune than management'. He noted that the vessels are large assets for the company and need to be in constant use. In the longer term, Mr Clifford agreed that commercial operators seconding vessels to a military operation 'would

90 Austal, *Submission 7*, p. 5.

91 Australian Shipbuilders Association, *Submission 36*. See also Mr Craig Clifford, *Committee Hansard*, 28 April 2006, p. 14.

92 Incat Australia, 'Defence Menu', http://www.incat.com.au/defence_fs.html (accessed 2 November 2006).

make some sense'.⁹³ However, it is unlikely that Incat will join Austal as a commercial shipbuilder involved in warship construction. As defence told the committee:

...there is scope for commercial shipbuilders to undertake hull and ship modules construction work subject to their industrial capability...But they are less likely to play a major role in the design, production and support of the weapon, combat and specialised communication system requirements which make up the primary systems in Naval ships.⁹⁴

4.58 Mr Clifford told the committee that the aluminium design of the vessels does not limit future development. Indeed, Incat has drawings for a 150 metre catamaran. Mr Clifford explained that Incat's focus remains on producing large aluminium high-speed catamarans, rather than aluminium patrol boats. He noted the company had had discussions with the UK Ministry of Defence, several European navies and 'North American interests as well'. Unlike Austal, however, Mr Clifford did not foresee opportunities to build offshore:

We are not in a position, from a manpower point of view or a financial point of view, to set up shop with a large commercial facility in America at this point in time. We see that as distracting us from our core business, which is shipbuilding in Australia...We do not foresee a stage where the American shipbuilding lobby will readily allow Australian built ships to be sold into America.⁹⁵

93 Mr Craig Clifford, *Committee Hansard*, 28 April 2006, p. 13.

94 Department of Defence, *answer to question on notice*, 28 March 2006 (received 29 May 2006), p. 32.

95 Mr Craig Clifford, *Committee Hansard*, 28 April 2006, p. 12.



The committee visited Incat's premises at Derwent Park, north of Hobart. The photo is of Hull 062, The Milenium Tres, now owned and operated by Acciona Trasmediterranea, Spain.

Summary

4.59 Austal and Incat have both had success in recent years adapting their commercial designs for military use. Unlike the three main primes, these companies specialise in fast, lightweight aluminium vessels designed for versatility and manoeuvrability in a military support role. Both companies have been assisted by partnerships with U.S. companies. In terms of business strategy, however, the companies are quite different. Incat adapts its commercial vessels for lease to the U.S. Army as a way to keep its ships in use. It has no plans to establish a foreign shipyard. Austal has operated a U.S. shipyard for the past five years and anticipates most business growth in its defence/patrol sales.

The Air Warfare Destroyer (AWD) and Amphibious Ship (LHD) projects

4.60 Before concluding the committee's consideration of Australia's major naval shipbuilders, this section outlines the primes' involvement in DMO's two major upcoming naval shipbuilding projects. These are the construction of three air warfare destroyers (AWDs) and two amphibious ships or Landing Helicopter Docks (LHDs). The 2006 Defence Capability Plan lists the estimated expenditure band for these two

projects at \$4.5–\$6 billion and \$1.5–\$2 billion respectively.⁹⁶ The AWDs will be built principally by ASC; tenders for the LHDs contract closed on 27 September 2006 and will be awarded in mid-2007.

ASC and the AWD project

4.61 The AWD shipbuilding contract was contested between two Australian primes; ASC and Tenix. Both companies lodged very competitive tenders with strong backing from their respective state governments. On 31 May 2005, the Minister for Defence, Senator the Hon. Robert Hill, announced that ASC was the government's preferred shipbuilder for the project 'on the basis that ASC Shipbuilders offered a superior bid in terms of value for money'.⁹⁷ The Minister also noted the government's allocation of \$455 million until mid-2007 to fund further design work, workforce skilling, initial infrastructure investment and facilities construction.⁹⁸ Defence has told the committee that the South Australian government is providing \$115 million in funding for a common user facility at Osborne while ASC will contribute \$69 million.⁹⁹ The picture in Chapter 6 provides an impression of the completed Osborne site.

4.62 Following ASC's selection, the Commonwealth chose Raytheon Australia as the combat system systems engineer for the AWD project. It is Raytheon's responsibility to integrate the selected Lockheed Martin Aegis combat system, which the Commonwealth purchased from the U.S. Navy for A\$1 billion.¹⁰⁰ Learning from the Collins class experience, the Commonwealth's purchase of the Aegis system is intended to 'minimise the risk of any delay in the 2013 delivery for the first Air Warfare Destroyer'.¹⁰¹

4.63 Following a further competitive tender process, in August 2005, the government announced that U.S. firm Gibbs & Cox had been selected as the preferred designer for the AWD hull.¹⁰² Gibbs & Cox have opted to evolve a design based on the U.S. Arleigh Burke destroyer. Again, the government identified the Gibbs & Cox

96 Department of Defence, *2006 Defence Capability Plan, 2006–2016*, p. 141.

97 Senator the Hon. Robert Hill, ASC chosen to build Air Warfare destroyers, *Media Release*, 31 May 2005.

98 Senator the Hon. Robert Hill, 'Purchase of Aegis combat system for destroyers', *Media Release*, 9 December 2005.

99 Department of Defence, *answer to question on notice*, 28 March 2006 (received 29 May 2006), p. 29.

100 Senator the Hon. Robert Hill, 'Purchase of Aegis combat system for destroyers', *Media Release*, 9 December 2005. Lockheed Martin is the supplier of the Aegis system to the U.S. Navy.

101 Senator the Hon. Robert Hill, 'Purchase of Aegis combat system for destroyers', *Media Release*, 9 December 2005.

102 Senator the Hon. Robert Hill, 'Preferred designer chosen for AWD contract', *Media Release*, 16 August 2005. The competing firms were Blohm+Voss and the Spanish firm Navantia.

tender as 'a superior bid in terms of value for money'.¹⁰³ However, the government has retained the right to choose a cheaper 'military off-the-shelf' design option developed by the Spanish firm Navantia based on the Spanish F100 destroyer.¹⁰⁴

4.64 ASC, Raytheon Australia, and the Commonwealth government form the AWD Alliance. The Alliance is part of the government's collaborative strategy, designed to reduce project risk, meet contract schedules and deliver a high level of capability.¹⁰⁵ The practical expression of the Alliance is the AWD System Centre in Adelaide. Opened in August 2006, the centre will accommodate staff from ASC, Gibbs & Cox, Raytheon, Navantia, Lockheed Martin, the Commonwealth government and the U.S. Navy. Over the coming months, the two designers will collaborate with ASC and Raytheon to assess the compatibility and cost-effectiveness of their options. The Systems Centre will employ 200 people to develop lifetime support for the AWDs. A particular challenge will be to update continually the AWDs' software to ensure compatibility with U.S. Navy Aegis vessels.¹⁰⁶

4.65 As the prime contractor for the AWDs, ASC is faced with particular challenges. Chapter 7 discusses the crucial issue of attracting sufficient skilled labour into large-scale naval shipbuilding projects at a time when the resources sector is booming and unemployment is low. The committee heard from Managing Director, Mr Greg Tunny, that the company has had no trouble to date in meeting its staffing requirements for both the AWD and Collins class refit projects. Mr Tunny stated:

ASC has met its recruitment targets for AWD to date and is fulfilling its objectives on that program. Perhaps it is of even more interest that, during the last several months, we have actually recruited more than twice as many people onto submarines...We have recruited about 150 people in the last three and a bit or four months. There has been no trouble. We have got them all and we are keeping those programs to schedule and we are delivering what we need to on AWD.¹⁰⁷

4.66 Another upcoming issue for ASC will be the transition to private ownership. It has been a long-standing policy of the Coalition Government to privatise the company.¹⁰⁸ Shortly after full Commonwealth control commenced in 2000, ASC

103 Senator the Hon. Robert Hill, 'Preferred designer chosen for AWD contract', *Media Release*, 16 August 2005.

104 This decision will take place at 'Second Pass' stage in mid-2007. The classification of the Navantia design as 'military off-the-shelf' is made by the Department of Defence, *answer to question on notice*, 28 March 2006 (received 29 May 2006), p. 17.

105 Air-warfare destroyer alliance, 'Industry and Defence—working together to deliver a formidable air warfare capability to the Navy', <http://www.ausawd.com/> (accessed 7 November 2006).

106 See Derek Woolner, 'The Air-warfare destroyer project', *The Business of Defence: Sustaining Capability*, CEDA Growth No. 57, August 2006, p. 74.

107 Mr Greg Tunny, *Committee Hansard*, 4 September 2006, p. 8.

108 The Hon. Nick Minchin, 'ASC sale', *Media Release*, 16 August 2006.

began a reform process to facilitate eventual privatisation.¹⁰⁹ In May 2006, however, a Carnegie Wylie report commissioned by the federal government recommended delaying the sale of the company until after the contracts for building the destroyers had been completed. Other reports raised concerns that the contract alliance had not properly bedded down.¹¹⁰ In August 2006, the federal government announced that the competitive tender sale process for the sale of ASC would be delayed until after the 2007 federal election. The government has also flagged foreign ownership limits on the company, including a requirement that a majority of its directors must be Australian citizens.¹¹¹

The LHD project: Tenix and Thales

4.67 As mentioned earlier, tenders for the LHD project closed in September 2006. The shipbuilding contest is between Tenix and Thales Australia. The primes have both teamed with a design company—Tenix with Navantia and Thales (then ADI) with Amaris. The Navantia (27 000 tonnes) and Amaris (22 000 tonnes) designs both class as 'very large' naval vessels. The LHDs are intended to replace HMAS *Manoora* and *Kanimbla* and the Heavy Landing Ship HMAS *Tobruk* (see Appendix 7). They will be by far the biggest ships in the Australian fleet.¹¹²

4.68 Defence has explained to the committee that 'proposals on what proportion [of the LHDs] to build in Australia as opposed to overseas will be one for the tenderers'.¹¹³ In other words, either or both tenderers may incorporate some option to build part or all of the vessels overseas. The rationale would be that the foreign component could be built more cheaply abroad than in Australia given many foreign yards' economies of scale. The government has declared its preference for the LHDs to be built in Australia but has emphasised that 'Australian industry will need to demonstrate that it can deliver the project at a competitive price'.¹¹⁴

4.69 Most of the evidence the committee has received supports Australian primes' capacity to build the LHDs in-country.¹¹⁵ An in-country build would require involvement from several Australian yards to construct the estimated 120 modules for

109 ASC, *2005 Annual Report*, p. 2.

110 Australian Strategic Policy Institute, *Cost of Defence: ASPI Defence Budget Brief 2006–07* <http://www.aspi.org.au/events/recentEventDetail.aspx?eid=26> (accessed 6 November 2006).

111 The Hon. Nick Minchin, 'ASC sale', *Media Release*, 16 August 2006.

112 Mr Geoffrey Barker, 'The politics of defence acquisition', *The business of Defence: Sustaining capability*, CEDA Growth No. 57, August 2006, p. 82.

113 Department of Defence, *answer to question on notice*, 28 March 2006 (received 29 May 2006), p. 17.

114 The Hon. Robert Hill, *Media Release*, 15 August 2005, <http://www.defence.gov.au/minister/Hilltpl.cfm?CurrentId=5039> (accessed 8 November 2006).

115 See Australian Manufacturing Workers' Union, *Submission 21*, pp. 5–6; Returned and Services League of Australia (RSL), *Submission 6*.

each vessel.¹¹⁶ The competing primes are themselves confident that the ships can be built in Australia. Mr David Miller, Executive General Manager of Tenix Defence Pty Ltd, told the committee:

...one of the great advantages that we have in Australia is the availability now of these common user facilities. We do not have first-hand experience in South Australia but, certainly, our Tenix site is immediately adjacent to the common user facility in Henderson...The availability of that infrastructure allows us to take on major projects without the barrier to entry that we might otherwise experience if we had to go out and capitalise all of that ourselves.¹¹⁷

4.70 Mr Geoff Smith, ADI's former Director of Naval Sales and Marketing, told the committee that ADI supports an in-country build of the amphibious ships.¹¹⁸ He was confident that ADI can garner the capacity to build the ships in-country:

We have partners in the bid, one of whom is an engineering company based in Newcastle called Forgacs. They have facilities in Newcastle; they also have facilities in Brisbane. Between our partners, ourselves, Forgacs, our French designer-shipbuilder partner and other strategic subcontractors that we have already identified we do not see ourselves in anyway constrained in that particular [the LHD] program.¹¹⁹

The future of the primes

4.71 In their evidence to the committee, both ADI and Tenix commented on the effect that the AWD and LHD contracts may have on the future industry structure. Mr Smith told the committee that high end warship construction and future submarine construction is 'now inevitably focused in South Australia'. He added: 'we are exploring every opportunity that we can to be part of the AWD program'. Furthermore, Mr Smith explained that:

...we believe that there is an opportunity and a need...to have a second company there [in South Australia] able to do repair and maintenance and, in particular, upgrade capabilities of existing fleet units...Our position is that we need to be there to repair, maintain and look after things that exist, but we also need to be able to use that very capability...to ramp up and to do less complex shipbuilding programs.¹²⁰

4.72 Mr Miller from Tenix told the committee:

Currently Australia is certainly on a path to get down to two strong shipbuilders, because whoever comes out of the LHD program would then

116 The estimate comes from Mr David Miller, *Committee Hansard*, 27 April 2005, p. 5.

117 Mr David Miller, *Committee Hansard*, 27 April 2005, p. 5.

118 Mr Geoff Smith, *Committee Hansard*, 28 June 2006, p. 6.

119 Mr Geoff Smith, *Committee Hansard*, 28 June 2006, pp. 9–10.

120 Mr Geoff Smith, *Committee Hansard*, 28 June 2006, p. 7.

obviously have a very large base of work and an infrastructure to go along with that for quite some time as long as those ships are constructed in Australia. If the result of LHD is that the ships are merely constructed overseas and brought here for some amount of final fit-out then that alters the landscape considerably.¹²¹

4.73 Mr Miller's comments indicate that the unsuccessful tenderer for the LHD bid will struggle for market position and that even the successful tenderer may lose some capacity if Defence opts for an offshore build. The committee is aware of arguments that future industry rationalisation may be needed.¹²² It is important to note here, however, that various supply-side factors will also influence the future industry structure: which company will win the LHD tender; what proportion of this contract will go offshore; how will Thales' acquisition of ADI affect the market; and who will acquire ASC?

Conclusion

4.74 This chapter focused on the development of Australia's prime naval shipbuilding contractors over the past twenty years. It has highlighted the importance of key projects in establishing the viability, the capacity and the reputation of the prime contractors. The primes have shown their ability to undertake technologically and managerially complex projects. They have done so through investing in contract and project management skills, modernising construction and assembly processes and connecting with suppliers up and down the supply chain.

4.75 This experience has also underscored governments' important role in investing in the primes and improving Defence's own contract management practices. Governments have sustained domestic capacity by awarding through-life support contracts to ASC for the Collins class and to Tenix for the ANZACs. Defence's innovative contracts have introduced a new prime to the market (Austal) and achieved outstanding results from existing primes (Tenix and HMAS *Sirius*). It has also sought to minimise contractual risk for complex projects (FFG Upgrade and the AWDs).

4.76 The chapter concluded with a comment on Australia's current capacity to build and repair large naval vessels in the context of the demanding AWD and LHD builds. The committee received considerable evidence that the Australian primes have the capacity to build the LHDs in-country. They are improving their performance and capability and are willing to invest in Defence's demanding future workload. Their main challenge is to build more complex ships with highly sophisticated and expensive systems and rising costs associated with improved capability.

121 Mr David Miller, *Committee Hansard*, 27 April 2005, p. 19.

122 See South Australian government, *Submission 9*.