

Chapter 8

Intellectual property

8.1 In a global industry such as naval shipbuilding, capacity cannot be considered on a country by country basis alone. Australia must access the knowledge and technology of world leaders in order to keep pace with technological developments and support its fleet. In this context, this chapter discusses Australia's capacity and requirements in the area of intellectual property (IP).

8.2 As noted elsewhere, Australia largely sources ship designs from overseas and, except in niche areas, is reliant on overseas designed weapons and other systems. With limited indigenous IP, the ability to negotiate and manage contracts guaranteeing access to IP is essential for efficient and sustainable naval shipbuilding.

Negotiating in a global market

8.3 Defence stated that it deals with intellectual property rights in a 'unique way':

Instead of seeking particular categories of intellectual property, Defence contracts for broad groupings of rights often designated as foreground, background and third party intellectual property. It does this because it is often difficult to determine what intellectual property exists or will exist, and the nature of that intellectual property.¹

8.4 Defence explained that the task of 'intellectual property needs identification' is undertaken in conjunction with other planning activities for each acquisition. The needs identification phase forms the basis of Defence's approach to negotiating intellectual property rights. Among other things, the phase gives guidance as to which rights should be owned by Defence and which rights licensed to Defence. Defence explained:

Whilst ownership of intellectual property will give Defence the greatest flexibility, Defence may pay a high premium to own the intellectual property. It may be more cost-effective to negotiate a broad licence over the necessary intellectual property, if this will allow Defence to achieve its operational or business goals. In some scenarios ownership of intellectual property may be required, despite the added expense, for strategic or national security reasons.²

8.5 The ability of Australian companies to gain access to necessary intellectual property depends in part on inter-government relations. As ASC mentioned in its submission:

1 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), Question W5.

2 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), Question W7.

In order to build sophisticated warships, a builder must secure commercial and security rated access to a wide range of warship design, technology, hardware and software systems. Some of this is available through the negotiation of commercial partnerships and supply contracts but some can only be acquired by having appropriate national security clearances and government-to-government 'fathering' agreements, for example the United States/Australian agreement for the AEGIS air warfare destroyer weapons system. Securing and maintaining such access requires the successful negotiation of appropriate agreements and the implementation and maintenance of many commercial and security systems and practices.

Failure to achieve appropriate security clearances and agreements with governments and other high technology systems providers, and failure to build confidence that information acquired will be protected, leads to denial of critical technologies and systems.³

8.6 In an assessment of defence industry generally, Professor Paul Dibb touched on the complexities involved in securing such agreements:

This [increasing dependence on access to US technologies] will require that we negotiate firmly with the US over its non-disclosure policies and get access to the source codes that will enable us to modify or alter the performance characteristics of US platforms, missiles and sensors. These are highly sensitive issues, even for such a close ally of the US as Australia.⁴

8.7 Defence was generally satisfied with Australia's bargaining position, noting that 'the degree of leverage Australia possesses in intellectual property negotiations depends largely on the nature and value of the procurement'.⁵ Defence observed that the Defence Materiel Organisation's (DMO) 2006–07 budget of \$8.7 billion equates to around 0.8 per cent of Australia's GDP, giving DMO some leverage in negotiating contract terms with Australian companies. Further, Defence noted that 'as the market amongst advanced industrialised countries for defence industry is relatively small, Australia retains a reasonable degree of leverage with international companies'.⁶ Of course, this assessment is based on DMO's entire budget, not naval shipbuilding specific acquisitions and technologies.

8.8 In relation to U.S. technology, Defence acknowledged:

Some difficulties have arisen with US companies because of restrictions on exporting US information, including associated intellectual property, under

3 ASC Pty Ltd, *Submission 17*, p. 9.

4 Professor Paul Dibb, 'A Defence industry development strategy', *The business of defence: sustaining capability*, CEDA Growth No. 57, August 2006, p. 18.

5 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), question W9.

6 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), question W9.

the International Traffic in Arms Regulations. These difficulties apply to all countries dealing with the US, not only Australia.⁷

8.9 Defence explained some of the mitigation strategies DMO uses to deal with difficulties that arise with negotiating intellectual property rights. These include buying commercial-off-the-shelf (COTS) and military-off-the-shelf (MOTS) capabilities which generally have appropriate intellectual property right attached to them.⁸ However, a key consideration for Defence's naval acquisition decisions is the need for capabilities that meet Australia's specific operational requirements. COTS and MOTS options are not always able to meet these requirements.

8.10 Another strategy used by DMO, where it has been unable to obtain intellectual property or technical data from an equipment manufacturer, is to use 'agreements with other countries to enable a transfer of the intellectual property or technical data needed to meet a capability requirement'.⁹

Benefits of IP access

8.11 Contractual arrangements guaranteeing access to IP and design rights are critical both to construction and to cost-effective through-life support. Without ownership or access to IP, Australia is left dependent on system providers' specifications, developments and upgrades. This limits Australia's capacity to independently integrate, repair and upgrade systems and tailor them to specific strategic requirements.

8.12 ASC Managing Director Mr Greg Tunny told the committee that access to IP is important for efficient production:

What is most important is the access to the intellectual property. If I have full and free access then I do not so much mind who owns it. But if the ownership brings access restrictions then I may mind. Those access restrictions, for example, may be my disclosure of that intellectual property to the subcontractor of my choice. That may cause me to have to choose another subcontractor or to do it myself when I would have preferred to give it to a subcontractor or other issues like that.¹⁰

8.13 Defence reiterated throughout the inquiry that its focus for Australian industry was ensuring that the sector has sufficient capacity to sustain, maintain and upgrade

7 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), question W9. See also chapter 2, paragraphs 2.27–2.30.

8 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), question W9.

9 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), question W9.

10 *Committee Hansard*, 4 September 2006, p. 6.

the fleet.¹¹ As such, Defence's discussion of IP focused on development and sustainment of defence capability:

Defence must ensure that it owns or licenses rights to all intellectual property that it requires to develop and sustain Defence capability. Defence must ensure that it has access to all appropriate technical data to enable it to exercise its intellectual property rights. As a minimum, Defence must secure sufficient control of intellectual property to allow for the use and support of the relevant Defence capability.¹²

8.14 Other submitters commented not only on Defence's operational needs, but also the wider benefits of owning intellectual property, for example developing and exploiting export opportunities. ASC stated:

Possessing...high-end design engineering skills provides scope for owning a vessel's functional and structural design intellectual property. This major advantage provides the shipbuilder with the freedom to export any vessels and designs without confronting crippling licence fees and other constraints from foreign design owners. Export opportunities, in turn, have the potential to generate further economies of scale.¹³

8.15 Mr Gaul, President of CEA Technologies, noted the importance of both international partners and IP agreements in developing export activity:

I think those relationships [with larger overseas corporations] are critical going forward. I really do believe it is something that can be emulated in other strategic areas of Australian industry. To have a global reach, you must have global partners, because we do not have a global company in Australia, apart from BHP. Getting the right partners becomes an essential element. It was a very deliberate process that we went through to get Northrop Grumman on board. We first of all got two big brothers—the US government and the Australian government—and we got IP agreements. So they were standing next to us.¹⁴

8.16 Defence noted that it does facilitate access by Australian industry to Defence intellectual property and assists industry to benefit from that access 'as appropriate'. Defence also 'facilitates Australian industry access to third party intellectual property, with the goal of developing a national defence capability, where this is consistent with ownership and licensing rights'.¹⁵

11 See for example Lt Gen. Hurley, *Committee Hansard*, 18 August 2006, p. 29.

12 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), question W7.

13 *Submission 17*, p. 6.

14 *Committee Hansard*, 3 July 2006, p. 30.

15 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), question W7.

Australian IP development

8.17 As discussed in Chapter 2, advances in technology and increasing costs mean that few countries can produce sophisticated naval combat, sensor and communication systems in their own right. A review of Defence industry by ACIL Tasman commented on the need to strike a balance between access to overseas technologies and investment in indigenous innovation:

Excessive reliance on overseas intellectual property and innovation will lead to the 'dumbing down' of Australia's capability...thereby reducing Australia's strategic and commercial options.¹⁶

8.18 Dr Richard Brabin-Smith considered that there are four broad criteria for assessing whether to develop indigenous research and development. These criteria are:

- where Australia has critical needs that are so different from those of other nations that their products do not come sufficiently close to what we require;
- where there are sensitive and compelling national security considerations;
- where not even our closest allies are prepared to share sensitive information or materiel with us; and
- where a new idea has emerged with potential benefits so compelling that it would be folly not to take it further.¹⁷

8.19 In addition to the technology and design developed by Australian prime companies and SMEs, the Defence Science and Technology Organisation (DSTO) contributes to Australia's capacity for indigenous IP and innovation in support of Australia's strategic defence requirements. DSTO has broad based industry relationships and described its goals for industry interaction as:

(i) enhancing industry capability to support Defence, and (ii) national wealth creation, whilst royalty income may be a by-product for DSTO.¹⁸

8.20 DSTO noted that although its primary focus is on developing Defence capability, subsequent commercialisation has potential applications for both defence and civilian operators. DSTO works with industry in a range of ways, including:

- industry alliances—focusing on areas of mutual interest, innovation and developing pathways to commercialisation;
- the Capability and Technology Demonstrator Program—enabling Australian industry to exhibit new technologies to Defence and explain potential Defence applications;

16 ACIL Tasman, November 2004, *A Profile of the Australian Defence Industry*, p. 98.

17 Dr Richard Brabin-Smith AO, 'Defence Innovation in Australia', *The Business of Defence Sustaining Capability*, CEDA Growth No 57, August 2006, p. 27.

18 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), p. 1.

- centre of expertise with universities—which provide a platform for contract research in specific areas and enable universities to leverage additional funding;
- collaborative relationships—enabling DSTO to broaden the knowledge base on which it conducts its research; and
- assisting commercialisation—for example growing Australian Defence industry through technology transfer and knowledge exchange with DSTO IP.¹⁹

8.21 Cutting edge naval technology has been developed in Australia with the assistance of the DSTO. As noted in Chapters 4 and 5, the anechoic, low-observable tiles developed for the Collins class submarines are recognised as world class technology. Other examples include the Australian Minesweeping System (AMAS), developed under a licence agreement by DSTO and ADI, and carbon-fibre patching for ships' decks, developed by DSTO and transferred under license to ADI.

8.22 As at July 2006, DSTO was managing 80 licenses. DSTO commented that:

Although only a small number of these 80 licenses provide any significant royalty returns, substantial export revenues have been generated through just 2 DSTO-based technologies (AMAS, and Advanced Sonar Systems). This highlights DSTO's philosophy of providing its intellectual property to industry in order to enhance defence capability and national wealth creation, rather than create revenue.²⁰

8.23 The above examples demonstrate that while key components of Australia's naval ships are sourced from overseas, the indigenous capacity for technology development should not be overlooked.

Conclusion

8.24 Access to and control over IP is an element of naval shipbuilding where Australia's capacity is vulnerable. As noted previously, Australia largely sources ship designs from overseas and, except in niche areas, is reliant on overseas designed weapons and other systems. In selected areas Australia's research and development has produced cutting edge technology and generated important indigenous IP. However, as a relatively small market Australia will inevitably need to continue to access the technological advances made in the larger defence markets of Europe and the U.S.

8.25 The ability to negotiate and manage contracts guaranteeing access to IP is therefore vital to Australia's capacity for naval shipbuilding and repair. Without

19 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), pp. [2–6].

20 Department of Defence, answer to question on notice, 18 August 2006 (received 31 October 2006), pp. [7–8].

control over IP, Australia is unable to maintain operational sovereignty. Where IP is secured, there is potential for growth, development and export. Australia's capacity in this area is therefore largely reliant on the ability of DMO to negotiate contract outcomes effectively.

Part III

Productivity of the Australian shipbuilding and repair industry

Part II considered the capability of Australian primes to meet Navy's future shipbuilding and repair demands, the adequacy of the network of suppliers required to service the industry, the infrastructure needed to support a naval shipbuilding industry in Australia and the available skill base and workforce to sustain the industry. It found that in all four areas, Australia has the capability or the potential to achieve that capability. Whether Australian companies are internationally competitive in the construction and through-life support of naval vessels is another matter.

Part III examines the comparative economic productivity of the Australian shipbuilding industrial base and associated activity with other shipbuilding nations. It then looks at the comparative economic costs of maintaining, repairing and refitting large naval vessels throughout their useful lives when constructed in Australia vice overseas. Finally, it considers the broader economic development and associated benefits that accrue from building, maintaining and upgrading naval ships in Australia including the strategic arguments for, and advantages in, having a viable naval shipbuilding and repair sector in Australia.

