

# **Senate Foreign Affairs, Defence and Trade References Committee**

## **Discussion Paper**

### **Work in Progress**

#### **Australia's Naval shipbuilding and repair industry**



25 August 2006

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## Summaries and discussion points

### Introduction

#### *Summary*

Today's modern military forces rely on new and high technology to build greater defence capability—they want qualitative efficiency based on advanced technology rather than quantitative force based on manpower.

The increasing pressure for more highly sophisticated and expensive systems, coupled with dwindling demand for ships has created major challenges for the naval shipbuilding industry worldwide. Advancing technology and the increasing costs associated with the design and development of state-of-the-art communication and combat systems in particular, has meant that few countries or companies on their own can produce such sophisticated systems. These challenges have also influenced the business approach. For example, the department of Industry, Tourism and Resources referred to the emergence of 'globally integrated production systems'.<sup>1</sup> Some witnesses spoke of the requirement for Australia to establish a 'consortium of shipbuilders and designers who can pool their capabilities and develop the interaction and specializations needed'.

A critical issue for Australia, which must rely on overseas companies for vital components of its naval ships, is ensuring that Defence has the necessary access to, and sovereignty over, intellectual property.

Advances in technology have influenced the way ships are constructed most notably with the trend toward building ships in modules. Integration of modules and systems has become a key element of shipbuilding. It means that only one major site is needed to assemble the various parts of the ship that have been constructed elsewhere. Thus, a wide network of sites for construction of ship modules, which according to AIDN accounts for 60 to 80 per cent of fit outs, is now involved.

A growing synergy in technologies is also occurring which is influencing the industrial base of naval shipbuilding. Although the industry is highly specialised, there are strong parallels with the infrastructure needs of the oil and gas sector and more generally the resources sector. A new approach to manage these synergies is required not only by the prime contractors but by governments who must have a wider appreciation of Australia's heavy engineering sectors.

The quest for advanced technology and need for integrated systems has also linked naval shipbuilding directly into the information technology market. In effect, naval shipbuilding can no longer be viewed as a discrete industry sector with capacity and

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1 *Committee Hansard*, 3 July 2006, p. 70.

productivity assessed on the basis of individual shipyards. Shipbuilding in the new technology era is part of the emerging heavy engineering sector.

The changes occurring in the naval shipbuilding and repair industry as outlined above present a particular challenge for Australian naval shipbuilders who need high order technological as well as managerial skills and for Defence which requires the expertise to oversee all the complexities involved in a major acquisition. Defence faces a particular challenge in managing the reconfiguration of the business model which now involves a complex web of relationships between the prime contractor, which may be a consortium, and the many sub contractors, a number of which have key roles in the integration of complex systems and may themselves be joint ventures. To manage a project effectively and properly, Defence requires not only strong technological and managerial skills but an approach that ensures transparency and accountability.

It also requires Defence to consider demand flows and their implications for the Australian workforce. A number of the matters touched on in this introduction will be covered in the paper.

## **1. The capacity of the Australian industrial base to construct large naval vessels over the long term and on a sustainable basis**

1.2 The capacity of Australia's industrial base to construct large naval vessels depends on the integration of four main elements: Australian shipbuilders willing and able to undertake major naval projects; the network of enterprises supporting the industry; the infrastructure necessary for modern naval shipbuilding; and the available skills base and workforce.

### **The Australian prime contractors**

#### *Summary*

The four prime contractors in the Australian naval shipbuilding market are proven competitors and capable and willing to invest in Defence's demanding future workload. There are heavy demands placed on prime contractors, especially the increasing pressure for complex ships with highly sophisticated and expensive systems and the rising costs associated with the continuing search for improved capability. The committee is aware of mixed views about whether the Australian naval shipbuilding sector can support four primes and that some rationalisation of the industry may be required.

#### *Discussion*

The committee welcomes opinions on:

- how Australia's major shipbuilders, servicing a relatively small market, can keep pace with the rapid advances in technology and the increasing demand for improved capability (e.g. joint ventures);

- 
- the benefits and risks of foreign ownership of prime contractors operating in Australia; and
  - whether industry rationalisation is inevitable in Australia.

## **The supply chain**

### *Summary*

Overall, it would appear that Australia's network of suppliers together with the contribution of major overseas companies who have established a presence in Australia provide an adequate supply chain to sustain Australia's naval shipbuilding and repair industry.

### *Discussion*

The committee is interested in views on the capability of Australian firms to support the shipbuilding industry in Australia, especially:

- whether their capabilities are being effectively tapped and developed and how actively Defence encourages them to engage in the Defence industry;
- measures that could be taken to increase the capability of Australian firms to support the naval shipbuilding industry and to extend the local supply network beyond that already servicing the industry; and
- the adequacy of incentives to entice Australian companies to conduct research and development in the naval defence industry.

The committee also invites comment on Australia's reliance on overseas subsidiaries to supply some of the high technology systems. In particular:

- although subsidiaries are located in Australia, whether their ties to an overseas parent company undermine or weaken the ability of Australia to sustain a modern and effective shipbuilding industry; and
- the steps needed to ensure that Australia has access to the necessary resources and expertise to support the vessels through life. For example, the Allen Consulting Group surmised that 'unless Australian industry has the capacity to repair AEGIS, the benefits of a local build of the AWDs in terms of providing the capacity to sustain self-reliance must be questioned'.<sup>2</sup>

## **Infrastructure**

### *Summary*

Overall, it would appear that Australia has the infrastructure necessary to sustain a naval shipbuilding industry but that further investment would be required to manage

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2 Allen Consulting Group, 'Future of Naval Shipbuilding in Australia', May 2005, p. 46.

the proposed LHD project. This additional investment is required even though a number of witnesses suggested that some existing facilities are underutilised.

### *Discussion*

The committee invites views on:

- the claims that facilities in Australian shipyards are underutilised, particularly in light of the proposed further investment in Western Australia and South Australia; and
- the wisdom of investing in infrastructure required to accommodate the LHDs, which according to some witnesses is a one in 40 year project.

### *Co-operation between the states in meeting infrastructure needs*

#### *Summary*

The Western Australian and South Australian governments have entered into an MoU regarding the AWD and LHD tenders.

#### *Discussion*

The committee welcomes opinions on co-operation and competition between the states and how this may influence Australia's capability to sustain a naval shipbuilding and repair sector. It is particularly interested in the significance of the MoU between SA and WA.

### **Workforce and skills**

#### *Summary*

It is generally recognised that Australia has a well skilled, productive labour base to draw on for naval shipbuilding but that skilled labour shortages represent a challenge for the industry. Views differ as to the extent of the challenge and whether skilled labour shortages present a risk to upcoming projects.

There was general agreement that it is important for Australia to retain an element of design capability to enable designs to be modified to Australia's specific requirements and for through life support, but views differ as how best to retain such capability.

#### *Discussion*

The committee invites view on whether:

- current government and industry skills initiatives are adequate to mitigate risks to upcoming naval construction project costs and schedules;
- a temporary skilled migration program is a satisfactory way to address shortfalls in the workforce;

- 
- design and systems integration skills can be sufficiently fostered without indigenous design and construction, in order to maintain autonomy in ship maintenance, repair and upgrade; and
  - strategies to retain required skill sets for through life support are sufficient. Is a more strategic, overarching approach required? Can critical skill sets be identified and policies developed and implemented to ensure these skills are retained in Australia?

## **Intellectual Property**

### *Summary*

1.3 In the new era of shipbuilding, access and control over intellectual property is a key determinant of shipbuilding and repair capacity. Sovereignty over IP facilitates growth and access to export markets. Without ownership or access to IP, Australia is left dependent on system providers' developments and upgrades.

1.4 Control over IP is an element of shipbuilding where Australia's capacity is vulnerable. Australia is largely reliant on overseas ship designs and weapons systems. The ability to negotiate and manage contracts guaranteeing access to IP has therefore become a key criterion for successful naval shipbuilding.

### *Discussion*

- 1.5 The committee is interested in views and experiences in the following areas:
- whether access to and control over IP is given sufficient focus in the negotiation of naval acquisition contracts;
  - given that modern shipbuilding involves complex contractual arrangements between multiple parties, who carries responsibility for ensuring satisfactory IP outcomes;
  - whether Australia, as a relatively small power, has sufficient leverage to negotiate the IP outcomes it requires for sovereignty over fleet maintenance and repair; and
  - whether there is sufficient investment in research and development to facilitate the generation of Australian IP.

## **2. The comparative economic productivity of the Australian shipbuilding industrial base and associated activity with other shipbuilding nations**

### *Summary*

There is no available data that would allow a comparative analysis of the productivity of Australian shipyards against overseas yards. The committee therefore finds difficulty in making a definite determination about the comparative economic

productivity of the Australian shipbuilding industrial base with other shipbuilding nations. Evidence, however, suggesting that Australia may not be as productive as overseas producers included:

- some projects in Australia such as the ANZACs are believed to have attracted a local build premium;
- Australia is a relatively small market and the demand for naval vessels is not as large as for some overseas producers—Australia does not have the economies of scale enjoyed by some of its potential competitors; and
- Australia cannot compete with countries such as Japan, China and South Korea in the production of larger and less complex steel ships such as tankers and carriers.

Evidence suggesting that Australia may be as productive as overseas producers in constructing naval vessels include:

- the naval shipbuilding industry in overseas countries is subsidised or protected in some way by government; (removing or discounting such barriers may show that Australian producers can match the productivity of overseas producers);
- the success of Incat and Austal in producing very fast vessels;
- the bench-marking studies carried out for Tenix and Raytheon Australia;
- greater efficiencies when it comes to modifying or customising a ship in Australia for Australian conditions; and
- the acknowledged world class standing of Australian welders, engineers and technicians.

This summary looked purely at the matter of the cost to the Australian Government of building a ship in Australia as against a ship purchased from overseas. To this stage, it has not considered the wider advantages or benefits that accrue to the country when a major ship project is undertaken in Australia.

### *Discussion*

The committee invites comment on whether, without taking account of other considerations such as wider economic benefits and national security, it is safe to assume that:

- Australia does not have a significant competitive edge in the construction of major naval vessels, with economies of scale a major impediment; and
- the naval shipbuilding industry is highly protected in most naval shipbuilding countries which narrows the opportunities for a country such as Australia to compete internationally.



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The committee would be interested to learn of any studies that would help it obtain a better understanding of the productivity of the Australian naval shipbuilding and repair sector compared to overseas producers.

The committee is also interested in views regarding the opportunities for increasing exports in the NSR sector.

### **3. The comparative economic costs of maintaining, repairing and refitting large naval vessels throughout their useful lives when constructed in Australia vice overseas**

#### *Summary*

The committee underlines the following points on the issue of comparative economic costs of through life support (TLS).

- There is a lack of data which reflects the difficulty in making a direct comparison.
- ACIL Tasman has estimated that annual TLS costs could be twice as high if foreign supplies had sourced the ANZAC Ship Project. This is due to shorter repair turn around times and lower stocks of spares from local sources of supply. However, the Department of Industry, Tourism and Resources (DITR) has cautioned that local equipment can be used for an overseas build, thereby avoiding the higher costs associated with repairing overseas-built ships in-country. The department argued that the ACIL Tasman TLS estimate must be discounted by the proportion of equipment that could be sent overseas to support an offshore build of the same vessel.
- The committee's evidence is unanimous in the view that building warships in-country will deliver greater TLS savings than from an offshore build—Defence added the qualification that TLS savings from an in-country build depends on the complexity of the ship. It used the example of the less complex LHDs, stating 'there could be relatively few savings in whole-of-life cost from choosing to build locally'.<sup>3</sup>
- The TLS productivity saving from an in-country build derives mainly from developing the skills and knowledge during the construction phase needed for TLS.
- Personnel, however, can be posted offshore to participate in the build in order to develop the in-country skills and knowledge for repair and maintenance.<sup>4</sup>

#### *Discussion*

The committee invites discussion on the following issues:

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3 Department of Defence, Answers to questions on notice, p. 2.

4 See also *ASC submission*, p. 19.

- the findings of the ACIL Tasman study with regard to TLS and whether they can be usefully applied to current or future projects;
- Defence's statement that 'there could be relatively few savings in whole-of-life cost from choosing to build the LHD locally'. It expected that the greatest savings over the life of the ship will come from full access to and use of ship design and intellectual property across the entire capability.<sup>5</sup>
- the contention that posting personnel overseas during an offshore build is an effective way to develop the skills and knowledge required for TLS; and
- the contention that there is difficulty in sustaining in-country skills once the ship transitions from the construction phase into naval service.

#### **4. The broader economic development and associated benefits accrued from undertaking the construction of large naval vessels**

##### *Summary*

Numerous witnesses identified economic benefits that they consider accrue from naval shipbuilding. The committee's research identified two major studies, relating to the ANZAC and Minehunter projects, which sought to quantify the flow of economic benefits from the construction of naval vessels. The extent of the economic benefits identified in these studies depended on the model used. The more conservative figures, resulting from general equilibrium analysis, indicated a contribution to GDP of up to \$887 million for the Minehunter and \$3,000 million for the ANZAC project.

Defence and DITR recommended caution in interpreting the findings of the above studies. DITR noted that the results are specific to the projects assessed and the assumptions made about the productivity gains produced by those projects. Defence presented Treasury advice which stated that not only are multiplier effects difficult to quantify, but the effects can be negative if resources are displaced from more productive to less productive sectors of the economy.

It should be noted that Defence explained that technology transfer and access to IP form part of the evaluation process but that other benefits:

such as potential spin-offs to industry at large and wider benefits to the economy, such as increased employment, may be recognised but play little or no part in the numerical evaluation. Such benefits will be noted in advice to Government.<sup>6</sup>

##### *Discussion*

The committee invites comment on the following issues:

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5 Department of Defence, Answers to questions on notice, p. 2.

6 Department of Defence, Answers to questions on notice, Question 52, p. 48.

- whether any general conclusions can be safely drawn about the broader economic benefits of naval shipbuilding, given that the available quantitative analysis is confined to two specific projects;
- the likelihood that, in reality, negative multiplier effects would arise from a high technology industry such as naval shipbuilding; and
- whether and to what extent, wider economic benefits should be taken into account in naval shipbuilding acquisition decisions;
- who argues or should argue the case for the wider economic benefits that accrue to a local build in advice to government.

## **Strategic considerations**

### ***Summary***

Without exception, all witnesses accepted that national security concerns are central to any consideration about whether Australia should have a naval shipbuilding industry. On strategic grounds, the argument for self-sufficiency in maintaining and repairing naval vessels was strong, especially when it came to the ability to respond to urgent operational requirements. Several witnesses went further suggesting that in order to have this capability it was important for the ships to be constructed in Australia.

The government, however, noted that practical and economic circumstances place limitations on the extent to which Australia can be self-sufficient in the construction of naval vessels. Even with the ship repair industry, the government argued that there could be exceptions.

It is beyond the means of any country to retain absolute control over all aspects of its defence capability. The argument for self-sufficiency in a particular capability turns largely on an interpretation of what constitutes a strategically important capability. According to DITR, based on import replacement policies, the objectives are being driven toward 'a new conception of operational sovereignty as the objective, with economic 'make or buy' decisions determining the cheapest way to achieve *operational sovereignty*'.<sup>7</sup>

### ***Discussion 1—definition of strategic capability***

The committee is having difficulty using general concepts about self-sufficiency, core strategic capabilities, value for money and the need for in country construction to arrive at definite conclusions about the connection between national security, defence capability, the requirement for self-sufficiency and cost effectiveness. For example, it is unclear about DITR's statement that global economics is changing military self-reliance objectives and the concept of 'operational sovereignty'.

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7 DITR, *Submission 38*, p. 1.

It invites comments on:

- whether DMO's definition of a strategically important industry capability is satisfactory or indeed relevant to today's debate about self-sufficiency;<sup>8</sup> and
- the significance, as mentioned by DITR, of the new concept of operational sovereignty as the objective, with economic 'make or buy' decisions determining the cheapest way to achieve operational sovereignty.

The committee would like some guidance or assistance in identifying the circumstances under which it is appropriate for Australia to relinquish its control over the design or construction of a major naval defence acquisition or component of an acquisition to an overseas supplier. For example, are there principles governing national security and the acquisition of a naval defence capability that should be strictly observed? If so, what are they and how should they be articulated to industry?

The committee understands that in some cases Australia simply cannot afford or attain the level of skill, knowledge or technological expertise in a particular critical defence capability. It is seeking advice on the steps that should be taken to ensure Australia maintains a level of capability that would not compromise national security.

### *Discussion 2—strategic capability and value for money*

The committee would like to gain a better understanding of:

- the difficulties applying an acquisition policy that places a high priority on retaining self-sufficiency in identified core strategic capabilities, but at the same time emphasises value for money; and
- what the term 'value for money' means in the broader context of naval shipbuilding and national security'.

## **5. The role of Defence in Australia's naval shipbuilding and repair industry**

### **Assisting industry improve productivity**

#### *Strategic planning and policy on Australian industry involvement*

#### *Summary*

Defence's long term capability requirements and objectives are articulated through the Defence Update, the Defence Capability Strategy and the Defence Capability Plan (DCP). Some witnesses raised concerns about the adequacies of the current documentation that Defence makes available to industry on its future strategic plans and, indeed, on what appears to be weaknesses in the planning process.

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8 DMO's 2002 strategic plan defined a strategically important industry capability and/or skill-set as one, which, 'if not readily available, would inhibit the performance and execution of ADF capability and operations, and, if denied, may not be able to be obtained within the required operational time-frame'. This definition is given in the main text of this paper.

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The committee notes that the recent Defence Capability Plan identified on a project-by-project basis the areas of expertise that Australian industry could currently supply.

There appears to be a lack of certainty in how Defence applies its policy on local involvement in the naval shipbuilding industry. There is no uniform level of AII specified for each project. On the one hand, a 'bidder's failure to satisfy all of the Australian industry involvement outcomes may... potentially disqualify the bidder from contention'. At the same time, Defence 'retains the right to select a bidder whose approach may not satisfy all Australian industry involvement outcomes set out in the RFT if other aspects of its approach provide offsetting benefits'.<sup>9</sup>

Defence stated that proposals for local industry involvement are evaluated on the basis of value for money and tenderers are required to show how cost-effective involvement in the project by Australian industry has been maximised.<sup>10</sup> According to Defence, 'This does not always mean that goods and services sourced from local industry must be cheaper than those available from overseas. There may be instances where paying more for a local source of supply yields offsetting strategic or other benefits which mean that value for money has been achieved'.<sup>11</sup>

Some witnesses have suggested that the AII program lacks a clearly articulated strategic approach. In 2003 the ANAO found that:

- the lack of specific guidance as to what defence industry capabilities are required is a significant omission from Defence industry policy and makes it difficult to determine how well the strategic objectives of the Program are being met; and
- there was no evidence of a systematic endeavour to gain synergies by linking the AII plans of one capital equipment project with those of any other project.

The committee is aware that Defence is currently undertaking a review of Defence's procurement policy.

### *Discussion*

The committee notes the call for Defence to develop a long term strategic plan for Australia's naval shipbuilding industry. It would like some guidance from industry on the key matters that it believes should be included in such planning and the preferred level of detail.

The committee also invites views on:

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9 Department of Defence, Answers to questions on notice, p. 7.

10 Department of Defence, Answers to questions on notice, pp. 47–48.

11 Department of Defence, Answers to questions on notice, p. 7.

- how Defence can make its priorities clearer and provide a better understanding of its intentions when using vague terms such as 'value for money' and 'sustaining key strategic capabilities'; and
- the project-by-project approach and whether it hinders the development of a coherent and overarching policy designed to best use Australian industry to ensure that Australia sustains key strategic capabilities.

The committee welcomes comment on:

- the effectiveness of the AII Program in the NSR sector;
- the need for greater rigour in assessing the performance of the AII Program;
- whether a Strategic Plan for the NSR sector that identifies core in-country capabilities could give the AII Program more focus; and
- suggestions that Defence should develop key performance indicators for the AII program.

### ***Smoothing demand***

#### ***Summary***

Australian demand for naval vessels has historically been uneven and significant peaks and troughs are projected for the coming build programs. Numerous submitters called for smoother Defence demand to help alleviate costs and secure the sustainability of the industry base in the longer term.

Defence considered that it is industry's responsibility to manage cyclical demand. It outlined that scheduling major acquisitions is complex, involving consideration of the budget implications of other major projects and the interdependence of some capabilities with others. Ultimately, the scheduling of naval construction work reflects Defence's capability needs not the perceived needs of the industry.

#### ***Discussion***

As noted above, the committee notes the call for Defence to develop a long term strategic plan for Australia's naval shipbuilding industry and would like some guidance on what this plan should encompass.

The committee invites views on the difficulties cited by Defence in smoothing the demand flow.

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## **Industry—informed provider**

### *Reviews of past projects and premiums for local builds*

#### *Summary*

The committee notes the absence of meaningful data that would help to inform industry about the factors that shape or influence major acquisition decisions, especially analysis of past projects and premiums offered to Australian companies.

Commercial-in-confidence concerns may well prevent some information from being available. Even so, regular and frank analysis of the successes and failures of projects and the extent of assistance given to a project (local premium) could assist industry. This knowledge would help keep industry better informed about the performance of particular projects and also make Defence more accountable for its decisions and the way in which it manages major projects. Indeed, Mr John O'Callaghan, Head of the Australian Industry Group Defence Council, thought that Defence needs to be 'a bit more mature about putting on the table' some of the lessons from experiences such as the problems with the modernisation of the FFGs and the Collins Class submarine. In his view, such an approach might help industry avoid the sort of problems that have arisen.

#### *Discussion*

The committee would welcome opinions on the suggestion that, in order to have a well-informed industry and an accountable buyer, Defence publicise information such as analysis of past projects or on the policies governing local premiums. It would be interested to learn of major impediments to implementing such a proposal.

The need for local premiums and preference for local involvement touches on matters such as the tension that exists between capability and affordability, previously raised in the discussion of strategic considerations.

## **Defence—an informed and skilled purchaser**

### *Informed buyer*

#### *Summary*

A few submitters questioned whether Defence has the appropriate level of experience and expertise to carry out effectively an acquisition program involving complex naval ships. Defence is aware of the need to have qualified personnel in-house and is taking steps to recruit such staff. It also has access to outside experts to assist it in its acquisition program and processes.

## ***Tendering and contracting***

### ***Summary***

DMO has undertaken steps to improve its tendering and contracting procedures and practices. Industry's response appears to be positive. Even so, this paper has highlighted the growing complexities in managing major naval acquisitions especially with the complicated network of relationships and partnerships involved in the project. The paper has also commented on the absence of meaningful data and information especially on the successes and failures of past projects. This is most notable in the discussion of local premiums. Clearly, Defence must develop and adhere to high standards on probity and accountability in its procurement practices.

### ***Discussion***

The committee would be interested to learn if there are, in industry's view, areas of weaknesses in DMO's NSR tendering and contracting procedures that could be strengthened.

The committee also invites comment on the probity and accountability aspects of Defences procurement practices and procedures.

## **Government's intervention in the market place**

### ***Competition***

#### ***Summary***

According to Defence, it wants 'a vibrant and competitive Australian maritime industrial capacity' that enables it 'to maintain or enhance the capability baselines of the Naval ships so that they are fully capable to meet the mission requirements in the context of the evolving threat environment and strategic requirements'.<sup>12</sup> It also wants value for money and looks to competition to stimulate managerial innovation, drive innovation and the development of new technologies and promote general cost consciousness among defence contractors. A competitive environment acts as a check on excessive monopoly pricing and helps to drive down cost premiums.<sup>13</sup>

The demand for naval ships in Australia, however, is relatively small and Defence is the only buyer. It faces the challenge of meeting its need to sustain key naval capabilities in country cost effectively but in a market with few suppliers. This raises questions about the extent to which government or Defence should intervene in the market place to create a competitive framework.

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12 Department of Defence, Answers to questions on notice, pp. 21–22.

13 John O'Callaghan, Australian Industry Group Defence Council, *Committee Hansard*, 28 June 2006, p. 23.



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*Discussion*

The committee invites comment on how Defence best manages a market with only one buyer and few suppliers. For example:

- the usefulness of contract management tools—fixed price contracts, alliance contracting, open book accounting, close monitoring of rates of return, greater use of benchmarking, stricter specification of AII;
- whether Defence should be directly intervening in the market (e.g. awarding particular projects to specific companies with a view to maintaining future competition);
- the extent of sole sourcing in naval shipbuilding contracts and the opportunities for Defence to introduce greater competition in these contracts; and
- the role of competitive teaming.



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# Discussion Paper

## Introduction

### Shipbuilding in the new high technology era

1.6 Today's modern military forces rely on new and high technology to build greater defence capability—they want qualitative efficiency based on advanced technology rather than quantitative force based on manpower. This desire for technological superiority is manifest in the increasing demand for more complex naval vessels with better, smarter technology. Most notably, the weapons, sensor and communication systems in modern warships are becoming more sophisticated. Raytheon surmised that because of 'increasing combat effectiveness and the need to constrain crew sizes future naval vessels are likely to be increasingly complex with greater use of automation and systems'.<sup>14</sup> Making a similar observation, the UK's Ministry of Defence noted that:

A manpower-intensive platform-heavy and predictable doctrine has been replaced by the requirement for sophisticated, rapid and precise military solutions.<sup>15</sup>

1.7 The increasing pressure for more highly sophisticated and expensive systems, coupled with dwindling demand for ships has created major challenges for the naval shipbuilding industry worldwide. To accommodate these factors, the industry has undergone a period of transition marked by a trend toward rationalisation. Rapid advances in technology and the desire for better and smarter technology have created tensions between costs and affordability.

1.8 These developments mean that few countries or companies on their own can produce the sophisticated systems now required. The increasing demands have also influenced the business approach. For example, the department of Industry, Tourism and Resources referred to the emergence of 'globally integrated production systems'.<sup>16</sup> Companies, such as Raytheon as a Mission System Integrator (MSI), assume a prominent role in the construction of the vessel.

1.9 Rear Admiral (Ret'd) W.J. Rourke argued that for Australia to maintain and further develop its ship design and shipbuilding skills it will require 'the establishment of a consortium of shipbuilders and designers who can pool their capabilities and develop the interaction and specializations needed'.<sup>17</sup>

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14 *Submission P35*, p. 8.

15 Ministry of Defence, Policy Paper, '*Defence Industrial Policy*', October 2002, p. 7.

16 *Committee Hansard*, 3 July 2006, p. 70.

17 *Submission 1*. p. 8.

1.10 The Submarine Institute of Australia Inc suggested that 'Experience indicates that competitive teaming through commercial alliances between overseas shipbuilders/designers and major Naval Shipbuilding and Repair companies in Australia offers the best prospect of ensuring efficient Australian construction and industry involvement, timely delivery and performance and internationally competitive prices'.<sup>18</sup>

1.11 Such joint ventures and global partnerships require new approaches to project management and contract management. A critical issue for Australia, which must rely on overseas companies for vital components of its naval ships, is ensuring that Defence has the necessary access to and sovereignty over intellectual property.

1.12 Advances in technology have also influenced the way ships are constructed most notably with the trend toward building ships in modules. Integration of modules and systems has become a key element of shipbuilding.

1.13 Modular ship production begins with hundreds of smaller subassemblies such as piping sections, ventilation ducting, other shipboard hardware and major machinery items being joined together. These sections are assembled with other shipboard sensors and weapons to form ship modules'.<sup>19</sup> The integration of modules means that only one major site is needed to assemble the various parts of the ship that have been constructed elsewhere. Thus, a wide network of sites for construction of ship modules, which, according to Australian Industry & Defence Network Inc (AIDN), accounts for 60 to 80 per cent of fit outs, is now involved.<sup>20</sup>

1.14 The continuing advances in technology present a particular challenge for the naval shipbuilders who need high order technological as well as managerial skills. The success of any project depends on the expertise that shipbuilders bring to the integration of the various modules.

1.15 A growing synergy in technologies is also occurring which is influencing the industrial base of naval ships. Although naval shipbuilding is a highly specialised industry there are strong parallels with the infrastructure needs of the oil and gas sector and more generally the resources sector. The developments taking place in Western Australia demonstrate the growing synergy in technologies that is occurring and allowing other industries to use the same facilities. This new approach to large construction projects is also leading to the establishment of engineering centres of excellence that incorporate the shipbuilding industry.

1.16 These trends have implications for the capacity, industry structure and management of naval ship production and repair in Australia. The quest for advanced technology and need for integrated systems has linked naval shipbuilding directly into

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18 *Submission 3*, paragraph 7.2, p. 16

19 *Submission P9*, p. 14.

20 *Committee Hansard*, 27 April 2006, p. 30.

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the information technology market. The advent of modular construction has changed the requirements for heavy engineering and infrastructure.

1.17 In effect, naval shipbuilding can no longer be viewed as a discrete industry sector with capacity and productivity assessed on the basis of individual shipyards. Shipbuilding in the new technology era is part of the emerging heavy engineering sector. It is a process of collaboration and integration spanning the cutting edge of the electronics and IT industries.

1.18 The peaks and troughs in demand for naval vessels have added to the problems for the industry especially in training and retaining skilled workers. Despite the search for more cost effective means of producing complex naval vessels, most countries with an indigenous industry seek to maintain some control over their industry through protective measures.

1.19 The changes occurring in the naval shipbuilding and repair industry as outlined above present a particular challenge for Australian naval shipbuilders who need high order technological as well as managerial skills and for Defence which requires the expertise to oversee all the complexities involved in a major acquisition. Defence faces a particular challenge in managing the reconfiguration of the business model which now involves a complex web of relationships between the prime contractor, which may be a consortium, and the many sub contractors, a number of which have key roles in the integration of complex systems and may themselves be joint ventures. To manage a project effectively and properly, Defence requires not only strong technological and managerial skills but an approach that ensures transparency and accountability.

1.20 This paper looks specifically at the capacity and productivity of Australia's naval shipbuilding industrial base. In accordance with the inquiry terms of reference the focus is on large naval vessels, considered to be those over 2000 tonnes.<sup>21</sup>

## **1. The capacity of the Australian industrial base to construct large naval vessels over the long term and on a sustainable basis**

1.21 The capacity of Australia's industrial base to construct large naval vessels depends on the integration of four main elements: Australian shipbuilders willing and able to undertake major naval projects; the network of enterprises supporting the industry; the infrastructure necessary for modern naval shipbuilding; and the available skills base and workforce.

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21 Austal, *Submission 7*, p. 5. A range of definitions for 'large' ships were submitted to the inquiry. See for example, Rear Admiral Rourke, *Submission 1*, p. 3. Defence does not define 'large' ships but uses the term 'major surface combatants', which includes frigates, destroyers, larger amphibious ships and afloat support ships. *Committee Hansard*, 28 March 2006, p. 45.

## The Australian prime contractors

1.22 According to Defence, 'Australia's naval shipbuilding capacity is largely focussed on four main companies': ADI, ASC, Austal and Tenix.<sup>22</sup> Defence's submission also noted that United in Western Australia 'is emerging as a capable ship repairer' and Forgacs 'has facilities suitable for module and consolidation work, though its infrastructure (particularly in Brisbane) is old'.<sup>23</sup> In addition, Incat specialises in the construction of lightweight, high speed aluminium vessels, three of which have been leased by the U.S. military.

1.23 The four 'primes' have a proven record on large warship projects. ADI built the six Huon class Minehunter vessels; ASC constructed six world-class Collins class submarines; Tenix built 10 frigates as part of the highly successful ANZAC frigate project; and Austal has built and delivered two Armidale patrol boats. The companies are currently engaged in the following projects:

- ADI, formerly Australian Defence Industries, operates the Royal Australian Navy's (RAN) major east coast refit, repair and maintenance facilities at Garden Island in Sydney. The company is currently working on the SEA1390 FFG Upgrade Program at the dry graving dock at Garden Island. The first vessel, HMAS Sydney, has been delivered and the second, HMAS Melbourne, is nearing completion.<sup>24</sup> ADI has teamed with the French companies Armaris and DCN to contest the landing ship helicopter/dock (the LHD or amphibious ship) based on the Mistral class design. The company currently has 900 employees.<sup>25</sup>
- Austal specialises in the construction and export of light-weight, high speed aluminium vessels. It is Australia's largest builder of commercial ships, employing 1,100 staff at three sites in Western Australia.<sup>26</sup> The company's Australian focus is on delivering 14 Armidale class patrol boats for the RAN by the end of 2007. Austal also has an operation in Mobile, Alabama where it is designing and building the first Littoral Combat Ship for the U.S. Navy. Its workforce in Alabama is expected to increase to 1,000 by the end of 2006.
- ASC, formerly the Australian Submarine Corporation, was formed in 1985 and was awarded the contract for the Collins class submarines in 1987. It remained a privately owned company until 2000 when the Commonwealth took full ownership. In December 2003, ASC signed a 25 year \$A125 million per annum through-life support contract for the Collins vessels. In May 2005, the company was awarded the shipbuilder contract for the \$A6 billion Air

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22 Department of Defence, *Submission 20*, p. 10.

23 Department of Defence, *Submission 20*, p. 10.

24 'Formal acceptance trials under way', *Pursuit*, Issue 67, April 2006, p. 10.

25 Australian Shipbuilders Association, *Submission 36*, ANNEX A.

26 Austal, *Submission 7*, p. 2.

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Warfare Destroyer project at a new site at Osborne in Port Adelaide. ASC has 1,030 employees and is currently being prepared for full privatisation following the next federal election.<sup>27</sup>

- Tenix Defence Marine Division is a company within Tenix Defence Pty Ltd. The company recently delivered the eighth and final ANZAC frigate to the RAN and is currently working with Saab Systems in South Australia on an Anti-Ship Missile Defence System for the vessels. The company is also completing a program of seven ships for the Royal New Zealand Navy (known as PROJECT PROTECTOR) and is converting the civilian tanker DELOS into an underway refuelling ship (to be known as HMAS Sirius). Tenix Marine has a site in Henderson, south of Perth, where it is involved with installing offshore drilling platforms. The company anticipates employing 'slightly less than 1,000 people' during the 2006–07 financial year.<sup>28</sup>

1.24 The four companies have different market strategies and financial structures. Austal is an aluminium shipbuilder: Tenix, ADI and ASC are steel shipbuilders. Tenix and Austal have had considerable success exporting naval vessels: ASC and ADI have relied on domestic orders. Tenix and ADI are large defence companies with marine divisions: Austal and ASC are solely shipbuilders. ADI is half owned by the French company Thales: Austal, Tenix and ASC are fully Australian owned.

1.25 In modern warship construction, the prime contractor has broad and complex management responsibilities. ADI's Naval Sales and Marketing Director, Rear Admiral Geoff Smith, told the committee:

...shipbuilding is no longer just about metal shaping or fabrication; it is about the management of increasingly complex projects that require design, platform construction and the installation and integration of platform, combat and command support systems with a test and evaluation regime that determines that the end product is safe for our sailors and fit for purpose.<sup>29</sup>

1.26 Australian prime contractors have faced significant cost and schedule overruns on some major warship construction and upgrade projects. These were projects of high technical difficulty. It should be noted, however, that their performance on projects such as the ANZACs and Minehunters have shown that they are capable of employing advanced technology and of being highly skilled project leaders and

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27 Australian Shipbuilders Association, *Submission 36*, p. 5. On 16 August 2006, the Minister for Finance and Administration announced the government's decision to return ASC OTY Ltd to private ownership. He explained, 'Recognising the importance of ASC's Australian-based naval ship building capacity, the Government is proposing a foreign ownership limit of 49 per cent. A number of other protections will be put in place to protect Australia's security interests. Media Release, 'ASC Sale', Senator the Hon Nick Minchin, 48/2006, 16 August 2006.

28 Tenix Defence Ltd, *Submission 26*, p. 2.

29 Rear Admiral Geoff Smith, *Committee Hansard*, 28 June 2006, p. 4.

managers with the necessary expertise to bring together the thousands of sub systems to produce a modern warship.

1.27 As mentioned earlier, a feature of the naval shipbuilding and repair (NSR) sector in other advanced naval shipbuilding nations has been a process of industry rationalisation due to low demand and escalating costs for technology. The South Australian government's submission argued that the current industry is characterised by an over-abundance of shipbuilder and repair companies.<sup>30</sup> It suggested that efficiencies could be made from reducing the number of primes and consolidating production to one site. The Victorian government's submission argued that 'rationalisation of the industry to a smaller number of players is neither inevitable nor desirable'. The submission noted that 'no country is contemplating closing down an existing successful shipyard'.<sup>31</sup>

### *Summary*

1.28 The four prime contractors in the Australian naval shipbuilding market are proven competitors and capable and willing to invest in Defence's demanding future workload. There are heavy demands placed on prime contractors, especially the increasing pressure for complex ships with highly sophisticated and expensive systems and the rising costs associated with the continuing search for improved capability. The committee is aware of mixed views about whether the Australian naval shipbuilding sector can support four primes and that some rationalisation of the industry may be required.

### *Discussion*

1.29 The committee welcomes opinions on:

- how Australia's major shipbuilders, servicing a relatively small market, can keep pace with the rapid advances in technology and the increasing demand for improved capability (e.g. joint ventures);
- the benefits and risks of foreign ownership of prime contractors operating in Australia; and
- whether industry rationalisation is inevitable in Australia.

## **The supply chain**

### *Australian companies*

1.30 Australia has an extensive network of suppliers who support, or are prepared to support, the prime contractors. This supply chain is estimated to provide between 60 and 70 per cent of the net value of any new ship. They tend to have niche

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30 South Australian government, *Submission 9*, p. 34.

31 Victorian government, *Submission 31*, p. 39.



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capabilities and their contribution ranges from 'quite small nuts and bolts to systems and electronics'.<sup>32</sup>

1.31 The Australian Industry and Defence Network (AIDN) is an organisation set up as an industry initiative to generate business opportunities for its 600 members from the projects undertaken by the Department of Defence.<sup>33</sup> It assists its members gain access to information, resources and key decision makers in the public and private sector of the Australian and international defence industries.<sup>34</sup>

### *Overseas companies with subsidiaries in Australia*

1.32 Although Australia has niche capabilities in shipbuilding, it does not have a capability that encompasses all aspects of ship design and construction—there are some areas where Australia does not have the expertise. In these specialist areas, Australia relies on overseas suppliers. For example, major military combat systems are sourced from overseas including the latest version of the United States AEGIS system, which will be incorporated into the Air Warfare Destroyers (AWDs).<sup>35</sup> The combat system for the Collins class submarines used only 45 per cent Australian industry content.<sup>36</sup> Timely foreign supplies were also important to the success of the ANZAC frigate project.

1.33 A number of overseas companies have filled the gaps in expertise by establishing subsidiaries in Australia.<sup>37</sup> By locating in Australia, overseas companies not only fill a capability gap but contribute to the development of an indigenous skill and knowledge base.

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32 *Committee Hansard*, 27 April 2006, pp. 36 and 37.

33 AIDN relies on its members to fund its activities. The Department of Defence provided a small grant of \$75,000 some years ago and the state governments sometimes provide facilities to hold national meetings or may assist the local chapter with functions. The regional directors of the Defence Materiel Organisation usually sit on the executives of the state and territory AIDN Chapters.

34 For example, AIDN approached ASC after it won the tender for the AWDs indicating its readiness to help ASC find niche capabilities from among its membership.

35 Gibbs and Cox Australia, *Submission 10*, p. 2.

36 Patrick Walters, 'The Cutting Edge: The Collins experience', *Strategic Insights*, Australian Strategic Policy Institute, February 2006, p. 5.

37 Raytheon Australia was established in the late 1990s. Although it is staffed entirely by Australians, 'a key to...[its] success and growth in Australia has been the ability and willingness of our parent company to strengthen the capability of its local subsidiary by transferring technology, knowledge, skills and processes'. Raytheon Australia, *Submission 35*, p. 3. Gibbs and Cox Australia was established in 2004 as a wholly owned subsidiary of Gibbs and Cox Inc., a U.S. naval architectural firm that has designed all but one U.S. Navy destroyer since 1933. The company's submission to this inquiry noted that the parent company had 'invested significant time and money in the development of an Australian indigenous capability'. Gibbs and Cox Australia, *Submission 10*, p. 7.

### **Summary**

1.34 Overall, it would appear that Australia's network of suppliers together with the contribution of major overseas companies who have established a presence in Australia provide an adequate supply chain to sustain Australia's naval shipbuilding and repair industry.

### **Discussion**

1.35 The committee is interested in views on the capability of Australian firms to support the shipbuilding industry in Australia, especially:

- whether their capabilities are being effectively tapped and developed and how actively Defence encourages them to engage in the Defence industry;
- measures that could be taken to increase the capability of Australian firms to support the naval shipbuilding industry and to extend the local supply network beyond that already servicing the industry; and
- the adequacy of incentives to entice Australian companies to conduct research and development in the naval defence industry.

1.36 The committee also invites comment on Australia's reliance on overseas subsidiaries to supply some of the high technology systems. In particular:

- although subsidiaries are located in Australia, whether their ties to an overseas parent company undermine or weaken the ability of Australia to sustain a modern and effective shipbuilding industry; and
- the steps needed to ensure that Australia has access to the necessary resources and expertise to support the vessels through life. For example, the Allen Consulting Group surmised that 'unless Australian industry has the capacity to repair Aegis, the benefits of a local build of the AWDs in terms of providing the capacity to sustain self-reliance must be questionable'.<sup>38</sup>

### **Infrastructure**

1.37 Major shipyards in Australia are at Henderson (Western Australia); Osborne (South Australia); Williamstown (Victoria); Garden Island, including Captain Cook dry dock, and Newcastle (New South Wales); and Cairncross dry-dock Facility (Queensland).

1.38 Some shipyards, such as those at Henderson and Osborne, are 'green field' sites that have attracted significant investment with plans for further development. Others, however, are well established and have a long tradition of naval shipbuilding.

1.39 The Western Australian and South Australian governments in particular have demonstrated a preparedness to invest in infrastructure development to encourage and

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38 Allen Consulting Group, 'Future of Naval Shipbuilding in Australia', May 2005, p. 46.

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promote the shipbuilding industry in their respective states. It should be noted that this investment is intended not only to assist the shipbuilding industry and is most evident in the development of Common User Facilities.

1.40 A number of witnesses referred to what they believe is a current underutilisation of facilities. The South Australian government stated that a major challenge concerns investment in sustainable, modern, competitive infrastructure. It stated that Australian shipbuilding infrastructure has 'evolved on a project-by-project basis rather than in response to a national plan'. It maintained that:

The myriads of facilities that are left are old, underutilised and not cost competitive. Further infrastructure investment beyond that already planned, can only add to the underutilisation of costly assets.<sup>39</sup>

1.41 Others, however, argue that investment in the newer sites does not make economic sense: that the older shipyards are adequate. For example, before the awarding of the AWD project, a 2005 Allen Consulting Group Study found:

If the AWD project went to Osborne (under the auspices of either Tenix or ASC), the investment required would be at least twice that needed at Williamstown, which is a working naval shipyard successfully building major surface combatants. Other things being equal, since the two sites would be equally capable, this does not stand up as an investment, irrespective of whether or not the South Australian government would fund it. It seems unlikely that a private investor such as Holden, for example, would scrap a successful existing facility when it introduced its next model and build a new plant 800km away at double the cost.<sup>40</sup>

1.42 The introduction identified a number of major developments that have implications for the infrastructure requirements of the shipbuilding sector—modularisation; synergies with other heavy engineering sectors and the establishment of engineering centres of excellence.

1.43 Even though some shipyards may not be working to full capacity at the moment, the proposed LHDs will require further investment to accommodate the construction of these large ships. The Department of Industry, Tourism and Resources (DITR) found that 'Australia's existing capacity is optimised for smaller rather than larger ships and modules. For example, the Amphibious ship designs will require expensive investment in infrastructure to be assembled in Australia'. It stated further that Australian shipyards have typically invested less in automation technologies than some offshore yards, optimising for shorter production runs.<sup>41</sup>

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39 *Submission 9*, p. 35.

40 Allen Consulting Group, *Building the Air Warfare Destroyers: How does Williamstown rate? Report to the Government of Victoria*, February 2005, p. 30.

41 DITR, *Submission 38*, p. 2.

### **Summary**

1.44 Overall, it would appear that Australia has the infrastructure necessary to sustain a naval shipbuilding industry but that further investment would be required to manage the proposed LHD project. This additional investment is required even though a number of witnesses suggested that some existing facilities are underutilised.

### **Discussion**

1.45 The committee invites views on:

- the claims that facilities in Australian shipyards are underutilised, particularly in light of the proposed further investment in Western Australia and South Australia; and
- the wisdom of investing in infrastructure required to accommodate the LHDs, which according to some witnesses is a one in 40 year project.<sup>42</sup>

### ***Co-operation between the states in meeting infrastructure needs***

1.46 Before concluding this section on infrastructure, the committee notes a December 2004 Memorandum of Understanding (MoU) between the Western Australian and South Australian governments supporting a cooperative approach in contesting for the AWD and LHD contracts. The MoU was designed to enable both governments to coordinate their respective investments in infrastructure.<sup>43</sup>

### **Summary**

1.47 The Western Australian and South Australian governments have entered into an MoU regarding the AWD and LHD tenders.

### **Discussion**

1.48 The committee welcomes opinions on co-operation and competition between the states and how this may influence Australia's capability to sustain a naval shipbuilding and repair sector. It is particularly interested in the significance of the MoU between SA and WA.

## **Workforce and skills**

1.49 There are identified national skills shortages in a number of trade occupations required for naval shipbuilding and concerns that the upcoming build program will also stretch the relevant professional labour base. Given the synergies between contemporary shipbuilding and other heavy engineering sectors, such as the rapidly expanding resources sector, workforce and skills issues need to be assessed within a

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42 See for example, Geoff Smith, ADI Ltd, *Committee Hansard*, 28 June 2006, p. 12.

43 Western Australian government, *Submission 23*, p. v.

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broad industry context. Some witnesses indicated that there is potential to draw labour from other sectors of the economy into naval shipbuilding. Others noted that transferability of skills from other industry sectors and the geographic mobility of the workforce may be limiting factors.

1.50 A particular concern related to skilled labour shortages is that competition for skilled labour within the heavy engineering industry may drive up wage rates thus increasing the cost of ship building programs. However, there are mixed views as to the scale of competition for skilled labour across industry. Some witnesses speculated that growth in the construction phase of resources projects may slow over the projected peak shipbuilding period, while others anticipated continued expansion. DITR has made 'rough order of magnitude' calculations of the coming demand for workers for offshore petroleum and liquefied natural gas projects. The assessment indicates that employment in these sectors may peak slightly before peak naval shipbuilding demand, but that the increase in labour demand is likely to be rapid and substantial.

1.51 There is general agreement that governments and industry have responded to the issue of skills shortages and have invested in relevant programs, such as Skilling Australia's Defence Industry (SADI) and New Apprenticeships training to improve the supply of skilled labour. While recognising these initiatives, some submitters pointed to the need for naval shipbuilding specific skills and experience which can take lengthy periods of time to obtain, above apprenticeship training or experience in other industries. It was also recognised that temporary skilled migration may be required to supplement local labour in order to address skilled labour shortages.

1.52 In recognition of the synergies between shipbuilding and other industry sectors, some states are proactively addressing workforce and skills issues in a broader industry context. In Western Australia, Challenger TAFE operates the WA Applied Engineering and Shipbuilding Training Centre within the state's Australian Marine Complex at Henderson. The Centre provides a 'one-stop-shop for all-round training of apprentices for both the defence and civilian shipbuilding industries, as well as a range of other industries within the resources sector, at both trade and para-professional levels'.<sup>44</sup> The Western Australian government indicated that by embedding the training centre within an industry setting, the centre had grown and adapted to industry needs, helping to 'alleviate skills shortages that would otherwise have inhibited the growth of the WA marine industry'.<sup>45</sup>

#### *Design and systems integration skills*

1.53 In Defence's view, the key consideration in relation to the workforce base is ensuring that relevant skills and knowledge are retained to provide through life support to the fleet, including maintenance, repairs and upgrades. Defence considered

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44 *Submission 23*, p. 20

45 *Submission 23*, p. 20

that the high end skills such as design, complex system support and systems integration are most critical to retain in order to ensure ongoing self-sustainability of the fleet.<sup>46</sup>

1.54 Submitters generally conceded that Australia no longer has the capacity to be internationally competitive in original ship design and combat system design and that it would not be feasible to develop such capacity. While Australia will largely source its ship designs from overseas,<sup>47</sup> there was general agreement that it is important for Australia to retain an element of design capability to enable designs to be modified to its specific requirements and for through life support.

1.55 Views differ as how best to retain such capability. At one end of the spectrum, construction in Australia enables project relevant design and system integration skills and knowledge to be developed. Others have suggested that involvement of Australian designers in offshore builds can foster the relevant skills.

1.56 In relation to systems integration skills, Raytheon Australia emphasised the importance of knowledge transfer:

Systems integration is complex, there are not books on the subject and the capability is acquired through experience and working with those who have acquired the capability through experience.<sup>48</sup>

1.57 In Raytheon Australia's view, systems integration is an area where local subsidiaries of international companies can make a substantial knowledge and skills contribution:

We are proud of the fact that the company is staffed entirely by Australian, over three quarters of whom are engineers and technicians. However, a key to Raytheon's success and growth in Australia has been the ability and willingness of our parent company to strengthen the capability of its local subsidiary by transferring technology, knowledge, skills and processes.<sup>49</sup>

1.58 This example reiterates that in the current era of high technology, few countries or companies possess all the requisite skills for highly complex naval construction. Workforce and skills issues therefore need to be considered in the context of global alliances and knowledge transfer.

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46 Department of Defence, *Submission 20*, p. 25.

47 For example: the intellectual property rights for the Collins class submarines rest with the Swedish firm Kockums, which was acquired by Howaldtswerke-Deutsche Werft in 2002; the ANZAC frigates were designed by the German firm Blohm+Voss GmbH, a division of ThyssenKrupp Marine Systems; the contract for the AWD design will be contested between Spanish firm Navantia and the American firm Gibbs and Cox; and the contract for the LHD design will be contested between Navantia and the French firms Armaris and DCN.

48 Raytheon Australia, *Submission 35*, p. 3.

49 Raytheon Australia, *Submission 35*, pp. 2-3.

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## **Summary**

1.59 It is generally recognised that Australia has a well skilled, productive labour base to draw on for naval shipbuilding but that skilled labour shortages represent a challenge for the industry. Views differ as to the extent of the challenge and whether skilled labour shortages present a risk to upcoming projects.

1.60 There was general agreement that it is important for Australia to retain an element of design capability to enable designs to be modified to Australia's specific requirements and for through life support, but views differ as how best to retain such capability.

## **Discussion**

1.61 The committee invites view on whether:

- current government and industry skills initiatives are adequate to mitigate risks to upcoming naval construction project costs and schedules;
- a temporary skilled migration program is a satisfactory way to address shortfalls in the workforce;
- design and systems integration skills can be sufficiently fostered without indigenous design and construction, in order to maintain autonomy in ship maintenance, repair and upgrade; and
- strategies to retain required skill sets for through life support are sufficient. Is a more strategic, overarching approach required? Can critical skill sets be identified and policies developed and implemented to ensure these skills are retained in Australia?

## **Intellectual property**

The focus on advanced technology and importance of systems integration in the new era of shipbuilding means that access and control over intellectual property is now a key element of Australia's shipbuilding and repair capacity.

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

1.63 Access to and control over IP is an element of shipbuilding where Australia's capacity is vulnerable. As noted above, Australia largely sources ship designs from overseas and, except in niche areas, is reliant on overseas designed weapons and other systems. The ability to negotiate and manage contracts guaranteeing access to IP has therefore become a key criterion:

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 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.<sup>50</sup>

1.64 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.<sup>51</sup>

1.65 SAAB Systems argued the importance of sustaining a strong indigenous electronics industry so that Australia has something to bargain with when negotiating the transfer of foreign owned intellectual property.<sup>52</sup> ASC outlined the risks to military capability that derive from an inability to negotiate and manage IP:

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.<sup>53</sup>

1.66 Where sovereignty over IP is secured, there is potential for growth and development. 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.<sup>54</sup>

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50 ASC, *Submission 17*, p. 9.

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

52 SAAB Systems Pty Ltd, *Submission 25A*, p. 2.

53 ASC, *Submission 17*, p. 9.

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



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## *Summary*

1.67 In the new era of shipbuilding, access and control over intellectual property is a key determinant of shipbuilding and repair capacity. Sovereignty over IP facilitates growth and access to export markets. Without ownership or access to IP, Australia is left dependent on system providers' developments and upgrades.

1.68 Control over IP is an element of shipbuilding where Australia's capacity is vulnerable. Australia is largely reliant on overseas ship designs and weapons systems. The ability to negotiate and manage contracts guaranteeing access to IP has therefore become a key criterion for successful naval shipbuilding.

## *Discussion*

1.69 The committee is interested in views and experiences in the following areas:

- whether access to and control over IP is given sufficient focus in the negotiation of naval acquisition contracts;
- given that modern shipbuilding involves complex contractual arrangements between multiple parties, who carries responsibility for ensuring satisfactory IP outcomes;
- whether Australia, as a relatively small power, has sufficient leverage to negotiate the IP outcomes it requires for sovereignty over fleet maintenance and repair; and
- whether there is sufficient investment in research and development to facilitate the generation of Australian IP.

## **2. The comparative economic productivity of the Australian shipbuilding industrial base and associated activity with other shipbuilding nations**

1.70 While Australia may have the primes, the supply chain, the infrastructure and the skills base necessary to sustain a naval shipbuilding industry, it is quite another matter whether this industry can match or better the productivity of overseas competitors.

1.71 According to witnesses and the committee's research, there is a lack of definitive comparative economic and productivity data on Australia's NSR sector. Although there is little comparative data, the committee notes the following findings or observations which provide some indication of Australia's productivity in the shipbuilding industry.

1.72 It would appear from the evidence that major shipbuilding nations provide some form of direct or indirect subsidy to their shipping industries.<sup>55</sup>

1.73 Most studies and commentators generally accept that countries such as South Korea, China and Japan dominate and are highly competitive in the construction of commercial ships, notably large tankers and carriers.<sup>56</sup>

1.74 On performance, some Australian companies, notably Austal and Incat, have clearly demonstrated that they have a competitive edge in niche markets of the commercial and naval shipbuilding industry.<sup>57</sup>

1.75 According to Tenix, a benchmarking study of its performance as a shipbuilder against companies through Asia, Europe and the U.S. indicated that it is 'above the midpoint of where many of the best yards in the world are in'. Although the study

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55 For example, the Western Australian government, the AMWU and Tenix refer to distortions in the naval shipbuilding market created by government interventions which make robust international comparisons of the costs of naval shipbuilding in different countries difficult. They believed that it was unsafe to make direct comparisons between the costs of building in Australia with overseas countries who receive government benefits in the form of subsidies and protective legislation to support/protect the local industry.

56 DITR informed the committee that, 'in large commercial steel ships the evidence is equally clear that Australia is not as productive as other countries, we have not produced large commercial steel ships for around thirty years'. DITR, *Submission 38*, p. 7.

57 DITR noted that Austal and Incat 'have designed and exported naval ships based on indigenous commercial designs. They have been able to capture economies of scale based on having unique capabilities and intellectual property in the aluminium fast ferry businesses, which they have been able to carry over into naval vessels'. DITR, *Submission 38*, p. 2.

showed the company's strength in planning systems and organising work, it had specific suggestions to improve its modular assembly.<sup>58</sup>

1.76 Raytheon Australia noted that it had conducted a benchmarking test against its parent company in the U.S. The study showed that Raytheon Australia 'could conduct many of the functions associated with systems engineering and systems integration at less than two-thirds of the cost of doing them in the United States.'<sup>59</sup>

1.77 A number of witnesses argued that Australian industry not only matches the capability of overseas countries to deliver a modern warship, but has the potential to add value because of its understanding of the customer and of Australia's unique environment.

1.78 Without clear comparative data, many witnesses looked to Australia's shipbuilding history to demonstrate Australia's capability to build naval vessels on time and on budget. Many cited the studies on the Minehunters and the ANZACs, but even with these successes, it is suggested that there was a local build premium.<sup>60</sup>

1.79 Australia is a relatively small market and the demand for naval vessels is not large. The report by the Allen Consulting Group, *Future of Naval Shipbuilding in Australia: Choices and Strategies*, noted that with the smaller production runs for the AWDs (3) and LHDs (2), the cost premium of a local build could be high. DITR argued that 'a driving factor determining whether Australia can produce on a long term

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58 Mr David Miller, Tenix Defence Pty Ltd, stated: 'An area where it was suggested we should go back and begin to put in plans for improvement was the layout of our yard. So we would look at ways to have a better flow of material coming through in the way that modules are constructed, so that we do more work in the module phase before we begin the large assembly of a hull. A lot of that just gets into time use management to ensure that you get as much into that module as you can and that you get it as densely packed as you can before you begin moving that on and assembling it as part of the hull. Simply, it takes more labour once you get it as part of the hull—then the workers have to begin crawling down into more confined spaces and so forth. As to your question, we will certainly provide a summary of that result.' *Committee Hansard*, 27 April 2006, p. 7.

59 *Committee Hansard*, 3 July 2006, p. 3. Thiess also stated that 'if we compare raw productivity figures in terms of welding for offshore purposes, Australia competes very successfully against US standards achieved on the Gulf of Mexico coast, where most of the efficiency standards in that industry are set.' Thiess Pty Ltd, *Submission 22*, p. 12.

Therefore in global terms, the Australian shipbuilding industry is capable of competing successfully against world standards.' *Submission 22*, p. 12.

60 It should be noted that according to ACIL Tasman, the Defence Department estimated that the direct domestic premium paid by Defence for the ANZAC Ship Program was about 3.5%. The Allen Consulting Group's report also pointed to the often cited cost premium of 3 to 3.5 percent for the ANZACs Project. It accepted that this is a relatively low cost but that equates to over \$200 million on a \$7 billion acquisition. The Allen Consulting Group, *Future of Naval Shipbuilding in Australia: Choices and Strategies*, May 2005, p. 45.

and sustainable basis is whether Australia can achieve the required economies of scale to be competitive'.<sup>61</sup>

1.80 With the exception of niche markets, Australia is limited in its export of naval ships and equipment. The Australian Manufacturing Workers' Union (AMWU) suggested that 'the need to pay royalties and to negotiate marketing rights erodes the international competitiveness of Australian builders'.<sup>62</sup> In addition to a relatively small domestic market, limited exports further impact on industry's ability to achieve economies of scale and resulting efficiencies.

### *Comparative labour productivity*

1.81 Comparison of the costs and efficiencies of Australia's naval shipbuilding labour base with overseas industries is also hampered by a lack of data. Both ACIL Tasman and DITR have used a measure of 'value-added per employee' to approximate labour productivity. The ACIL Tasman analysis suggested that 'Australia's labour productivity might be comparable to that of Western shipbuilders, but behind that of Asian shipbuilders, notably Japan'.<sup>63</sup> DITR's assessment suggested that Australia is comparable with Norway and Denmark, somewhat ahead of the UK, France and Spain and well behind Japan and to a lesser extent the USA. However, there are major shortcomings in the measure used. DITR noted that the measure is not adjusted for hours worked per employee and is biased upwards for countries that protect their shipbuilding industries. Importantly, the data are not specific to naval shipbuilding.<sup>64</sup> It is therefore difficult to make an informed assessment of the comparative productivity of the Australian shipbuilding workforce using quantitative measures.

1.82 Qualitative assessments were put forward by a number of submitters. Observations included that in the area of hull construction Australia needs to compete with the lower labour costs of countries such as South Korea and China. However, some submitters suggested that design and efficient work practices, including the use of automation, are the principal drivers of construction costs rather than wage rates. Several submitters observed that other high labour cost countries such as Sweden, Israel and Japan maintain viable naval shipbuilding industries.

1.83 A number of submitters acknowledged the world class skills of Australia's welders, engineers, technicians and systems integrators. Several companies submitted that Australian labour costs for higher end skill sets are comparable or less costly than in Northern Europe and the United States.

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61 DITR, *Submission 38*, p. 1.

62 AMWU, *Submission 21*, p. 13.

63 ACIL Tasman, *Naval Shipbuilding in Australia, A background briefing*, February 2006, Attachment to South Australian Government *Submission 9*, p. 47.

64 Output measures relate to commercial shipbuilding while input measures cover all shipbuilding. DITR, *Submission 38*, pp. 10–11.

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## *Summary*

1.84 There is no available data that would allow a comparative analysis of the productivity of Australian shipyards against overseas yards. The committee therefore finds difficulty in making a definite determination about the comparative economic productivity of the Australian shipbuilding industrial base with other shipbuilding nations. Evidence, however, suggesting that Australia may not be as productive as overseas producers included:

- some projects in Australia such as the ANZACs are believed to have attracted a local build premium;
- Australia is a relatively small market and the demand for naval vessels is not as large as for some overseas producers—Australia does not have the economies of scale enjoyed by some of its potential competitors; and
- Australia cannot compete with countries such as Japan, China and South Korea in the production of larger and less complex steel ships such as tankers and carriers.

1.85 Evidence suggesting that Australia may be as productive as overseas producers in constructing naval vessels include:

- the naval shipbuilding industry in overseas countries is subsidised or protected in some way by government; (removing or discounting such barriers may show that Australian producers can match the productivity of overseas producers);
- the success of Incat and Austal in producing very fast vessels;
- the bench-marking studies carried out for Tenix and Raytheon Australia;
- greater efficiencies when it comes to modifying or customising a ship in Australia for Australian conditions; and
- the acknowledged world class standing of Australian welders, engineers and technicians.

1.86 This summary looked purely at the matter of the cost to the Australian Government of building a ship in Australia as against a ship purchased from overseas. To this stage, it has not considered the wider advantages or benefits that accrue to the country when a major ship project is undertaken in Australia.

## *Discussion*

1.87 The committee invites comment on whether, without taking account of other considerations such as wider economic benefits and national security, it is safe to assume that:

- Australia does not have a significant competitive edge in the construction of major naval vessels, with economies of scale a major impediment; and

- the naval shipbuilding industry is highly protected in most naval shipbuilding countries which narrows the opportunities for a country such as Australia to compete internationally.

1.88 The committee would be interested to learn of any studies that would help it obtain a better understanding of the productivity of the Australian naval shipbuilding and repair sector compared to overseas producers.

1.89 The committee is also interested in views regarding the opportunities for increasing exports in the NSR sector.

### **3. The comparative economic costs of maintaining, repairing and refitting large naval vessels throughout their useful lives when constructed in Australia vice overseas**

#### **Background**

1.90 When considering the costs of an acquisition, many witnesses emphasised the need to take account of the through life costs which are many times greater than the initial cost of acquisition. Most accepted that the rule of thumb applying to large structure construction, including a typical warship, is 30 per cent in initial acquisition costs compared with 70 per cent through-life support (TLS) costs.<sup>65</sup>

#### *The lack of data*

1.91 As with estimates of comparative economic productivity, the committee faces the problem of insufficient data in assessing the comparative costs of TLS for large naval vessels when constructed in Australia vice overseas. As ASC's submission noted:

in nearly every case Australia has built significantly different ships to those built elsewhere and coupled with the fact that comparative pricing data rarely exists, assumptions about life-cycle costing and the relative costs of through-life support differ.<sup>66</sup>

1.92 Despite the lack of data, most of the committee's evidence on this issue focused on the savings of a local build through increasing the involvement of local companies in through life support (TLS) and reducing the associated costs (relative to an offshore build). A number of submitters suggested that the linkages between shipbuilding and through-life support can be important to the productivity and cost of ship repair and maintenance.<sup>67</sup>

#### *The ACIL Tasman estimate*

1.93 In broad quantitative terms, the only guide for the committee on this issue is the modelling by ACIL Tasman on the ANZAC Ship Project. The February 2000 report, *A Case Study of the ANZAC Ship Project*, found that:

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65 See for example, Nautronix, *Committee Hansard*, 3 April 2006, p. 36; the Western Australian government, *Committee Hansard*, 3 April 2006, p. 85; Defence *Submission 20*, p. 28 (para 5.6).

66 ASC *Submission 17*, p. 14.

67 Witnesses, including Rear Admiral (Ret'd) Rourke, Saab Systems Pty Ltd, Thiess, the Victorian and Western Australian governments, agreed that the support and upgrade of ships through their working lives is most economically provided from having the vessels built in the country. They cited savings and greater efficiencies that result from faster turn around times for repairs and replacements, ready accessibility to supplies and suppliers, and domain knowledge. They did not provide statistics to support their view. Raytheon Australia, *Committee Hansard*, 3 July 2006, p. 4 and *Submission 25*, p. 7.

- local or overseas supply is determined on a case by case basis: items that are part of pools through which components are rotated may be most economic to acquire from overseas; items that are uniquely developed or depend on timeliness of supply are often sourced locally;
- the cost of repairs, maintenance and spares is cheaper if the original source of supply is local because of shorter repair turn around times for locally produced items. Shorter repair turn around times mean a lesser quantity and overall cost of spares that need to be held;<sup>68</sup> and
- the ANZACs' annual repair costs of \$45 million could be higher by a factor of two if the original source of supply had been overseas. Assuming a long term bond rate of 7.12 per cent over a repair period of 25 years, the estimated repair cost saving is \$A518 million.<sup>69</sup>

### *The Department of Industry response*

1.94 DITR's submission to this inquiry made the following points regarding comparative costs of TLS:

- domestic equipment can be installed for an overseas build. So, even with an overseas build, the costs and problems with maintaining overseas sourced equipment can be avoided;
- ACIL Tasman's repair savings figure of \$A518 million for the ANZAC project must be discounted by the proportion of Australian produced equipment that would be sent overseas to support an offshore build of the same vessel or fitted when the ship arrives in Australia. If this proportion is half, then the repair cost saving from the in-country build is \$A259 million (half of \$A518 million);
- the ACIL Tasman long-term government bond rate of 7.12 per cent underestimates the risk—a 10 per cent rate is more appropriate which reduces the savings estimate to \$408 million;
- Australian built ships will still depend on some overseas sourced equipment;
- factors other than the source of initial construction supplies are significant in minimising repair costs. These include automated processes in the vessel design to reduce the whole of life crew costs and access to IP for repair; and
- developing the in-country skills and knowledge for repair and maintenance does not depend on the location of the build—personnel can be posted offshore to participate in the build. However, 'there are greater benefits (and

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68 Tasman Asia Pacific, February 2000, *Impact of Major Defence Projects: A case study of the ANZAC Ship Project*, pp. 38–39.

69 Tasman Asia Pacific, February 2000, *Impact of Major Defence Projects: A case study of the ANZAC Ship Project*, pp. 49–50. The figure is reached by deducting 7.12 per cent from the principal (\$45 million in year 1) for each of the 25 years.



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risks) from conducting an onshore build of complex vessels than simple vessels'.<sup>70</sup>

1.95 The committee acknowledges that some proportion of foreign-built RAN vessels will be sourced from Australian supplies and generic supplies that can be readily replaced in Australia. To this extent, it notes DITR's claim that ACIL Tasman's estimate is inflated. According to Defence, however, a local build is far more likely to have higher Australian industry content than a foreign-built vessel, and is therefore more likely to have original parts in stock for repair.<sup>71</sup>

1.96 Defence was of the view that 'It is clear that the economic costs of maintaining, repairing and refitting large naval vessels throughout their useful lives is greatly lessened by constructing those vessels in Australia'. In answer to a question on notice, however, Defence stated 'for a low to moderate technology basic platform like the Amphibious-LHD there is only a low correlation between build capability and sustain/upgrade capability'.<sup>72</sup>

1.97 It considered that there could be relatively few savings in whole-of-life cost from choosing to build the LHD locally. It expected that the greatest savings over the life of the ship will come from full access to and use of ship design and intellectual property across the entire capability.

#### *Skills, knowledge and Intellectual Property*

1.98 The availability of equipment is only part of the explanation for potential TLS cost savings from a local build. The broader reason is that an in-country build develops the skills and knowledge base needed for subsequent TLS.<sup>73</sup> ASC's submission stated that the challenges of repairing and maintaining a foreign-built vessel in-country depend on: the level of familiarity with key systems and original equipment manufacturers; access to the foreign shipbuilder and the ship's original drawings; and access to the parent navy's technical staff.<sup>74</sup> For example, it is more expensive to train labour to repair and upgrade a vessel that was built offshore than it is to employ the skills used in the construction phase for through life support.

1.99 Several witnesses also argued that the greater the complexity of the warship, the greater the need to build in-country to develop the domain knowledge and skills for TLS.<sup>75</sup> The committee notes that this is the rationale for Defence's support for

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70 See also ASC, *Submission 17*, p. 19.

71 Department of Defence, Answers to questions on notice, p. 9.

72 Question 1, p. 3.

73 Australian Manufacturing Workers Union, *Submission 21*, p. 8.

74 ASC, *Submission 17*, p. 19.

75 ASC, *Submission 17*, p. 19; DITR, *Submission 38*, p. 15; Engineers Australia, *Submission 24*, p. 23.

building the complex AWDs in-country: it is much less enthusiastic to build the less complex LHDs in-country.

1.100 DITR, among others, suggested that these skills can be developed by posting local designers offshore during the construction phase. This arrangement would need to ensure that access is allowed to the offshore builder's resources.

1.101 An in-country build may not be without its own challenges for TLS. Engineers Australia argued that there is often a challenge in sustaining in-country skills once the ship transitions from the construction phase into naval service.<sup>76</sup>

1.102 Contractual arrangements guaranteeing access to intellectual property (IP) and design rights are important to cost-effective through life support.<sup>77</sup> Gibbs and Cox Australia's submission noted that in-country design of warships will mean that the Commonwealth will have control over the amount of life cycle cost savings. Difficulties can arise with TLS when the IP is not Australian-owned. Most notably, ASC's resolution of a contractual issue with IP owner Kockums was crucial to enable it to secure the Collins class refit contract. Without the IP and the repair and refit contract, 'ASC would not exist'.<sup>78</sup>

### *Summary*

1.103 The committee underlines the following points on the issue of comparative economic costs of TLS.

- There is a lack of data which reflects the difficulty in making a direct comparison.
- ACIL Tasman has estimated that annual TLS costs could be twice as high if foreign supplies had sourced the ANZAC Ship Project. This is due to shorter repair turn around times and lower stocks of spares from local sources of supply. However, the Department of Industry, Tourism and Resources (DITR) has cautioned that local equipment can be used for an overseas build, thereby avoiding the higher costs associated with repairing overseas-built ships in-country. The department argued that the ACIL Tasman TLS estimate must be discounted by the proportion of equipment that could be sent overseas to support an offshore build of the same vessel.
- The committee's evidence is unanimous in the view that building warships in-country will deliver greater TLS savings than an offshore build—Defence added the qualification that TLS savings from an in-country build depends on the complexity of the ship and used the example of the less complex LHDs,

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76 Engineers Australia, *Submission 24*, p. 24.

77 South Australian government, *Submission 9*, p. 21; Gibbs and Cox Australia, *Submission 10*, pp. 5–6.

78 Mr Greg Tunny, *Committee Hansard*, 19 April 2006, p. 9. The contract is worth \$125 million annually for 25 years.

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stating 'there could be relatively few savings in whole-of-life cost from choosing to build locally'.<sup>79</sup>

- The TLS productivity saving from an in-country build derives mainly from developing the skills and knowledge during the construction phase needed for TLS.
- Personnel, however, can be posted offshore to participate in the build in order to develop the in-country skills and knowledge for repair and maintenance.<sup>80</sup>

### *Discussion*

1.104 The committee invites discussion on the following issues:

- the findings of the ACIL Tasman study with regard to TLS and whether they can be usefully applied to current or future projects;
- Defence's statement that 'there could be relatively few savings in whole-of-life cost from choosing to build the LHD locally'—it expected that the greatest savings over the life of the ship will come from full access to and use of ship design and intellectual property across the entire capability;<sup>81</sup>
- the contention that posting personnel overseas during an offshore build is an effective way to develop the skills and knowledge required for TLS; and
- the contention that there is difficulty in sustaining in-country skills once the ship transitions from the construction phase into naval service.

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79 Department of Defence, Answers to questions on notice, p. 2.

80 See also *ASC submission*, p. 19.

81 Department of Defence, Answers to questions on notice, p. 2.

#### **4. The broader economic development and associated benefits accrued from undertaking the construction of large naval vessels**

1.105 Numerous witnesses referred to the studies of the Minehunter and ANZAC projects to demonstrate the broader economic benefits that can accrue from building naval vessels in country. These reports indicated that substantial benefits flow to the broader economy from naval shipbuilding through linkages to other industries, increased employment and improved productivity. The assessed scale of these broader economic benefits depended on the model used.

1.106 For example, Tasman Economics used input-output multiplier analysis to assess the broader impacts of the Minehunter project. When multipliers were applied to the total value (\$1,000 million in 2001 dollars) of the Minehunter contract, Tasman Economics found that over its nine year life the project would:

- contribute \$1,665 million (2001 dollars) to national output;
- contribute \$505 million (2001 dollars) to national value added; and
- generate or sustain around 9,250 full-time equivalent jobs.<sup>82</sup>

1.107 Tasman Economics noted that due to the assumptions used, the results of the multiplier analysis should be considered as the upper limit of the economic benefits of the project.<sup>83</sup>

1.108 Tasman Economics also assessed the Minehunter project's economic benefits using general equilibrium analysis, which takes account of the constraints on the supply of labour, capital and other inputs. This analysis indicated that over nine years the Minehunter project would:

- contribute up to \$887 million to GDP;
- contribute up to \$492 million to consumption; and
- generate or sustain an average of more than 1,800 full-time equivalent jobs each year.<sup>84</sup>

1.109 Similarly, the assessed economic benefits resulting from the ANZAC project depended on the model used. Input-output multiplier analysis of the project, which involved expenditures of \$5,600 million (\$1998–99 dollars) over a period of approximately 15 years, suggested that over this period the project could have:

- generated up to \$10,900 million in national output; and

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82 Tasman Economics, January 2002, *Impact of Major Defence Projects: A case study of the Minehunter Coastal Project*, p. 70.

83 Tasman Economics, January 2002, *Impact of Major Defence Projects: A case study of the Minehunter Coastal Project*, p. 100.

84 Tasman Economics, January 2002, *Impact of Major Defence Projects: A case study of the Minehunter Coastal Project*, p. vii and 75.

- supported up to 57,000 full-time equivalent jobs.<sup>85</sup>

1.110 General equilibrium analysis for the ANZAC project indicated that over 15 years the project could:

- contribute at least \$3,000 million to GDP;
- contribute at least \$2,200 million to consumption; and
- generate around 7,850 full-time equivalent jobs.<sup>86</sup>

1.111 The studies of the Minehunter and ANZAC ships concluded that for both projects the Australian economy would have been worse off if Defence had sourced the new capability requirements 'off the shelf' from an overseas supplier rather than building them in Australia. In the case of the ANZAC ships, this finding included the assumption that importing the frigates could have saved 3.5 per cent of the Australian contract price.<sup>87</sup>

1.112 While many submitters to the inquiry quoted the above studies as evidence of the broader economic benefits of naval shipbuilding, DITR and Defence recommended caution in interpreting analysis of multiplier effects. DITR cautioned that input-output multiplier models are based on an unrealistic model of the economy. Specifically, that 'in a relatively fully employed economy, with scarce skilled labour and price pressure on raw material, input-output multipliers do not provide credible results'.<sup>88</sup> With regard to general equilibrium analysis, DITR observed that the broader economic gains reported are a result of assumed increases in efficiency. Therefore, the reported economic benefits of the projects are realistic only in so far as the assumptions made about productivity gains are realistic.<sup>89</sup> DITR noted that a critique of the methods was not intended to suggest that no broader economic benefits accrue from naval shipbuilding. Rather, 'the size of any such benefits is a matter for judgement that will depend on the particular circumstances of the project, the involved firms and the broader economy'.<sup>90</sup>

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85 Tasman Asia Pacific, February 2000, *Impact of Major Defence Projects: A case study of the ANZAC Ship Project*, p. 44.

86 Tasman Asia Pacific, February 2000, *Impact of Major Defence Projects: A case study of the ANZAC Ship Project*, p. iv.

87 Tasman Economics, January 2002, *Impact of Major Defence Projects: A case study of the Minehunter Coastal Project*, p. 75; Tasman Asia Pacific, February 2000, *Impact of Major Defence Projects: A case study of the ANZAC Ship Project*, p. 46.

88 DITR, *Submission 38*, p. 17.

89 DITR noted that in the study of the ANZAC project, productivity gains reported in a survey of businesses involved with the project were unrealistic, so a more moderate assumed productivity growth figure of 3 per cent was used in the model. For the Minehunter study, the productivity growth figure used reflected business survey results, that is, 2.24 per cent improvement in 35 per cent of project sub contractors' 'non-Defence' work.

90 DITR, *Submission 38*, p. 19.

1.113 Defence quoted advice from Treasury stating that while the construction of major naval ships in Australia may have multiplier effects through the rest of the economy, these effects are difficult to quantify and will depend on the particular circumstances at the time. Treasury's quoted advice also stated that it is possible for second order effects to be negative:

...where labour and capital are displaced from more productive to less productive sectors, lower national income can be expected to result. If there were skill shortages, then in the process of competing for skilled labour, nominal wages would be bid up as these resources were drawn away from other naval projects and/or the oil and gas sector. In these situations, economic activity is simply shifted rather than increased, and not necessarily shifted to its most productive use.<sup>91</sup>

1.114 Treasury's advice also noted that where the need for skilled labour is satisfied by temporary migrants 'any multiplier or second tier order effects may be limited by the extent to which they seek to repatriate their wages to their home country'.<sup>92</sup>

1.115 Ms Denise Ironfield, author of the Minehunter and ANZAC reports, presented the view that while Treasury's advice was theoretically correct, Defence projects tend to be high-technology, high value added projects with a high return to GDP. As firms will move within and across industries to higher yield areas and labour resources will, where possible, move to higher reward work, it is therefore more likely that Defence projects would displace resources from less productive sectors, rather than more productive sectors.<sup>93</sup>

1.116 Defence noted that even calculating the direct economic benefits of naval ship construction is not straightforward. For ships constructed in Australia, the designs will normally be based on overseas designs and most equipment and systems will be sourced from overseas suppliers. Defence suggested that typically around 45 to 64 per cent of total expenditure for a warship project will be put towards work generated in Australia.<sup>94</sup>

1.117 Although no other quantitative studies were brought to the committee's attention, witnesses mentioned many economic benefits that they were confident accrue from construction of naval vessels in Australia. The list is long but includes such benefits as technology development and transfer, improved export opportunities, contributions to research and development, improved quality standards, improved business practices and systems, enhanced industry reputation, entry into global supply chains, better access to intellectual property and enhancements to facilities and infrastructure.

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91 Treasury advice quoted by Defence, Answers to questions on notice, Question 17, p. 44.

92 Treasury advice quoted by Defence, Answers to questions on notice, Question 17, p. 44.

93 *Committee Hansard*, 3 July 2006, pp. 92–94 and 97.

94 Department of Defence, *Submission 20*, p. 27.

1.118 The Minehunter and ANZAC project studies found evidence of some of these benefits. For example, among surveyed businesses involved in the Minehunter project around 25 per cent obtained a technology transfer, one-third improved their export prospects, and around 35 per cent increased their overall productivity.<sup>95</sup> In the ANZAC project one-fifth of surveyed businesses obtained new technology and over 20 per cent improved their ability to export through involvement in the project.<sup>96</sup>

1.119 Defence agreed that all of the benefits put forward by witnesses can accrue to some extent from Australian naval shipbuilding. However, these broader benefits are not generally considered when assessing tenders. Defence explained:

Some of the less tangible benefits, such as technology transfer and access to intellectual property, are achieved through the activities proposed for Australian industry and form part of the evaluation of these activities. Others, such as potential spin-offs to industry at large and wider benefits to the economy, such as increased employment, may be recognised but play little or no part in the numerical evaluation. Such benefits will be noted in advice to Government.<sup>97</sup>

1.120 Defence noted that it has not conducted any forward analysis of the economic multiplier effects that may arise from the AWD or LHD projects.

### **Summary**

1.121 Numerous witnesses identified economic benefits that they consider accrue from naval shipbuilding. The committee's research identified two major studies, relating to the ANZAC and Minehunter projects, which sought to quantify the flow of economic benefits from the construction of naval vessels. The extent of the economic benefits identified in these studies depended on the model used. The more conservative figures, resulting from general equilibrium analysis, indicated a contribution to GDP of up to \$887 million for the Minehunter and \$3,000 million for the ANZAC project.

1.122 Defence and DITR recommended caution in interpreting the findings of the above studies. DITR noted that the results are specific to the projects assessed and the assumptions made about the productivity gains produced by those projects. Defence presented Treasury advice which stated that not only are multiplier effects difficult to quantify, but the effects can be negative if resources are displaced from more productive to less productive sectors of the economy.

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95 Tasman Economics, January 2002, *Impact of Major Defence Projects: A case study of the Minehunter Coastal Project*, p. vii.

96 Tasman Asia Pacific, February 2000, *Impact of Major Defence Projects: A case study of the ANZAC Ship Project*, pp. vii and x.

97 Department of Defence, Answers to questions on notice, Question 52, p. 48.

1.123 It should be noted that Defence explained that technology transfer and access to IP form part of the evaluation process but that other benefits:

such as potential spin-offs to industry at large and wider benefits to the economy, such as increased employment, may be recognised but play little or no part in the numerical evaluation. Such benefits will be noted in advice to Government.<sup>98</sup>

### ***Discussion***

1.124 The committee invites comment on the following issues:

- whether any general conclusions can be safely drawn about the broader economic benefits of naval shipbuilding, given that the available quantitative analysis is confined to two specific projects;
- the likelihood that, in reality, negative multiplier effects would arise from a high technology industry such as naval shipbuilding;
- whether and to what extent, wider economic benefits should be taken into account in naval shipbuilding acquisition decisions; and
- who argues or should argue the case for the wider economic benefits that accrue to a local build in advice to government.

### **Strategic considerations**

1.125 The benefits of an in-country build are not confined to financial gains but extend to operational matters and go to the heart of Australia's security concerns.

1.126 As an island nation with vulnerable northern approaches, Australia attaches great importance to its capability to defend its land mass, its people and its maritime approaches.<sup>99</sup> The weight of evidence before the committee supported the view that Australia should have a naval shipbuilding and repair industry; that there is a direct and critical link between maintaining the country's defence capability and having an Australian naval shipbuilding and repair industry.<sup>100</sup> Submitters argued for Australia to be self-sufficient in the maintenance and repair of its naval vessels.

1.127 Some went further. They suggested that, from a strategic point of view, it is critical that Australia's naval ships be constructed in Australia so that the country develops and retains the capability necessary to maintain and repair them.

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98 Department of Defence, Answers to questions on notice, Question 52, p. 48.

99 The South Australian government pointed out that all significant maritime nations maintain a core naval shipbuilding and repair capacity. This applies not only to the major maritime powers but also to medium-size countries, such as Sweden, the Netherlands, Spain, Italy and Canada and, in our region, South Korea, Singapore, Indonesia, Malaysia and New Zealand.

100 See for example, Rear Admiral (Retired) Kevin Scarce, Port Adelaide Maritime Authority, *Committee Hansard*, 19 April 2006, p. 21.



1.128 In 2004, the Minister for Defence, Senator the Hon. Robert Hill, restated the government's preference for self-sufficiency in its procurement policy but conceded that there were practical constraints—that there were limitations on Australian industry to 'cover the field'. Even so, he stressed that Australia 'must be able to support and maintain our equipment and the investment in Australia in systems integration, weapons integration, electronic warfare protection, new generation radar, advanced communications and other critical areas remain very important'.<sup>101</sup>

1.129 The same sentiments were reflected in a recent discussion paper released by the Defence Minister, the Hon. Dr Brendan Nelson, which asserted that 'A capable local defence industry is essential to Australia's national security. Without supply and support from industry, the military capabilities of the ADF are incomplete and unsustainable'.<sup>102</sup> It also recognised the limitations of attaining self-sufficiency noting that Australia would rely on overseas suppliers for some products. In its view, Australia needs to identify within priority capabilities 'a core level of domestic industry capability essential to ensure appropriate sovereignty and national security'.<sup>103</sup> It went on to state that 'These "core" capabilities will be in direct support of ADF operational capability and military self-reliance and are those to which the ADF must have access in Australia if it is to successfully pursue our military objectives'.<sup>104</sup>

1.130 Clearly it is beyond the means of any country to retain absolute control over all aspects of its defence capability. There is, however, no hard and fast rule that delineates the point at which a country should relinquish its control over the design or construction of a major defence acquisition. Such a decision depends on the weight given to security, economic and other national interest considerations.

1.131 The argument for self-sufficiency in a particular defence industry turns largely on an interpretation of what constitutes a strategically important capability. DMO's 2002 strategic plan defined a strategically important industry capability and/or skill-set as one, which, 'if not readily available, would inhibit the performance and execution of ADF capability and operations, and, if denied, may not be able to be obtained within the required operational time-frame'.<sup>105</sup>

1.132 DITR argued that global economics is changing military self-reliance objectives. Based on import replacement policies, the objectives are being driven toward 'a new conception of operational sovereignty as the objective, with economic

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101 Senator The Hon. Robert Hill, 3 February 2004, *Opening address*, Pacific 2004 International Maritime Exposition and Congress, <http://www.defence.gov.au/minister/2004/030204.doc>

102 *Defence Industry Policy Review, 2006 Discussion Paper*, June 2006, p. 5.

103 *Defence Industry Policy Review, 2006 Discussion Paper*, June 2006, p. 9

104 *Defence Industry Policy Review, 2006 Discussion Paper*, June 2006, p. 9.

105 *The Australian Naval Shipbuilding and Repair Sector Strategic Plan*, August 2002, p. 2, footnote 2.

'make or buy' decisions determining the cheapest way to achieve *operational sovereignty*'.<sup>106</sup> The department submitted further: 'Indeed, many would argue that at a strategic level the threat scenario is no longer world wars of attrition, which required long term industrial capacity, but threats which require operational sovereignty (for periods of time at various levels of intensity) and this may sometimes just as well be provided by an imported stock of spares, as a national capacity to repair and maintain'.<sup>107</sup>

### ***Summary***

1.133 Without exception, all witnesses accepted that national security concerns are central to any consideration about whether Australia should have a naval shipbuilding industry. On strategic grounds, the argument for self-sufficiency in maintaining and repairing naval vessels was strong, especially when it came to the ability to respond to urgent operational requirements. Several witnesses went further suggesting that in order to have this capability it was important for the ships to be constructed in Australia.

1.134 The government, however, noted that practical and economic circumstances place limitations on the extent to which Australia can be self-sufficient in the construction of naval vessels. Even with the ship repair industry, the government argued that there could be exceptions.

1.135 It is beyond the means of any country to retain absolute control over all aspects of its defence capability. The committee understands that the argument for self-sufficiency in a particular capability turns largely on an interpretation of what constitutes a strategically important capability. According to DITR, based on import replacement policies, the objectives are being driven toward 'a new conception of operational sovereignty as the objective, with economic 'make or buy' decisions determining the cheapest way to achieve *operational sovereignty*'.<sup>108</sup>

### ***Discussion 1—definition of strategic capability***

1.136 The committee is having difficulty using general concepts about self-sufficiency, core strategic capabilities, value for money and the need for in country construction to arrive at definite conclusions about the connection between national security, defence capability, the requirement for self-sufficiency and cost effectiveness. For example, it is unclear about DITR's statement that global economics is changing military self-reliance objectives and the concept of 'operational sovereignty'.

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106 DITR, *Submission 38*, p. 1.

107 DITR, *Submission 38*, p. 1.

108 DITR, *Submission 38*, p. 1

1.137 It invites comments on:

- whether DMO's definition of a strategically important industry capability is satisfactory or indeed relevant to today's debate about self-sufficiency,<sup>109</sup> and
- the significance, as mentioned by DITR, of the new concept of operational sovereignty as the objective, with economic 'make or buy' decisions determining the cheapest way to achieve operational sovereignty.

1.138 The committee would like some guidance or assistance in identifying the circumstances under which it is appropriate for Australia to relinquish its control over the design or construction of a major naval defence acquisition or component of an acquisition to an overseas supplier. For example, are there principles governing national security and the acquisition of a naval defence capability that should be strictly observed? If so, what are they and how should they be articulated to industry?

1.139 The committee understands that in some cases Australia simply cannot afford or attain the level of skill, knowledge or technological expertise in a particular critical defence capability. It is seeking advice on the steps that should be taken to ensure Australia maintains a level of capability that would not compromise national security.

*Discussion 2—strategic capability and value for money*

1.140 The committee would like to gain a better understanding of:

- the difficulties applying an acquisition policy that places a high priority on retaining self-sufficiency in identified core strategic capabilities, but at the same time emphasises value for money; and
- what the term 'value for money' means in the broader context of naval shipbuilding and national security.

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109 DMO's 2002 strategic plan defined a strategically important industry capability and/or skill-set as one, which, 'if not readily available, would inhibit the performance and execution of ADF capability and operations, and, if denied, may not be able to be obtained within the required operational time-frame'. This definition is given in the main text of this paper.

## **5. The role of Defence in Australia's naval shipbuilding and repair industry**

### **Background**

1.141 As the sole purchaser of naval vessels in Australia, the Australian government has considerable influence on the performance and viability of the domestic industry.

1.142 This section looks at key areas where the government and Defence could assist Australian shipbuilders improve their productivity. It touches on matters such as long-term planning for shipbuilding; managing demand flows; the availability of information about Australia's shipbuilding industry; and the tendering and contract processes, including Defence's in-house capability. Finally, the committee looks at the issue of competition in the NSR sector.

### **Assisting industry improve productivity**

#### *Strategic planning*

1.143 Numerous commentators have referred to the role of government in influencing the domestic productivity of the NSR sector. In the UK and the U.S., observers have been critical of the failure of both governments to provide their industry with a coherent industrial strategy toward the shipbuilding sector.<sup>110</sup> The same criticism has been levelled at the Australian government.

1.144 The government has recognised that 'it has an important role to play in outlining clear long-term directions for the development of the ADF to provide a more predictable and sustainable basis on which industry can plan'.<sup>111</sup> Currently, the public version of the Defence Capability Plan is the primary means by which Defence articulates future naval shipbuilding demand and likely acquisition schedules.<sup>112</sup> It provides a ten year outline on Defence capability requirements. Defence's long term capability requirements and objectives are also set out in the Defence Update and Defence Capability Strategy. Defence also 'uses various industry councils to discuss

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110 See for example, Professor Martin Edmonds, Director, Centre for Defence and International Security Studies, 'UK shipbuilding: a new Direction?', 2001. See also John F. Schank, 'Trends in the United Kingdom's Naval Shipbuilding Industrial Base. Lessons for the United States', Testimony presented before the Senate Armed Services Committee, Subcommittee on Seapower, 6 April 2006.

111 Department of Defence, *Defence 2000: Our Future Defence Force*, Commonwealth of Australia, 2000, p. 98.

112 While the DCP aims to 'provide industry with sufficient guidance to enable broad business planning', submitters pointed to inadequacies in the DCP for planning purposes. For example, Engineers Australia considered that the Defence Capability Plan should attempt to look further ahead than a ten year period. See also Saab Systems Pty Ltd, Committee Hansard, 20 April 2006, p. 12. The committee also notes that DMO produced a naval shipbuilding and repair sector strategic plan in August 2002 but it was not adopted by government.

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on a regular basis long term capability development programmes that are outside the ten year DCP time frame'.<sup>113</sup>

1.145 The South Australian government informed the committee that its analysis of the current industry shows that it is characterised by:

- an overabundance of shipbuilder and repair companies;
- an oversupply of dated, uneconomical and uncompetitive infrastructure;
- a shortage of highly skilled NSR sector workers;
- a lack of coordinated investment in skills development; and
- volatile Navy demand for shipbuilding and repair services.<sup>114</sup>

1.146 It stated further that: 'The reasons for this state of affairs are many, but the most significant contribution can be seen to rest on a lack of strategic direction at the national level for the industry. In its view 'This is the task of government; industry alone cannot set the ground rules for how it must operate'.<sup>115</sup>

1.147 A number of witnesses supported the argument for a national naval shipbuilding plan. Submitters suggested that a national strategy would provide a more coherent approach to naval shipbuilding, facilitate smoother demand, provide clearer guidance on the value placed on Australian industry involvement and ensure most efficient use of investment in infrastructure and skills.<sup>116</sup>

1.148 ADI was one such witness that underscored the need 'to create a single integrated plan that pulls together operational issues, resourcing and industry aspects of shipbuilding and whole-of-life repair and maintenance'.<sup>117</sup> Some witnesses wanted this strategic plan to go further and intervene more directly in the market. For example, Mr Dave Miller, Executive General Manager of the Tenix Marine Division, suggested that there should be a more focused industry policy that addresses questions such as where is the right place to have common user facilities and what is the correct timing of work so that the shipbuilding and the resource sector can coexist as 'happy neighbours in Western Australia'.<sup>118</sup> He argued that if the market is based 'only on competitive tenders, each project may be optimised but the longer-term interest of the nation is in some cases suboptimised'.<sup>119</sup> Along similar lines, other submitters were

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113 Department of Defence, Answers to questions on notice, Question 37, p. 5.

114 *Submission 9*, p. 34.

115 *Submission 9*, p. 34.

116 Tenix, *Committee Hansard*, 20 April 2006. See also *Committee Hansard*, 28 June 2006, p. 2.

117 *Committee Hansard*, 28 June 2006, p. 2.

118 *Committee Hansard*, 27 April 2006, p. 14.

119 *Committee Hansard*, 27 April 2006, p. 14.

also asking for the strategic plan to address competition issues. This matter is taken up later in this section.

1.149 This paper now turns to two specific matters relating to the need for a strategic plan—Australian industry involvement in the naval shipbuilding industry and the flow of demand for naval shipbuilding and repairs.

### ***Policy on Australian industry involvement***

1.150 Defence maintained that it actively encourages local industries to engage in defence projects. According to the January 2001 Australian Industry Involvement (AII) Manual, indigenous industry capability is 'crucial' to meeting the ADF's capability requirements.<sup>120</sup> The Manual identifies the AII Program as 'the key tool for maximising the involvement of Australian industry development in Defence acquisition projects...where this is cost effective'.<sup>121</sup>

1.151 Defence noted that desirable levels of Australian industry involvement can differ from project to project, in response to strategic and other factors. In some projects, industry issues may attract a higher priority in the overall process of tender evaluation.<sup>122</sup> It explained that local industry involvement in its projects is approached through a series of steps which involves Defence:

- identifying the industry capabilities it considers important for strategic, logistical and other reasons;
- specifying industry capability outcomes for new projects, i.e., the outcomes it wants in terms of support services, in the Request for Tender (RFT)<sup>123</sup>; and
- assessing each bid and ranking potential suppliers in terms of the quality of their response to Australian industry and other tender requirements.

1.152 According to Defence, the principal criterion against which the proposals are evaluated is how well tenderers' Australian Industry Capability proposals meet the industry capability outcomes required for the project and specified in the RFT.<sup>124</sup> It

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120 Department of Defence, Industry Operations Branch, Industry Division, *Australian Industry Involvement Manual*, p. 1–1.

[http://www.defence.gov.au/dmo/id/aia/manual\\_inclannexes\\_5Feb00\\_contactsremoved.pdf](http://www.defence.gov.au/dmo/id/aia/manual_inclannexes_5Feb00_contactsremoved.pdf)

121 Department of Defence, Industry Operations Branch, Industry Division, *Australian Industry Involvement Manual*, p. 2–1.

[http://www.defence.gov.au/dmo/id/aia/manual\\_inclannexes\\_5Feb00\\_contactsremoved.pdf](http://www.defence.gov.au/dmo/id/aia/manual_inclannexes_5Feb00_contactsremoved.pdf)

122 There is no uniform level of Australian industry involvement specified for each project. That is, fixed percentages specifying targeted values of Australian industry participation are no longer part of the tender process.

123 These industry capability outcomes may cover specific requirements, such as the ability to modify command and control system software, or they may be more general, such as the ability to undertake deeper maintenance of systems in Australia.

124 Department of Defence, Answers to questions on notice, p. 48.

informed the committee that 'a bidder's failure to satisfy all of the Australian industry involvement outcomes set out in a RFT may disadvantage that bidder relative to its competitors and potentially disqualify the bidder from contention'.<sup>125</sup> Defence, however, stated that it 'retains the right to select a bidder whose approach may not satisfy all Australian industry involvement outcomes set out in the RFT if other aspects of its approach provide offsetting benefits'.<sup>126</sup> Thus, while Australian industry involvement outcomes are considered important by Defence, there may be instances where a preferred bidder is selected without these being satisfied fully'.<sup>127</sup>

1.153 Defence also stated that proposals for local industry involvement are evaluated on the basis of value for money and tenderers are required to show how cost-effective involvement in the project by Australian industry has been maximised.<sup>128</sup> According to Defence, 'This does not always mean that goods and services sourced from local industry must be cheaper than those available from overseas. There may be instances where paying more for a local source of supply yields offsetting strategic or other benefits which mean that value for money has been achieved'. Defence explained:

The percentage or dollar value of Australian content is but one factor. Direct benefits such as capabilities for support and savings resulting from shorter repair times are taken into consideration in evaluation against these criteria. Some of the less tangible benefits, such as technology transfer and access to intellectual property, are achieved through the activities proposed for Australian industry and form part of the evaluation of these activities.<sup>129</sup>

1.154 Critiques of the AII program have suggested that, in order to be transparent and effective, the program needs to be underpinned by clear local capability priorities.

#### *ANAO Audit*

1.155 In an audit of the management of Defence's Australian Industry Involvement (AII) Program in 2003, the ANAO reported 'that Defence had set up a well structured approach to ensure that AII considerations are addressed in procurement phases of capital equipment projects'.<sup>130</sup>

1.156 Defence acknowledged the importance of keeping 'industry abreast of its further requirements so that industry is able to align its planning and development to meet Defence's needs into the future'. However, the ANAO report found that:

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125 Department of Defence, Answers to questions on notice, p. 7.

126 Department of Defence, Answers to questions on notice, pp 47–48.

127 Department of Defence, Answers to questions on notice, p. 7.

128 Department of Defence, Answers to questions on notice, pp 47–48.

129 Department of Defence, Answers to questions on notice, pp 47–48.

130 Australian National Audit Office, 2002–03, *Australian Industry Involvement Program*, para. 7.

The lack of specific guidance as to what defence industry capabilities are required is a significant omission from Defence industry policy and makes it difficult to determine how well the strategic objectives of the Program are being met...The ANAO sees merit in Defence also conducting an early review of its documentation on Defence priorities in Australian industry, with a view to ensuring their currency on critical competencies in Australian industry.<sup>131</sup>

1.157 In addition, the ANAO report could not find evidence:

of a systematic endeavour to gain synergies by linking the AII plans of one capital equipment project with those of any other project...The ANAO considers that identification of critical capabilities in Australian industry would help Defence decide how to best create and sustain those capabilities across projects.<sup>132</sup>

1.158 The committee is aware that Defence announced in 2004 that the AII Program would be replaced with a new Australian Industry Capability (AIC) program. This policy has not been made public. Defence is currently undertaking a broader review of its procurement policy and is grappling with difficult issues such as 'what constitutes a strategically important industrial capability'.<sup>133</sup>

1.159 The June 2006 *Defence Industry Policy Review* Discussion Paper concedes that the AII program is less transparent than what it once was. The Paper mentions that Defence's previous method of listing specified percentage targets for Australian industry content was ineffective in achieving particular industry capabilities. However, it added that specifying targets was transparent, 'and allowed industry to seek the most cost-effective solution to the requirement'.<sup>134</sup>

### **Summary**

1.160 Defence's long term capability requirements and objectives are articulated through the Defence Update, the Defence Capability Strategy and the Defence Capability Plan (DCP). Some witnesses raised concerns about the adequacies of the current documentation that Defence makes available to industry on its future strategic plans and, indeed, on what appears to be weaknesses in the planning process.

1.161 The committee notes that the recent Defence Capability Plan identified on a project-by-project basis the areas of expertise that Australian industry could currently supply.

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131 Australian National Audit Office, 2002–03, *Australian Industry Involvement Program*, para. 8.

132 Australian National Audit Office, 2002–03, *Australian Industry Involvement Program*, para. 9.

133 Refer to *Defence Industry Policy Review 2006: Discussion Paper*, June 2006.

134 *Defence Industry Policy Review* Discussion Paper, June 2006, p. 17.



1.162 There appears to be a lack of certainty in how Defence applies its policy on local involvement in the naval shipbuilding industry. There is no uniform level of AII specified for each project. On the one hand, a 'bidder's failure to satisfy all of the Australian industry involvement outcomes may... potentially disqualify the bidder from contention'. At the same time, Defence 'retains the right to select a bidder whose approach may not satisfy all Australian industry involvement outcomes set out in the RFT if other aspects of its approach provide offsetting benefits'.<sup>135</sup>

1.163 Defence stated that proposals for local industry involvement are evaluated on the basis of value for money and tenderers are required to show how cost-effective involvement in the project by Australian industry has been maximised.<sup>136</sup> According to Defence, 'This does not always mean that goods and services sourced from local industry must be cheaper than those available from overseas. There may be instances where paying more for a local source of supply yields offsetting strategic or other benefits which mean that value for money has been achieved'.<sup>137</sup>

1.164 Some witnesses have suggested that the AII program lacks a clearly articulated strategic approach. In 2003, the ANAO found that:

- the lack of specific guidance as to what defence industry capabilities are required is a significant omission from Defence industry policy and makes it difficult to determine how well the strategic objectives of the Program are being met; and
- there was no evidence of a systematic endeavour to gain synergies by linking the AII plans of one capital equipment project with those of any other project.

1.165 The committee is aware that Defence is currently undertaking a review of Defence's procurement policy.

### *Discussion*

1.166 The committee notes the call for Defence to develop a long term strategic plan for Australia's naval shipbuilding industry. It would like some guidance from industry on the key matters that it believes should be included in such planning and the preferred level of detail.

1.167 The committee also invites views on:

- how Defence can make its priorities clearer and provide a better understanding of its intentions when using vague terms such as 'value for money' and 'sustaining key strategic capabilities'; and

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135 Department of Defence, Answers to questions on notice, p. 7.

136 Department of Defence, Answers to questions on notice, pp 47–48.

137 Department of Defence, Answers to questions on notice, p. 7.

- the project-by-project approach and whether it hinders the development of a coherent and overarching policy designed to use Australian industry to best effect in order to ensure that Australia sustains key strategic capabilities.

1.168 The committee welcomes comment on:

- the effectiveness of the AII Program in the NSR sector;
- the need for greater rigour in assessing the performance of the AII Program;
- whether a Strategic Plan for the NSR sector that identifies core in-country capabilities could give the AII Program more focus; and
- suggestions that Defence should develop key performance indicators for the AII program.

### *Managing demand fluctuations*

1.169 A key component of any strategic plan deals with demand. Many commentators and witnesses pointed to the feast and famine nature of the naval shipbuilding industry and called on government to take measures to help smooth demand.<sup>138</sup> Volatility in demand for naval vessels creates significant costs for the industry, including:

- 'ramp up' costs associated with attracting and training the workforce following periods of low demand;
- the difficulty of retaining highly skilled, efficient teams and the tacit skills and knowledge gained during construction work; and
- costs of underutilised infrastructure.

1.170 The Australian Academy of Technological Sciences and Engineering reflected the views of many witnesses in arguing for 'a consistent long-term base workload':

No industry can survive on a stop/start order book and while exports can fill in gaps, a base load of reasonably predictable local demand can provide the platform on which a competitive export industry can be developed.<sup>139</sup>

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138 For example, Rear Admiral Doolan (retired) stated: if we look out over 50 to 60 years and have a consistent pattern of building warships in Australia and fitting in...the various elements of them in a sensible replacement pattern rather than in an ad hoc knee-jerk reaction, that is the basis on which the naval shipbuilding and naval ship repair industry can plan into the future. We have no disagreement with that point and we support it. *Committee Hansard*, 3 July 2006, p. 63. See for example, Dr Mark Thomson, 'Setting a Course for Australia's Naval Shipbuilding and Repair Industry', a presentation to the Maritime Building, Repair and Maintenance Conference, 26–27 March 2003. Dr Thomson is the Program Director Budget and Management, Australian Strategic Policy Institute.

139 *Submission 19*, p. 2.

1.171 The Academy stated that it had every reason to believe that, should a steady stream of work be available, Australian costs and productivity would match the European, American and Japanese yards who would be the alternative suppliers.<sup>140</sup>

1.172 Discussions about the effects of peaks and troughs in demand were particularly evident in debates about the industry's capacity to deliver both the AWD and LHD projects. Defence's estimate of the total workforce needed to support naval ship construction, upgrade and in-service support shows a peak in demand from 2009 to 2014, reflecting the additional workforce needed for the AWD and Amphibious Ships projects, followed by a marked trough in demand and then a second peak around 2021 to 2025.<sup>141</sup>

1.173 Submitters to the inquiry drew different conclusions about the implications of the peak demand created by the AWD and LHD builds. Defence questioned whether it was feasible to construct both the Amphibious ships and AWDs in Australia, while a number of other submitters, including industry and education sector representatives, were confident in the ability of the industry to meet skills and labour challenges associated with both builds.

1.174 There were also different views as to the sustainability of an expanded workforce base in the longer term. Defence indicated that the ongoing work required to maintain the fleet would be insufficient to sustain a significantly expanded workforce. Others saw opportunities for the workforce to move into commercial shipbuilding or other industry sectors during periods of low naval shipbuilding demand.

1.175 A few submitters suggested a completely revised approach to vessel procurement based on keeping ships for a shorter life and abandoning mid-life refits.<sup>142</sup> Defence pointed to intrinsic problems with these suggestions, including the constraints to on-selling naval ships due to incorporation of licensed systems and the lack of demand for vessels that are not tailored to other countries' specific requirements. However, Defence did note that midlife upgrades may not be required in the future given changing technology, systems and designs and Defence's preference for ongoing, regular upgrades.

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140 *Submission 19*, p. 2.

141 According to these estimates, the naval shipbuilding workforce will need to expand from around 3000 people in 2005 to around 5000 by 2011, a 68 per cent increase. Department of Defence, Answers to questions on notice, p. 11 and Department of Defence, *Submission 20*, p. 12.

142 The increased, regular demand for new ships would help overcome costs associated with cyclical expansion and contraction of the industry. Submitters pointed out that this model would allow the RAN to have a younger, improved capability fleet. They also suggested that the approach would be cost neutral given the abandonment of mid life refits, improved efficiency of the industry resulting from more frequent demand for new ships, possible export opportunities for new ships and the potential recovery of funds from sales of vessels at the end of their shorter life span.

1.176 Overall, Defence did not consider that the naval shipbuilding industry was in a unique position to deal with demand peaks and troughs. Defence argued that it is industry's responsibility to manage cyclical demand:

The cyclical demand of project work is a factor for all industry sectors not just shipbuilding.

Shipbuilding is no more or less cyclic than oil/gas or mining or construction. Those industries have coping strategies to mitigate expected cycles, as must Defence industry.<sup>143</sup>

1.177 Defence asserted that while smoothing demand for naval construction may appear relatively straightforward, naval acquisitions need to be considered in the context of Defence-wide procurement. For example, scheduling of high cost projects such as the AWDs and LHDs is influenced by funding considerations and other major projects, such as the Joint Strike Fighter. Also, Defence said that the capabilities of some acquisitions are dependent on other acquisitions and so cannot be scheduled in isolation. For example, the full capability provided by the amphibious ships is interdependent with other projects such as the Main Battle Tank Replacement.<sup>144</sup>

1.178 Defence was clear that it does not consider naval procurement decisions in terms of broader economic considerations or market influence, but primarily in terms of strategic capability and the ongoing support needs of the fleet.

### ***Summary***

1.179 Australian demand for naval vessels has historically been uneven and significant peaks and troughs are projected for the coming build programs. Numerous submitters called for smoother Defence demand to help alleviate costs and secure the sustainability of the industry base in the longer term.

1.180 Defence considered that it is industry's responsibility to manage cyclical demand. It outlined that scheduling major acquisitions is complex, involving consideration of the budget implications of other major projects and the interdependence of some capabilities with others. Ultimately, the scheduling of naval construction work reflects Defence's capability needs not the perceived needs of the industry.

### ***Discussion***

1.181 As mentioned at paragraph 1.148, the committee notes the call for Defence to develop a long term strategic plan for Australia's naval shipbuilding industry and would like some guidance on what this plan should encompass.

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143 Department of Defence, Answers to questions on notice, Question 4, p. 31.

144 Department of Defence, Answers to questions on notice, Question 31, p. 36.

1.182 The committee invites views on the difficulties cited by Defence in smoothing naval shipbuilding and repair demand flow.

### **Industry—informed provider**

1.183 Compounding the problem of insufficient information on Defence's long term strategic plan for naval shipbuilding, is the absence of meaningful data that would provide industry with an understanding of the factors that shape or influence major acquisition decisions. The most notable areas where little information is available include analysis on the performance of past projects, especially where there have been scheduling or budget problems; government subsidies for local build; and the policies underpinning local industry involvement including the application of those policies.

#### ***Reviews of past projects***

1.184 Mr John O'Callaghan, Head of the Australian Industry Group Defence Council, thought that Defence needs to be 'a bit more mature about putting on the table' some of the lessons from experiences such as the problems with the modernisation of the FFGs and the Collins Class submarine. In his view, such an approach might help industry avoid the sorts of problems that have arisen. He said that he had never seen any public analysis of these problems and called for a 'sensible debate' about failures:

...exposing some of these analyses so that industry can get the benefit of it, and the media, would avoid some of the tabloid sensationalism that we see from time to time.<sup>145</sup>

#### ***Premiums for local builds***

1.185 As mentioned earlier, Defence has awarded local industry a cost premium for past RAN warship projects. It is very difficult, however, to obtain reliable evidence as to whether a premium was paid for past projects and the size of any such premium. Even for well-publicised projects such as the ANZAC Ship Project, the committee cannot confirm the veracity of the 3.5 per cent figure.

1.186 This confusion also surrounds the upcoming LHD bid. Mr O'Callaghan drew the committee's attention to an article in the *Australian Financial Review* on 29 July 2005 which stated estimates that an in-country build of the LHDs 'could be 30 per cent higher than the cost of acquiring them overseas'. Mr O'Callaghan rejected this estimate stating:

It is a number which to the best of my knowledge, no-one in Defence has ever exposed with any analysis. It is a number which has no bearing in terms of our own track record in the Australian defence naval construction

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145 *Committee Hansard*, 28 June 2006, p. 30. Also Engineers Australia suggested that Defence should provide clear guidance on the level of any premium attributable to construction in Australia, versus construction overseas, and particularly for the costs of any new infrastructure and training of personnel. Engineers Australia, *Submission 24*, p. 11.

industry in successfully building the number of platforms I mentioned previously.<sup>146</sup>

1.187 He stated that Australian industry has never had 'the benefit of the sort of modelling or analysis that is being done within Defence and which leads to that outrageous '30 per cent' statement being made...' He added 'It is bunkum, basically. I would love to see the analysis, so let us encourage them.'<sup>147</sup>

1.188 At the moment, Defence's quantification and method for assessing a cost premium for local construction lacks transparency and has given rise to unhelpful speculation. This lack of transparency may have implications for industry which has no clear guidance on the policy and application of premiums and for Defence and its accountability.

### ***Summary***

1.189 The committee notes the absence of meaningful data that would help to inform industry about the factors that shape or influence major acquisition decisions, especially analysis of past projects and premiums offered to Australian companies.

1.190 Commercial-in-confidence concerns may well prevent some information from being available. Even so, regular and frank analysis of the successes and failures of projects and the extent of assistance given to a project (local premium) could assist industry. This knowledge would help to keep industry better informed about the performance of particular projects and also make Defence more accountable for its decisions and the way in which it manages major projects. Indeed, Mr John O'Callaghan, Head of the Australian Industry Group Defence Council, thought that Defence needs to be 'a bit more mature about putting on the table' some of the lessons from experiences such as the problems with the modernisation of the FFGs and the Collins Class submarine. In his view, such an approach might help industry avoid the sorts of problems that have arisen.

### ***Discussion***

1.191 The committee would welcome opinions on the suggestion that, in order to have a well-informed industry and an accountable buyer, Defence publicise information such as analysis of past projects or on the policies governing local premiums. It would be interested to learn of major impediments to implementing such a proposal.

1.192 The need for local premiums and preference for local involvement touches on matters such as the tension that exists between capability and affordability, previously raised in the discussion points at paragraphs 1.119–123.

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146 Mr John O'Callaghan, *Committee Hansard*, 28 June 2006, p. 19.

147 *Committee Hansard*, 28 June 2006, pp. 32–33.

## Defence—an informed and skilled purchaser

### *Informed buyer*

1.193 Given its position as a monopsonist, Defence can also assist industry efficiency by ensuring that it is an 'informed buyer' with the skills and abilities to manage acquisitions effectively. Defence is aware of this role:

...before committing to an acquisition, Defence must independently assure that industry has the capacity to deliver on schedule and within budget the required capability.<sup>148</sup>

1.194 It outlined a number of initiatives it has taken to enhance relevant staff skills and to improve the professional standing of DMO.<sup>149</sup> DMO has been actively recruiting experienced industry personnel to increase the skills available to conduct complex tasks such as assessing tenderers ability to deliver on time, on budget and at the required performance levels. In addition, it has access to significant numbers of scientists and engineers in DSTO to provide specialised technological advice.<sup>150</sup>

1.195 Depending on the complexity of the project, specialist consulting companies are also engaged to analyse information provided by tenderers and independently assess industrial capacity. The companies engaged include BMT, KBR and Appledore. They are specialists in the areas of financial and commercial management, ship building and facilities and cost modelling.<sup>151</sup>

1.196 Not all witnesses were convinced of Defence's ability to operate as an informed buyer. Several witnesses commented on the decrease in Defence's technical and engineering workforce. They expressed concerns about Defence's ability to clearly articulate requirements, ensure that proposed designs meet operational requirements and hold contractors accountable.

1.197 On the other hand, the Submarine Institute of Australia was of the view that the ADF is held in high regard by a large sector of the international defence community and its high standards demand high quality products. The Australian Industry Group Defence Council commented on the team that is being built up in DMO, stating that:

it has a pretty good balance of hard-headed specification type development and it has appropriate experience... It has probably the best legal council team that they have ever put together. They now have industry expertise working actively inside, which they have never had before. So I would give

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148 Department of Defence, *Submission 20*, p. 4.

149 Including introduction of a certification framework for project managers and professional development program for engineers. Department of Defence, Answers to question on notice, Questions 58 and 59, pp 25–27.

150 Department of Defence, Answers to question on notice, Questions 40 and 60, pp 25 and 27.

151 Department of Defence, Answers to question on notice, Question 8, p. 23.

it a big tick at this time. But the verdict is out because, until such time as the air warfare destroyers come through successfully, we will not know how successful it has been—certainly, for the most complex project currently in line.<sup>152</sup>

### *Summary*

1.198 A few submitters questioned whether Defence has the appropriate level of experience and expertise to effectively carry out an acquisition program involving complex naval ships. Defence is aware of the need to have qualified personnel in-house and is taking steps to recruit such staff. It also has access to outside experts to assist it in its acquisition program and processes.

### *Government–industry partnerships in a new high technology era*

1.199 As mentioned earlier, the increased sophistication and integration of systems in modern warships has forced industry to focus on developing partnerships and joint ventures. The complexity of building warships in a high technology era also increases the demands on Defence to act as an informed buyer in the tendering process and, in some cases, to become more directly involved in this process. This more direct form of Defence involvement can take the form of an alliance between the Commonwealth and the main contractors.

1.200 The tender for the AWDs is an example of this cooperative approach. In 2005, Defence tendered for the ships through three separate contracts: one to choose a shipbuilder; another to choose a combat system systems engineer; and a third to select a designer. The Commonwealth selected ASC as the preferred shipbuilder; Raytheon won the contract for the combat system; while U.S. firm Gibbs and Cox and the Spanish company Navantia are competing for the design contract to be announced in mid 2007.

1.201 In December 2005, the Defence Minister, Senator the Hon. Robert Hill, established an AWD Alliance between ASC, Raytheon, the DMO and the Defence Department's Capability Development Group. He stated that the Alliance 'is designed to build strong team relationships between the project's alliance partners'.<sup>153</sup> In August 2006, the Defence Minister, the Hon. Dr Brendan Nelson, opened a Systems Centre in Adelaide where the Alliance partners would work with the two competing ship designers. The Minister noted that the Centre showed the:

importance of taking a long term approach to Defence planning...; the dividend of recent reforms to Defence procurement; and the benefits of having a strong Australian Defence industry.<sup>154</sup>

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152 *Committee Hansard*, 28 June 2006, p. 27.

153 The Hon. Robert Hill, *Media Release*, 'New Alliance Council for Air Warfare Destroyer Program', 8 December 2005.

154 The Hon. Dr Brendan Nelson, 'Key steps towards designing Australia's next generation of destroyers', *Media Release*, 3 August 2006.



1.202 The AWD Alliance approach reflects the complexity of the destroyer project and the need for partnerships to meet the task of integrating high-tech weapons, sensor and communications systems. Defence's close involvement partly reflects its own need to keep up-to-date with this rapidly evolving capability, particularly Raytheon's adaptation of the Defence-mandated Aegis combat system. Moreover, Defence has a strong interest in developing key partnerships, both among the alliance partners and between these companies and potential equipment suppliers. These partnerships, and governments' long-term identification and support for them, will be an important aspect of future warship projects in the new high technology era.

### ***Tendering and contracting***

1.203 As a result of the Defence Procurement Review, a 'Two Pass Government Approval' system for Defence projects has been instituted to ensure that government is provided the opportunity to make better informed decisions regarding the procurement of Defence systems. Furthermore, the Defence department informed the committee that it has 'embarked on a program of continuous improvement to ensure that lessons learned and internal and external stakeholder feedback are considered in the development/review of procurement policy, practices and related tendering and contractual documentation'.<sup>155</sup> It outlined how, in recognition of the need to ensure that its standard contracting procedures and templates reflect commercial 'best practice', it commenced a 'Procurement Improvement Program' in July 2005. Defence maintained that this initiative will benefit both Industry and Defence. It would:

- reduce unnecessary processes and documentation;
- place Defence procurement and contracting on a commercial footing while remaining consistent with Government accountability frameworks; and
- provide increased attention to Defence and defence industry concerns to ensure a full understanding of Defence's capability requirements and full understanding of defence industry offers before entering into a contract.<sup>156</sup>

1.204 In brief, ADI was of the view that there had been a 'demonstrable change and benefit with the establishment of DMO'.<sup>157</sup> The Australian Industry Group Defence Council praised the work being done by DMO to improve its performance.<sup>158</sup>

1.205 A number of other submitters approved of the Kinnaird reforms and DMO's new professional approach.<sup>159</sup> Some welcomed the early engagement with DMO. Mr David Gaul, President of CEA Technologies, noted that the consultative process

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155 Department of Defence, Answers to question on notice, Question 9, p. 4.

156 Department of Defence, Answers to question on notice, Question 9, p. 4.

157 *Committee Hansard*, 28 June 2006, p. 16.

158 *Committee Hansard*, 27 June 2006, p. 27.

159 For example, Raytheon Australia favoured the new approach, *Committee Hansard*, 3 July 2006, p. 6.

prior to letting the contract had helped CEA develop a better relationship with Defence.<sup>160</sup>

1.206 Others referred to the more mature, professional and rigorous approach being taken by DMO.<sup>161</sup>

### *Summary*

1.207 DMO has undertaken steps to improve its tendering and contracting procedures and practices. Industry's response appears to be positive. Even so, this paper has highlighted the growing complexities in managing major naval acquisitions especially with the complicated network of relationships and partnerships involved in the project. The paper has also commented on the absence of meaningful data and information especially on the successes and failures of past projects. This is most notable in the discussion on local premiums. Clearly, Defence must develop and adhere to high standards on probity and accountability in its procurement practices.

### *Discussion*

1.208 The committee would be interested to learn if there are, in industry's view, areas of weaknesses in DMO's NSR tendering and contracting procedures that could be strengthened.

1.209 The committee also invites comment on the probity and accountability aspects of Defences procurement practices and procedures.

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160 *Committee Hansard*, 3 July 2006, p. 34. Dr Stevenson also found that 'by getting with the customer earlier and working with them we can help make sure that we have the right documents that specify the system in going forward... basically there is a lot more interaction between capability in DMO now than there was previously'. *Committee Hansard*, 3 July 2006, p. 8.

161 Mr Ron Fisher, Managing Director of Raytheon Australia, stated 'From a taxpayer perspective, the process they are running today is a good process. What it really is doing is sorting out people who used to hide behind work in the job after they won it. That is the business approach the DMO has now taken.' *Committee Hansard*, 3 July 2006, p. 9. Mr Gaul also supported the viewpoint that the current system is a step in the right direction and that there is more rigour which is healthy.

## Government's intervention in the market place

1.210 The government of South Australia noted that 'few, if any, maritime nations in the world have left development and sustainment of their naval shipbuilding industry 'exclusively to market forces.' The committee notes, however, that Defence said that there are limits to which it 'could or should go in influencing industry structure and performance'. The following section explores the extent to which Defence intervenes in the market place.

### *Competition*

1.211 Noting its position in the market as a monopsonist, Defence stated that it 'remains vitally interested in ensuring that competition within the industry promotes innovation, efficiency and value for money in shipbuilding that flows through to the lifecycle sustainment of maritime capability'.<sup>162</sup> Defence seeks:

a vibrant and competitive Australian maritime industrial capacity able not only to conduct repair and maintenance but also to undertake the upgrades and associated integration of system changes.<sup>163</sup>

1.212 This approach enables Defence 'to maintain or enhance the capability baselines of the Naval ships so that they are fully capable to meet the mission requirements in the context of the evolving threat environment and strategic requirements'.<sup>164</sup>

1.213 It acknowledged that competition offers the advantage of stimulating managerial innovation, the development of new technologies and general cost consciousness among defence contractors. It stated, however, that:

...there are a few instances in which there are inefficient competitions or competition that may produce sub-optimal outcomes for Defence. In these cases, Defence must rely on direct regulation of supplier costs and profits to ensure that companies undertake production in an innovative and efficient manner. Effective regulation is critical to ensuring that the economic benefits generated by companies are passed on to Defence.<sup>165</sup>

1.214 Defence explained that regulation is 'normally used to promote economic efficiency and innovation only when competition is either unavailable or clearly undesirable. It is very much the second best option, but if adequate competition does not exist, it must be used to protect taxpayers' interests'.<sup>166</sup> It noted that regulating defence companies is a complex and costly exercise.

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162 *Submission 20*, p. 2.

163 Answers to questions on notice, Question 46, pp 21–22.

164 Answers to questions on notice, Question 46, pp 21–22.

165 Answers to questions on notice, Question 30, p. 24.

166 Answers to questions on notice, Question 30, p. 24.

1.215 Defence accepted that there are limits to which it could or should go in influencing industry structure, conduct and performance. It stated:

Innovation and efficiency in the production of defence goods and services rests ultimately with companies. Defence's primary role is one of providing companies with adequate information on its needs, specifying clearly its technical requirements and establishing and maintaining contractual relationships which recognize and balance the needs of all parties concerned.<sup>167</sup>

1.216 It should be noted that Defence as the only buyer of naval ships in Australia exerts significant influence on the industry. It accepts that its recommendations to Government decisions on where, when and how to purchase equipment largely determine the structure of Australian defence industry. Indeed, Defence observed:

...that every Defence procurement decision goes some way to influencing the industry structure, and Defence examines the impact of its procurement options and strategies as part of the capability development process.<sup>168</sup>

1.217 It informed the committee that those recommendations are made principally on the basis of strategic considerations rather than any explicit desire to affect market changes.<sup>169</sup> Defence, also stated, however, that it would be concerned if only one capable builder remained because 'inevitably that would lead to inefficiencies and a mandatory need for high level of regulation'. It explained that Defence's intention is to have 'an industry base that has the capability and capacity to provide value for money support to the ADF'. It explained that the way industry is structured 'may affect its ability to provide these outcomes to Defence'. It believed that 'a monopoly supplier could lead to capability degradation'. It said:

If a rationalisation of companies within the industry is required, the commercial realities of the market should ideally dictate the nature and pace of change. However, Defence strongly prefers a competitive marketplace to encourage management innovation in process, systems, and skills development... Industry players are in stronger position than Defence to gauge the range of factors on which decisions to expand or contract their market presence should be made. These include their cost structure, minimum profit requirements, demand outlook, skills base and ability to engage in commercial work pending the emergence of new defence opportunities.<sup>170</sup>

1.218 While Defence has a clear preference for a competitive marketplace, demand for naval ships in Australia is relatively small. Some submitters argued that increasing demand over the longer-term would develop a more competitive framework.

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167 Answers to questions on notice, Question 30, pp. 24–25.

168 Answers to questions on notice, Question 23, p. 36.

169 Answers to questions on notice, Question 21, p. 34.

170 Answers to questions on notice, Question 21, p. 34.

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However, as noted by Defence, naval acquisition decisions occur within wider budgetary considerations. Improving competition through increasing demand is not viable.

1.219 This raises questions about the extent to which government or Defence should intervene in the market place to create a competitive framework. Defence's submission indicated that it considers some forms of intervention appropriate:

Defence will look at its acquisition strategies to ensure that, where appropriate, contracts do not promote non-competitive behaviours. Strategies that Defence will consider include spreading work across Defence industry to prevent a single entity buying contracts to exclude future competition and looking for opportunities where barriers to entry such as the requirement for major infrastructure might be reduced.<sup>171</sup>

### *Summary*

1.220 According to Defence, it wants 'a vibrant and competitive Australian maritime industrial capacity' that enables it 'to maintain or enhance the capability baselines of naval ships so that they are fully capable to meet the mission requirements in the context of the evolving threat environment and strategic requirements'.<sup>172</sup> It also wants value for money and looks to competition to stimulate managerial innovation, drive innovation and the development of new technologies and promote general cost consciousness among defence contractors. A competitive environment acts as a check on excessive monopoly pricing and helps to drive down cost premiums.<sup>173</sup>

1.221 The demand for naval ships in Australia, however, is relatively small and Defence is the only buyer. It faces the challenge of meeting its need to sustain key naval capabilities in country cost effectively but in a market with few suppliers. This raises questions about the extent to which government or Defence should intervene in the market place to create a competitive framework.

### *Discussion*

1.222 The committee invites comment on how Defence best manages a market with only one buyer and few suppliers. For example:

- the usefulness of contract management tools—fixed price contracts, alliance contracting, open book accounting, close monitoring of rates of return, greater use of benchmarking, stricter specification of AII;

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171 *Submission 20*, p. 5.

172 Department of Defence, Answers to questions on notice, pp 21–22.

173 John O'Callaghan, Australian Industry Group Defence Council, *Committee Hansard*, 28 June 2006, p. 23.

- whether Defence should be directly intervening in the market (e.g. awarding particular projects to specific companies with a view to maintaining future competition);
- the extent of sole sourcing in naval shipbuilding contracts and the opportunities for Defence to introduce greater competition in these contracts; and
- the role of competitive teaming.