ASPI
AUSTRALIAN STRATEGIC POLICY INSTITUTE

Setting a Course for Australia's Naval Shipbuilding and Repair Industry

AN ASPI POLICY REPORT

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Cover pic

HMAS Canberra on the hard at Tenix Facility at Jervoise Bay, WA.
Courtesy of Defence Public Relations

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Collins class submarine under construction at ASC facility, Osborne, South Australia.

Director's introduction

Australian naval shipbuilding has a long and chequered history. More than any other area of defence procurement, it has consistently captured the attention of the nation—from the troubled Government shipyards of the 1950s and 1960s through to the Collins submarine project of the 1990s. Naval construction is a challenging, and at times risky, billion dollar business.

Less visible, but even more important, is naval ship repair and maintenance. While Australia can, and has in the past, purchased vessels from overseas, the capability to repair and maintain vessels must be retained in-country.

The Australian naval shipbuilding and repair industry currently presents the Government with a series of interwoven challenges. To begin with, there are concerns that there will be insufficient work to sustain the industry and that consolidation is needed. Yet paradoxically, the planned schedule of shipbuilding also entails a difficult to manage bunching of projects next decade. The Government also finds itself the reluctant owner of the Australian Submarine Corporation. And it would be naive not to observe that shipbuilding is a highly political issue with jobs at stake in almost every state.

If all this were not enough, the Government has announced that the naval shipbuilding and repair industry will be the test bed for their new strategic approach to defence industry policy. Accordingly, Defence has been directed to work with industry and formulate a sector plan now due in September 2002.

The issue is obviously very important. We at ASPI think there is much to be gained by opening the issue up to public debate and this report aims to do just that. This is especially important because any precedents set will have profound repercussions for all of Australian defence industry.

We have sensed that something of a consensus has developed within Defence and the industry on a fairly radical reform model, and our aim has been to subject that model to careful scrutiny. We think it is useful and appropriate for ASPI to take on the role of Devil's advocate in this kind of situation. We hope our friends and colleagues in Defence and in the industry will take our comments in the constructive spirit in which they are offered.

This report is a collaborative effort among the contributors listed on the title page. We at ASPI would like to thank Commodore Peter Dechaineux (Retired), Garry Jones and Dr Stefan Markowski for their invaluable contributions to the paper both as individuals, and as a team. It could not have been written without them.

In addition, a large number of people gave freely of their time and expertise to discuss the issues with our contributors. This included industry executives and academics as well as officials from a number of departments and organisations in their personal capacity. It would be impractical to list them all here but their input has been essential to the project.

The task of drawing it all together has fallen to Dr Mark Thomson, Director of ASPI's Budget and Management Program, and Rear Admiral Simon Harrington (Retired) who have done a superb job of coordinating the project and leading the team of contributors. To them my thanks and congratulations.

With so many contributors and helpers, divergence of views is inevitable, especially given the complexity of the subject. All of our contributors will not necessarily agree with all that is said within these covers. Responsibility for the views expressed here lies with me and with Dr Thomson.

The Australian naval shipbuilding and repair industry has achieved a lot in recent years, and has the potential to contribute even more in the future. But it is important to remember that the industry is there to support Navy and is not an end in itself. This report seeks to help chart a way ahead mindful of this.

Hugh White
Director

Executive summary

Over the past twenty years, having sold off its defence factories, the Federal Government has insisted on arms-length competition for all defence contracts. Then last year the Government announced a new approach. It is looking to reduce competition and instead build long term relationships with major defence suppliers. Soon the Government will decide how to apply this new approach to shipbuilding—the jewel in the defence industry crown.

Our naval shipbuilding and repair industry is critical because it provides the capacities needed to keep our ships at sea in fighting trim. Repair and maintenance is more important for that than building new ships, although high-profile new ship construction gets more attention.

Problems in the dockyards?

Since the mid-1980s there has been a boom in naval shipbuilding, but many industry observers worry that over the next few years falling demand for new ships and excessive competition will make the industry non-viable. They say that Australia cannot expect to sustain the current three major naval ship builders, pointing to trends overseas, where major consolidation has occurred. So they look to the Government to manage a restructuring of the industry, and to make it easier for the remaining companies to prosper.

But how serious are these problems really? Concerns about future workload are hard to understand. All of the major firms will have contracts for warship upgrades over the next few years, and around 2008 the Government plans to start a major burst of new naval construction. Eight or nine big ships are due to be built in less then a decade, including three or more highly complex air-warfare destroyers. In fact the demand will far outstrip current industry capacity, and new facilities would be needed to build such big ships, in such large numbers, so quickly.

The Australian Submarine Corporation (ASC) faces special problems, because there is little chance of orders for more new submarines. But ASC has a solid future workload in repairing and maintaining the six Collins class boats, if Defence can make up its mind what it needs, and can allocate the money to pay for it.

With so much work coming, it is hard to conclude that the Government needs to take special measures to help the industry survive. In particular, it is doubtful that the industry has really suffered much from excessive competition. No major shipbuilder has left the industry, and indeed all appear to have made healthy profits.

The Government does have a special problem to solve with ASC, which it wants to sell, having in 2000 effectively compulsorily acquired from Kockums the 50% it did not own. Before it can be sold the Government will need to resolve uncertainties about the future of submarine repair work, and settle disputes arising from the construction contract and about the ownership of key elements of the Collins design.

A model for reform?

Some Government statements suggest that it would like to address the concerns about the future of the industry by using ASC as a key element in a consolidation of the industry to reduce the number of players. Clearly no decisions have been taken yet, but it seems that if the Government does opt for a major intervention in the industry, it might go for some combination of the following elements:

- Sell ASC to one of the other two big shipbuilders, and encourage them to amalgamate, leaving one major shipbuilder.
- Enter a long-term partnering arrangement with the surviving firm, under which that firm became the prime contractor for all future shipbuilding, with open book accounting and other modern commercial practice being used to try and ensure value for money.
- Encourage this 'tier one' partner to maintain active competition between a range of 'tier two' subcontractors in order to contain costs, and to develop close linkages with overseas defence technology companies.
- Offer the 'tier one' partner a measure of assurance about the future flow of shipbuilding work.

This model would carry a lot of risks. They include:

- With an effective monopoly, the tier one partner could easily become inefficient.

- Without competitive tendering at the prime contractor level it would be hard to benchmark costs and determine value for money.
- Although modern partnering agreements work well between some commercial firms, Defence might lack the commercial skills to protect the Commonwealth's interests in such an agreement.
- The Government might lose flexibility to vary the naval shipbuilding program if it was contractually committed to provide its partner with a flow of work.
- An exclusive arrangement with an international technology partner would limit Australia's defence technology options and negotiating leverage.
- The monopoly tier one partner would be in a very strong position in relation to its subcontractors, many of them small and medium enterprises. There is a clear risk that power would be abused.
- The problems in naval ship repair and maintenance would remain unresolved.

Clearly the Government is aware of these problems, and will take them into account. On balance, we do not believe that the problems in the industry are great enough to warrant the adoption of a reform model that carries these risks.

Five modest reform proposals

Instead we suggest that the government should adopt five proposals for modest but valuable reform for the naval shipbuilding industry:

- Do not force an outcome on the industry as a whole. Let commercial forces decide how many shipbuilders we can support in this country.
- Smooth out the shipbuilding workload later in the decade, so the industry does not face a boom and bust cycle.
- Reform naval repair and maintenance, to better support the ships at sea and the industry.
- Sell ASC to the highest competent bidder, allowing new firms to enter the industry which might be able to bring non-defence work to the corporation.
- Avoid buying Australian-unique systems which seldom offer operational advantages to offset the very high costs and risks they impose.

CHAPTER 1

Why reform naval shipbuilding?

Australia's naval shipbuilding and repair sector is about to become the test-bed for a new approach to the way Government works with Australia's defence industry. To understand the choices that Cabinet now faces about shipbuilding, it is worth glancing at the wider defence industry story over the past couple of decades. It is a story of revolution and reaction.

Twenty years of defence industry policy

Today's defence industry landscape began to take shape in the mid 1980s. At the end of the 1970s the Department of Defence was one of the largest manufacturing enterprises in Australia. It owned and operated major defence-related engineering factories, chemicals plants and dockyards in locations all round the country. These Stalinist enterprises, with their assured government customer and bureaucratic managers, were unresponsive and very expensive.

It became clear that, as public monopolies, these factories and dockyards could not provide the ADF's weapons at anything like competitive prices. So, starting in about 1985, a major and rapid revolution occurred. Almost all of Australia's defence industry capacity was commercialised and eventually sold into private ownership, and the Government sought to move from a monopolistic market to a competitive one, in which a number of firms would tender for contracts. The aim was to drive down prices, improve performance, and make it economic for Australia to build more of its own defence equipment.

The result, in most defence industry sectors, was an arms-length commercial relationship between business and government. This has been an obvious improvement over the previous regime of government ownership, and has delivered some notable successes. But some people have been concerned that it has gone too far.

HMAS Anzac under construction, Tenix facility, Williamstown, Victoria. © Defence Public Relations.

Defence industry leaders have complained that relentless competition carries significant costs to both sides. They say the Commonwealth would do better to mimic elements of commercial practice and build long term partnering relationships or alliances with preferred suppliers. That would engender a less confrontational working environment, and more reliable returns would make it easier for companies to invest in expensive plant and skills. Of course they must also judge that such arrangements would be better for their firms and profits.

Government has also had some concerns. Industrial capacity is increasingly important in delivering Australia's defence capabilities, especially as more support functions are contracted out to industry rather than being performed within Defence or the ADF. The Government has been concerned for some time that the open competitive model of defence industry might not deliver the specific industry capacities needed to support the ADF in peace and war. There have been particular concerns that the industry structures which emerge from competitions to build major platforms and systems might not be well-suited to meet the ADF's long term repair and maintenance needs.

In June 2001 the Defence Minister, Peter Reith, tackled these problems head on in a major speech which outlined new directions in Australia's defence industry policy. He pointed out that the 2000 White Paper, with its $47 billion worth of investment, gave a firm and clear basis for defence industry planning. He identified the industry capabilities that are most needed to support the ADF, and he declared that the Government would take a more active role in ensuring that those capacities were developed and sustained in Australian industry.

In particular, he said that the government would no longer leave the development of industry capacity to the free and unfettered workings of the market through competitive tendering. It would aim instead to develop long term cooperative relationships, especially with the largest companies.

He envisaged that this would be accompanied by significant restructuring in some sectors, with a move to fewer, bigger firms.

Reith's announcement was widely welcomed, and justly so. It directly and forcefully addressed some important issues. But of course the devil is in the details of how Reith's broad statements should be implemented, and what they will mean in practice. As Reith himself said, there would need to be a new approach to transparency and accountability, and a lot of work done to develop industry structures and contracting processes which would ensure that the Commonwealth's objectives were met and taxpayers' interests protected.

The Government has been concerned for some time that the open competitive model of defence industry might not deliver the specific industry capacities needed to support the ADF in peace and war.

The jewel in the crown

The Government has decided to approach this massive task on a sector by sector basis, and it has decided to start with the naval shipbuilding and repair sector. It is a logical—even an inevitable—choice.

First, it's a matter of prestige. Shipbuilding is the jewel in the defence industry crown. Naval vessels are the only major platforms built in Australia, and the firms that build them are the highest-profile and most prestigious element of defence industry. The industry is a considerable source of pride to Australian Governments and people. For well over a decade now the political calendar has been punctuated at least once a year by a major ship launch attended by Prime Ministers and other dignitaries, and plenty of media. It's a telegenic industry, and one that captures the public imagination in a way that other defence sectors like software engineering fail to do.

Second, shipbuilding is the defence industry sector which has most obviously benefited from the reforms of the 1980's. It has probably changed more than any other sector under the impact of privatisation and competition, and it has been the most successful in adapting to the

new environment. Under these reforms, Australian companies owned and led by Australians have been able take the lead in managing huge projects and earning decent profits.

And thirdly, shipbuilding *is* big. The Anzac and Collins projects are among the biggest ever undertaken by Australia, comparable in scale to the Snowy Mountains Scheme. It accounts for the lion's share of defence industry in Australia.

All of this means that shipbuilding is politically salient. Shipyards are large employers and generate work for many smaller companies. They are seen to be economically important in a number of locations around Australia. It is the sector with the most visible, if not the biggest, workforce in defence industry.

Flaws in the jewel

The other side of the coin is that shipbuilding has its share of problems, and many believe that it is in urgent need of overhaul to avoid real problems in the years ahead. We will look into these concerns in more detail in Chapter 3. It is sufficient here to mention three broad sets of issues.

The first is workload. We have three major firms involved in shipbuilding at present, and a number of smaller but still significant industry players. There is a lot of shipbuilding work coming up over the next decade and beyond in the Government's Defence Capability Plan, but there are concerns that there will not be enough to go around.

The second concern is that there is too much competition. It is argued that, among other things, the current level of competition leads to wasteful duplication of industry capabilities and prohibits long term investment in skills and infrastructure.

Third, the Government would like to find a buyer for the Australian Submarine Corporation (ASC), in which it acquired all remaining equity in 2000. A viable ASC is needed both to finish the work still required to bring the Collins class submarines up to the standard the Government is seeking, and to provide through-life repair and maintenance support to the boats in service.

All three problems are seen as connected, and the Government hopes that by applying the policy principles annunciated by Peter Reith in his June 2001 speech, they will find a new industry structure which solves all of them. That is the challenge.

CHAPTER 2

Making sense of naval shipbuilding

What we want

Setting the goal

The Government's primary aim in developing Australia's naval shipbuilding industry should be to maximise the cost effective delivery of naval combat capability. That means just this: ships and their crews ready to go to sea, with systems and weapons ready for combat, and the repair and maintenance capacity to keep them that way. All this needs to be done as cost effectively as possible. Cost-effective is not the same as cheap; it means we need to make complex trade-offs between how much things cost and how well they work to get the optimum outcome. That is not just important as a matter of fiscal rectitude; it is strategically important to Australia that we should squeeze as much capability as possible out of the money we have available for defence. There will never be more money than we need.

Of course dozens of other factors come into play in determining the shape of our naval support industry. But they need to be kept subordinate to this simple and overriding priority. The point is worth making up front because it is easy to lose sight of once we get into the fog of technicalities and sectoral interests.

Refining the objective

Australia cannot and should not aim for self-sufficiency in supporting our naval capability. There is simply no way we could design, build, and equip our own ships without relying on imported systems and technology. The benefits of self-sufficiency would be low, and the costs very high. Strategically it would result in a major reduction in overall capability. So we will import all or most of the design work needed for our major warships, and all or most of the sophisticated weapons and systems that make up a large proportion of the value of our ships.

Aerial view of Garden Island Dockyard, Sydney, New South Wales. © Defence Public Relations.

There is in fact no strong strategic reason to build the Navy's warships here in Australia. It makes sense to do so if the premium is not too high, because there are economic benefits and some advantages in developing the skills for repair and maintenance. But the real strategic priority is to have the ability to repair and maintain our ships, including the ability to keep them in operation during a conflict.

In line with this, the Government's priority areas for industry support to the ADF, listed in the 2000 White Paper and reiterated by Peter Reith in June 2001, do not include shipbuilding, but do include the repair, maintenance and upgrades of major weapons systems and platforms.

Focus on repair and maintenance

There is a high priority to be able to repair, maintain and upgrade vessels in-country because it would be simply impractical to do otherwise. The transit times to foreign maintenance locations would be prohibitive in peacetime and operationally compromising in wartime. It is desirable to have a repair facility close to each naval operating base for practical reasons, and to provide strategic redundancy. We have this now. ADI's ship repair facilities in Sydney, and Forgacs in Newcastle are close to the Fleet Base East, and on the west coast Tenix has ship repair facilities close to Fleet Base West at Cockburn Sound, and ASC is able to use the Tenix ship lift to undertake limited submarine repair work in the west.

Deeper level submarine repair work can be done at ASC's Osborne site near Adelaide. Facilities to dock larger vessels such as replenishment ships and large amphibious vessels only exist on the east coast. In addition to repair and routine maintenance, ships and submarines usually undergo one or more major upgrades during their life.

Over the next five years the number of surface combatants in the RAN will increase from nine to fourteen. That is the largest number of fighting ships

we have had in service at any one time since World War II. That will put new strains on our repair and maintenance capability. Ensuring we get this right should be our highest priority in looking at the future of our naval shipbuilding industry.

There is a high priority to be able to repair, maintain and upgrade vessels in-country.

The perils of parenthood

These pressures are exacerbated by the fact that our three main classes of new ship—the Anzacs, Collins and Huon Minehunters—are to varying extents all unique to Australia. In the days when Navy predominately operated vessels based on British or American designs with minimal modifications, we relied heavily on the 'parent navy' for the technical support needed to keep ships seaworthy and operationally effective. Now we must take on this responsibility ourselves. Navy and industry must ensure standards are maintained and designs are not compromised. All this demands significant expertise and support systems and is much more expensive. The more that Navy insists on Australian unique requirements, the more it will have to accept parent navy responsibilities. And Australian unique requirements also increase the risk and cost of initial acquisition. So one key imperative is to avoid Australian unique solutions unless they are absolutely essential—which they seldom are.

Where we are

The five heavyweights

Table 1 lists Australia's five major naval shipbuilding and repair contractors, and sketches their facilities. The first three companies—ADI Limited, ASC and Tenix—are today's major players in the sector. Forgacs in Newcastle and Brisbane, and NQEA in Cairns are smaller companies with nevertheless important capabilities.

Each of the largest three companies is a prime contractor for a major naval construction project and, between them and Forgacs, they currently undertake the bulk of repair and maintenance work for Navy. In addition, they will all be involved in major vessel upgrade projects this decade. All five companies undertake some commercial ship repair work, but the big three are predominantly defence focused.

HMAS Jervis Bay alongside HMAS Success being refuelled in Dili Harbour. © Defence Public Relations.

Promising lightweights

Beyond these five companies there is a relatively vigorous group of smaller firms in the new, export-oriented lightweight shipbuilding sector. They build fast ferries, luxury yachts and other small, technology-intensive vessels. In 2000 this sector led the world, holding 40% of the world market for fast ferries in terms of vessels sold, and 27% of the tonnage. Its success was based on innovative designs and a willingness to accept risks. Unfortunately, some of these competitive advantages have recently been eroded with the emergence of overseas producers and a reduction in demand.

The commercial success in these niche areas has so far had little carry-over to major naval shipbuilding. But there is potential: the civil light shipbuilding sector provides a resource of innovative engineering expertise with potential military applications. At present, the United States military is leasing two Australian designed and built fast catamarans for trial purposes. This follows the successful employment of the fast catamaran *Jervis Bay* in the East Timor operation.

In addition, the civil light shipbuilding sector is very capable of building a range of smaller naval vessels. The recent shortlisting of Defence Maritime Services, partnering with Austal, for the replacement patrol boat project is a good example.

Essential subcontractors

Aside from the major companies, there are hundreds of smaller Australian firms that contribute to naval shipbuilding and repair. For example, Tenix has identified over 600 Australian firms that contributed to the Anzac Ship Project as subcontractors or in some other way. Of these 90% are small to medium enterprises with less than 200 employees. Such firms provide a wide range of skills, some of which are critical, and a few are unique to

Australia. Several of the companies are dedicated defence suppliers, some are subsidiaries of defence multinationals.

While the Government's plans to restructure defence industry tend to focus on the big players, it is important not to lose sight of these smaller firms that are essential to Australia's capability for in-country support to Navy. They also provide much of the energy and innovation in the sector.

There is in fact no strong strategic reason to build the Navy's warships here in Australia.

Many critical aspects of naval support require skills and expertise that extend far beyond those traditionally identified with shipyards. For example, most upgrades are concerned more with communication, sensor and weapon systems technologies, rather than heavy engineering. Overall, systems integration and software engineering are of increasing importance both from a cost and risk perspective. Although these high technology areas are integral to shipbuilding and repair, they are not confined to the naval domain. In fact they are common across many Australian Defence Force platforms with an increasing overlap with commercial applications.

Shipyards and facilities

With the adoption of two-ocean basing for the RAN in the 1980's, two principal clusters of repair facilities have evolved, one at Cockburn Sound in Western Australia and the other in Sydney and Newcastle on the east coast. These facilities cater for Navy's larger vessels, while the smaller vessels are maintained in their home ports in Darwin and Cairns. Other facilities include Tenix's Williamstown Victoria site where the Anzac class are being built, and ASC's submarine construction facility in Osborne, South Australia.

Foreign help

With few exceptions, the sensors and precision guided weapons essential to modern maritime warfare are only available from foreign sources. Most aspects of ship design and much of the equipment fitted in any naval ship will also need to be imported. For this reason, Defence and Australian industry need access to overseas equipment and expertise. Original equipment manufacturers will be involved in the construction, maintenance and upgrade of warships. That is why it is important to have branch offices and subsidiaries of international defence firms in Australia, as an integral part of our defence industry base.

Table 1

Major naval shipbuilding and repair contractors and facilities

COMPANY	FACILITIES
Australian Submarine Corporation: is the prime contractor for the six Collins class submarines, built at Osborne, South Australia. With the construction program virtually complete, ASC will transition from a builder to maintainer and repairer. Routine maintenance work will be undertaken in Western Australia while major refits and upgrades are planned for Osborne.	**Osborne South Australia:** 5000 tonne shiplift, length 80 metres, width 20 metres. Significant facility development required for participation in major surface ship module construction or ship assembly. Adjacent land is available for significant expansion.
Tenix: (formerly Transfield Defence Systems [Victoria] and Transfield Shipbuilding WA), which built the last two FFGs and Pacific class patrol boats and is presently the prime contractor for the Anzac Frigate Project. The frigates are built at its Williamstown yard in Victoria. Also, some paramilitary and commercial vessels are built at Henderson, Western Australia.	**Victoria:** Two 6000 tonne building slipways. Graving dock effective length 145 metres. Could construct large ship modules, but major infrastructure changes would be necessary for consolidation of large ships. **Western Australia:** 8000 tonne shiplift, length 123 metres, width 23 metres. Existing hardstand berths suitable for surface ship and submarine repair. Additional berths necessary for ship assembly. Could construct large ship modules. The new industrial facility being developed nearby may provide ship construction capability, eg. module construction.
ADI: (a 50–50 joint venture between Transfield and Thales) is the prime contractor for the six Huon class minehunters which it is building at its Newcastle (New South Wales) facility. It is also builder of other minor naval and commercial vessels. ADI also operates the major naval repair facility at Garden Island in Sydney (New South Wales) under lease from the Commonwealth. ADI is also a major maintainer/repairer of commercial vessels.	**Newcastle:** Not suitable for large ship assembly. Could construct ship modules. **Sydney:** Key capabilities relate to repair sector. Could construct large ship modules. Technically, Captain Cook Dock could be used to assemble modules but this would disrupt repair and maintenance dockings.
Forgacs: substantially modified *Manoora* and *Kanimbla* at its Newcastle (New South Wales) facility. Also provides ship repair for the commercial coastal fleet and has undertaken some limited work on warships and large auxiliaries.	**Newcastle:** Major facility is 15 000 tonne capacity floating dock. Length 180 metres, width 33 metres. Associated facilities in Newcastle area would allow construction of large ship modules. **Cairncross (Brisbane):** Large 85 000 tonne capacity drydock and associated ship repair facilities. This facility is not appropriate for ship construction.
NQEA: (Queensland) built Fremantle class patrol boats and hydrographic ships. Also builder of commercial vessels including fast ferries.	**Cairns:** Facilities geared to small- to medium-sized ships. Significant facility development necessary to construct large ship modules.

How the industry works

It would be a mistake to think of naval shipbuilding and repair as a homogeneous industry. Construction of an Air Warfare Destroyer is a very different task from routine maintenance of a patrol boat, or upgrade of a submarine. Naval vessels can be roughly divided into four categories: major surface combatants; submarines; large support vessels, including afloat support and amphibious vessels; and minor vessels, like patrol boats and hydrographic ships. Of these by far the most complex are those with highly-integrated combat systems—the major surface combatants, submarines and minehunters.

Ships are often no longer built in one yard. The industry is trending strongly towards ship assembly, where hull modules built in a number of geographically separated locations are brought together and consolidated in the assembly yard. Systems and equipment installed in the hull are largely pre-tested and installed by the manufacturers rather than by the shipbuilders themselves.

Ship maintenance is a less orderly process. By its nature it is unpredictable. Tasks will frequently escalate by 30% or more as new problems emerge once repair work has begun. More flexibility is required in the facilities and workforce to cope with the unexpected. A higher level of diagnostic and system expertise is required. As well, a deep-level repair facility must have access to slipping, docking or ship lift facilities.

Major ship upgrades fall somewhere between the new ship construction and repair work and usually require the skills of both building and repair.

How we got here

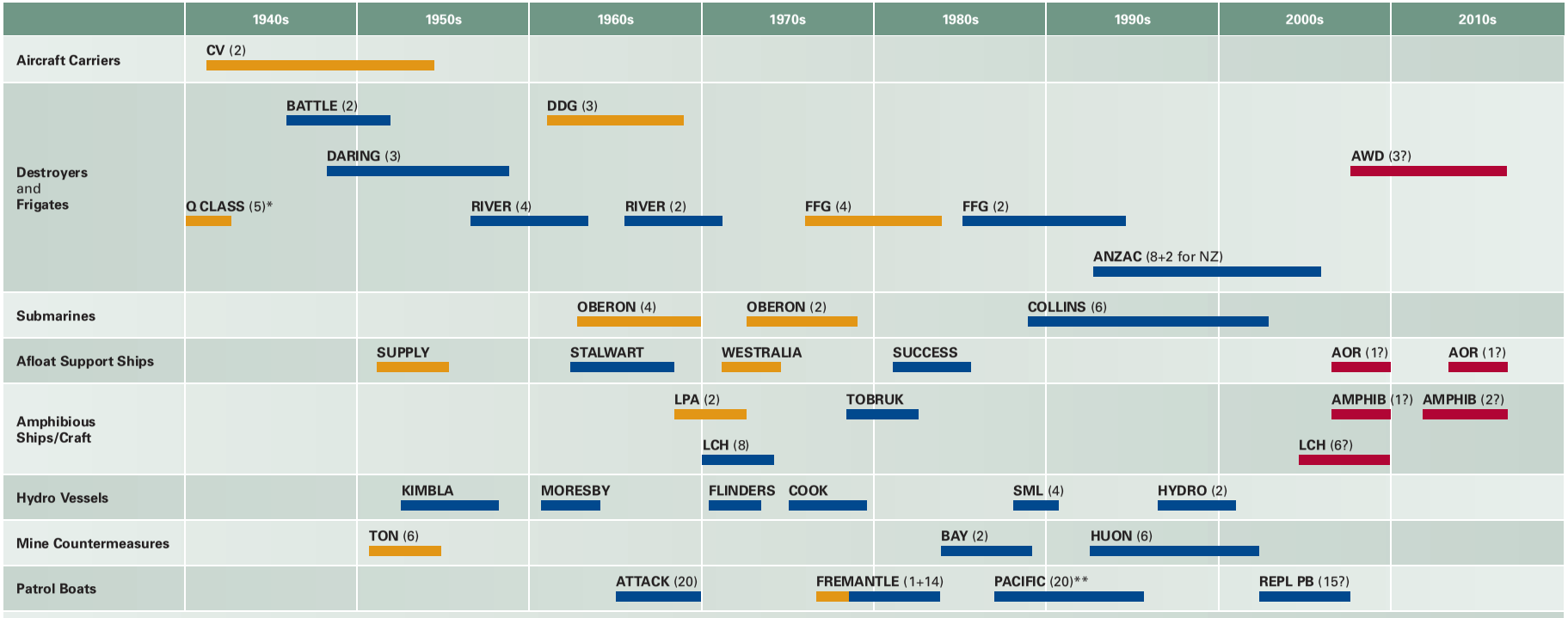
Boom and bust

Demand for new warships for the RAN has been fairly constant over the past fifty years, but naval shipbuilding in Australia has had a chequered career. See Figure 1. Since World War II there have been two booms in warship building, separated by a long drought. In the 1950s and 1960s a total of nine destroyers in two classes—the Daring and River classes—were built in the government-owned Williamstown and Cockatoo Island dockyards. The results were mediocre to put it mildly. The Daring class ships were delivered years late, and cost twice as much as the same class of ships built in Britain. The River Class suffered three-fold cost escalation during the project.

Governments seem to have learned their lesson from these painful experiences. The Navy's next two classes of warships—three guided missile destroyers (DDG) in the 1960s and four guided missile frigates (FFG) in the late 1970s—were bought from and built in the United States. Our six Oberon-class submarines were built in the United Kingdom in the 1960s and 1970s. In between the DDGs and FFGs, during the early 1970's, there

Figure 1

Defence ship construction since World War II



Note: Periods shown are from keel laying up to delivery to the Commonwealth. Timing of future build program is based on Defence Capability Plan 2001–2010.
* Q Class destroyers were built in the UK and 4 were converted to frigates in Australia in the 50s. ** Pacific patrol boats were built for Pacific Island Nations.

Source: Based on 'The Australian and New Zealand Ship Construction and Repair Industry' Defence Industry Committee, May 1995, Fig 12.1

was an unsuccessful attempt to design and build a light destroyer in Australia. It was abandoned in the planning stage because Defence proved unable to settle on specifications, which kept on expanding, and because costs estimates escalated alarmingly.

During this long drought in surface combatant building, four other fairly large ships were built in Australia for the RAN. They were the amphibious ship *Tobruk*, the afloat support ship *Success*, and two survey and oceanographic ships. And a number of smaller ships, including patrol boats and landing craft, were produced here. All these projects had their share of problems, but delivered the capabilities sought.

The civil light shipbuilding sector provides a resource of innovative engineering expertise with potential military applications.

At the same time, the Navy's fleet was being successfully repaired and maintained in Australia, and comprehensive upgrade programs for the Oberon class submarines and DDGs were achieved. After a fifteen year gap, the construction of warships in Australia began again in 1984, when the Government ordered two more FFGs to be built in Williamstown Naval Dockyard in Melbourne. Despite a lot of help from the FFGs' American parent yard in Seattle, the project quickly ran into trouble.

Beazley's legacy

At this point Kim Beazley, as Defence Minister in the Hawke Government, began the revolution in defence industry described in the previous chapter. It started in the shipbuilding industry. Beazley was deeply committed to building warships in Australia, in part because he felt that by doing so he could build support for a strong and self-reliant defence posture among Labor's traditional constituency. But he also recognised that this would be financially irresponsible and politically risky as long as the yards remained so inefficient and strife-prone. He believed the Government could take advantage of three major new shipbuilding projects to reform the industry.

The first decision was to build Navy's new submarines in Australia. And it was determined from the outset that they could not be built in any of the Government's yards. Instead an open competition was announced for

commercial companies to build the boats, and it was expected that they would do so at a greenfield site. This was the first time submarines had been built in Australia.

The second step was to sell the Government's main shipbuilding yard at Williamstown, and with it the contract to complete the two FFGs that had been ordered in 1984. The buyer (Amecon, since transformed into Tenix) then became the successful tenderer—after a stiff competition against other commercial bidders—to build the Anzac ships. A contract for ten Anzacs was signed in 1989.

Then in 1994, the commercialised (but not then privatised) ADI was awarded the contract to build six technically complex Huon class minehunters at a new site in Newcastle. ADI has now also been awarded a major upgrade contract for the FFGs, and has been privatised through sale to an Australian–French consortium.

These decisions produced the industry structure we have today, with three major shipbuilding companies. Each has one major shipbuilding contract. All of these contracts, and a number of smaller ones, were awarded after an open tendering process which effectively allowed any competent company to bid for the work. Substantial smaller contracts, such as the overhaul and upgrade of the amphibious transport ships (LPA) *Manoora* and *Kanimbla*, were let to companies outside the three ship builders.

Assessing the record

Although there have been plenty of problems along the way, overall this program to revitalise the naval shipbuilding industry in Australia must be judged a major success. The most obvious problem area, of course, has been the Collins class submarine project. The Collins project has had serious problems meeting the very ambitious specifications for both the platform and the combat system. Submarines are inherently very complex, and the problems we have experienced are not unusual in similar projects elsewhere in the world, even in the US. There are important lessons to be learned, especially about how Defence specifies what it needs, about how such projects are managed, and about how problems in projects are identified and rectified. But even now, with substantial funds committed to a new combat system, the total cost increase for the Collins can hardly be compared with the cost blow-outs of the Daring and River Class projects of the 1950s and 1960s. And there is no reason to assume that the project would not have faced similar problems if we had contracted to build the same submarines overseas.

The Anzac and Huon projects have been notable successes by any standards. The Anzacs are a fairly simple class of surface combatant, but the project did involve substantial adaptations of the German-originated

Although there have been plenty of problems along the way, overall this program to revitalise the naval shipbuilding industry in Australia must be judged a major success.

design, and the integration of a diverse suite of weapons and sensors. There has been some schedule slippage, but the ships have been delivered on price, and they meet the specifications.

The Huon is a complex project, involving advanced Italian-designed composite material hulls, and a very advanced sensor suite which has not been fitted to this hull before. The project is on schedule, within budget, and has all critical systems above, at, or close to their specifications.

What has it cost?

It is hard to say how much more we have paid to build these ships in Australia compared to the cost of buying them overseas. No definitive figure is available for any of the recent projects, although the consensus appears to be that the ships were built for, at most, a small premium. But even if it were to be only 5% of total projects costs, 5% of $5 billion is a lot of money. There are also offsetting national economic and fiscal benefits from building in Australia rather than buying overseas, and arguably Australian industry benefits from the skills and technologies introduced through these projects. But these benefits are very hard to quantify.

Many people would argue that the proportion of any cost premium for Australian construction which is not offset by these economic and technological dividends is worth paying anyway for the prestige that comes from building one's own warships, although that view might not stand up to stringent strategic analysis.

Aerial view of Tenix facility at Cockburn Sound, Western Australia, showing shiplift, turntable and with Anzac frigate and Collins submarine on hard stand. © Tenix Defence Systems Pty Limited.

CHAPTER
3

Problems

What are the problems?

All of this looks like a victory for the free market. So why is the Government now committed to reform of the shipbuilding sector to reduce the competition which appears to have done so much to improve the industry and deliver results for Navy over the past fifteen years?

Falling workload

The most obvious problem is a shrinking workload for building new naval ships. The shipbuilding boom that started in the mid-1980's has run its course. Each of the three big shipbuilding projects—Collins, Anzac and Huon—is now at an advanced stage, and over the next few years the last of them will be completed. Under the Government's Defence Capability Plan (DCP), no new major shipbuilding projects are due to commence construction until late in this decade—probably about 2007 or 2008. However, ADI has recently been awarded a small contract for landing craft, and both ADI and Tenix are among the three companies shortlisted for the $400 million patrol boat contract.

It has always been recognised that the naval shipbuilding sector would come under pressure once the current major contracts had been completed. One solution was exports. Over the years some efforts have been made to promote exports of Australian-built ships, but apart from the Anzac ships which were built with New Zealand in a collaborative project, no major naval ships have been sold overseas. There seems no reason to expect this to change. We can't compete against heavily-subsidised yards and what might politely be called aggressive marketing by European firms who also have the advantage of owning ship designs.

Nor is there scope for Australia's naval shipbuilders to compete for work building large civil ships. Australia has ceased to build any large ships for civil customers. Until the early 1970's a highly-protected domestic

HMAS Norman being launched at ADI facility, Newcastle, New South Wales. © Defence Public Relations.

shipbuilding industry built bulk carriers, container ships and ferries, but as protection has been cut this part of the industry has disappeared.

Many observers of the shipbuilding industry apparently think that under these circumstances—with Naval orders for new large ships falling, and no ready alternatives in civil or export markets—the present industry structure of three major companies cannot survive. And this seems to be the Government's view: Peter Reith strongly hinted in his June 2001 speech that the Government expects and would welcome a reduction in the numbers of shipbuilding companies over the next few years.

Too much competition

Significantly, naval shipbuilding industry executives and observers have tended to agree with this gloomy prognosis. For a number of years now key players in the industry have been worried about the viability of the industry structure. The main concern has been that there are too many companies in the industry. They have been worried that the Commonwealth has allowed new entrants when there is not enough work to keep the original players busy. This view was expressed for example when the contract to upgrade *Manoora* and *Kanimbla* went to Forgacs in Newcastle, and even when ADI won the Huon minehunter contract.

These outcomes have been the result of the Commonwealth's open competition philosophy, which allowed any competent firm to bid for naval shipbuilding work, and which precluded Defence from putting significant weight on long-term industry development factors in awarding individual tenders. The established industry leaders argue that such unrestricted competition is wasteful. It requires new companies to develop costly skills and facilities that the established companies already have, and which in the longer term none of them may have the workload to sustain. They say the skills and facilities which have been built up at great expense need to be supported by a strong flow of work, otherwise they will be lost.

If work is spread between too many players, then none of them will have sufficient work to sustain their workforce and facilities.

They also argue that producing detailed tenders of the kind required by Defence is wasteful, involving high costs that are inevitably passed on to the Commonwealth. And there is often a suggestion made that allowing new entrants to bid for, and win, highly complex naval work is risky, as they may not have the skills needed to complete it.

These arguments about Australian industry are reinforced by comparisons with developments in defence industries overseas. Since the end of the Cold War there has been a massive consolidation of defence industry in both Europe and the US, in response to the sharp drop in work that followed the end of the Cold War. Governments on both sides of the Atlantic have been active in encouraging this process, especially in Europe where a wave of Europe-wide amalgamations has been seen as necessary to protect traditional defence industries against the relentless pressure from US companies. Australia's industry observers often cite the fact that the US now has only two major naval shipbuilders for surface combatants, and the UK has only one. It is legitimate to ask whether in our circumstances we can afford three or more shipbuilders (albeit with quite separate specialties).

Some care must be taken in extrapolating from overseas experience. The overseas consolidations are, in many cases, centred on designs rather than on shipbuilders. For example, the United Kingdom Type 45 destroyer program is developing a single design through a collaboration of two shipbuilders (one of whom is the prime contractor), with about half of the module construction to be competitively subcontracted to other shipyards in the country.

Australian Submarine Corporation

The naval shipbuilding industry has been anxious for years about too little work and too much competition. The issue that has pushed these problems and the wider future of the shipbuilding industry onto the Government's front burner is ASC.

There is more than a touch of irony in the fact that after decades of effort to transfer all defence production capability to commercial industry, the Government finds itself the owner of ASC. It bought the share held by the Collins submarines' designer when it was being sold to the German submarine builder HDW in 2000. The Government was concerned that HDW would not be committed to fixing the problems in the Collins class boats.

The Government does not want to own a shipyard, and while the process is presently on hold, it is keen to sell ASC as soon as possible to someone it feels it can trust. Clearly the sale will have a big impact on the future shape of the industry. If the Government is prepared to allow a new entrant into the industry it may sell ASC to a company that is not now building naval ships. If it wants to promote consolidation it will have to sell to one of the

It has always been recognised that the naval shipbuilding sector would come under pressure once the current major contracts had been completed.

other two main players. The Government therefore needs to decide what kind of shipbuilding industry it wants before it can decide how to sell.

But that is not the only problem. ASC is not an easy company to sell for other reasons. The first is ASC's own workload. The Government is spending a lot of money to fix problems with the Collins, but it has no plans to build more submarines over the next two decades. Certainly no buyer of ASC could assume that the company will get orders for additional submarines any time soon.

ASC does have a significant future workload in the repair, maintenance and upgrade of the six Collins class boats through their service life. The Government has made clear that it expects all such work, except the routine maintenance performed near the submarines' base in WA, to be undertaken at the ASC facility in Adelaide. But the prevailing view appears to be that ASC is not viable if this is its only work. It is argued that submarine repair maintenance and upgrade work will not provide an adequate return on investment, and that there will not be enough work to maintain the wide range of specialist skills needed.

The financial concern is a little surprising, because at first glance the work of supporting the six submarines would appear to be a pretty big business. An indicative rule of thumb for annual maintenance costs of something of the complexity of a submarine is about 5% of the capital value of an asset. For the six Collins boats that would work out at around $250 million per year. This is larger than the turnover of all but the largest Australian defence companies. And of course the financial viability of the company will depend not just on the cash flow but on the purchase price. If the Government is prepared to sell ASC for a price that makes it a good investment with that cash flow, there seems no reason why the company should not survive.

There are, however, further complications. It seems that Defence has not budgeted for anything like this much money to support the submarines though their life. This reflects a broader pattern in which Defence appears to be facing a substantial shortfall in long term support and logistics funding. In the case of the submarines it is further complicated by Defence's long running inability to reach agreement with ASC about the scope and cost of future submarine repair and maintenance work. Finally, there is a third important issue—to resolve the outstanding contractual and liability issues between ASC and Defence. If these complications can be

fixed by Defence, including working out what it wants and finding the money to pay for it, there seems no reason in principle that ASC should not be financially viable as a submarine maintainer and repairer.

The issue of skill retention within ASC is more complex. ASC will need some highly specialised but often lightly utilised skills, particularly in engineering. Skilled personnel are difficult to retain if adequate interesting work is not available. Ultimately this will be a problem for the company to fix, and the costs entailed will need to be factored into the price of ASC's services. The best outcome of course would be for ASC to find additional, non-submarine, work for these skills, either in other defence projects, or elsewhere.

The established industry leaders argue that such unrestricted competition is wasteful.

But even with these issues addressed there remains one more obstacle to the sale of ASC. Under the original contract for the Collins submarines, Kockums retained much of the intellectual property in the submarine's design. There is now a dispute between the Commonwealth as owners of ASC and HDW/Kockums about who owns which bits of the Collins design. Until it is resolved no potential buyer could know what exactly they would be buying, so no sale can proceed. And in the meantime ASC does not have full access to the legacy design data. The intellectual property issues are further complicated by the introduction of sensitive United States technology onto the vessels and the involvement of the United States firm Electric Boat as a capability partner with ASC.

It will take some time to sort out these problems, but there is a pressing need to ensure ongoing support for the submarines.

How real are these problems?

On closer examination is seems that the problems with ASC have less to do with industry structures or long term adequacy of its workload than with the way Defence manages its submarine repair and maintenance work, and with legal issues involving the company's ownership. What about the other two sets of problems that have been identified in the shipbuilding industry. How real are they?

The next boom

Is it true that demand for new shipbuilding is too low to sustain the present industry structure? While the short-term outlook for new major shipbuilding is poor, there is a lot of upgrade work being contracted over the next few years. At present, ADI is the prime contractor for the FFG upgrade project (~$1400 million), Tenix is involved in a number of projects to upgrade the Anzac ships (~$700 million) and the Defence Capability Plan includes between $1000 million and $1400 million of further work on the Collins class submarine. In addition, all three companies have ongoing repair and maintenance work, and both ADI and Tenix are broadly based defence companies, ADI especially so.

And in the mid-term the outlook for naval shipbuilding is very bright. Thanks to the 2000 White Paper and its accompanying Defence Capability Plan, Navy's future force acquisitions are probably as well defined as they have ever been. From the end of this decade through until the middle of the next the Government has scheduled a major burst of shipbuilding activity, involving a total of at least eight new large ships to be delivered over a period of less than a decade.

Investment in naval projects will exceed $10 billion over the next fifteen years.

As the FFGs begin to pay off early in the next decade, a new class of three or four Air Warfare Destroyers is planned to enter service from 2013. The amphibious ships are planned to be replaced, beginning with *Tobruk* in 2010 and *Manoora* and *Kanimbla* in 2015. And the tanker, *Westralia* is slated for replacement in 2009 followed by the afloat support ship, *Success* in 2015. For the minor war vessels, the key projects over the period will be replacement of the patrol boats over the next few years, followed shortly thereafter by the Landing Craft Heavy (LCH).

In fact, as currently scheduled, the workload for major shipbuilding at the end of this decade will be too much for the present companies to handle with their present facilities. So within a few years our worries about excess capacity may turn around, and we may, in fact, face a shortage of capacity. There will be problems both with the size of ships we are after, and with the number of ships scheduled to be built simultaneously.

On size, all of the eight big ships planned for the next phase of naval shipbuilding are expected to be over 6000 tonnes light displacement. Without significant modification, none of the existing Australian shipbuilding facilities now used for new construction is big enough to assemble and launch the three proposed new ship classes. While the Captain Cook Dock at Garden Island in Sydney is technically large enough, construction there would disrupt repair and maintenance work.

On numbers, there is tight bunching of new large vessel acquisitions beginning around the turn of the decade. To meet the present schedule in

the DCP, two large assembly lines, each with a bigger capacity than any now involved in shipbuilding, would need to operate simultaneously for some years.

In fact the DCP's shipbuilding schedule may well prove impractical for a number of reasons, and later in this paper we will suggest some changes that might be made to make it more manageable. But unless the program is radically scaled back or deferred, there is going to be ample work for at least two major yards for up to ten years from the later part of this decade. So concern about the workload for our shipyards seems misplaced.

Too much competition?

Seen in the light of the robust demand for naval shipbuilding over the next decade or more, the concerns expressed by industry leaders about the future of the industry and the damaging effect of too much competition lose some of their force.

The problem for the industry is not, as often claimed, how to keep viable the current infrastructure and facilities. In fact it seems that not one but two large new assembly lines will have to be established over coming years, either on existing sites or in new locations, if the industry is to meet the demands of the DCP shipbuilding schedule.

Nor does it seem that protecting and preserving the industry's existing capacity needs to take centre stage in our thinking about the future. Surprisingly enough, the experience of the shipbuilding boom of the 1980's and 1990's suggests that new capacity can be developed quite quickly and for only a fraction (2% to 3%) of the total project cost. The submarines and minehunters have both been assembled at greenfield sites, and the vital complex system integration skills, which are common to many defence projects, can be adapted to naval work without enormous cost. The competitive tender process itself allows the costs of building in new facilities with inexperienced workforces to be compared with those of building in established ones. If there really are major cost advantages in using established companies with developed facilities and skill bases, that should be reflected in lower prices. All things being equal the established

Overall then, the concerns about the impact of competition on the viability and efficiency of the shipbuilding industry seem a little overstated.

companies should win the contracts if their costs are lower. So far the industry does not seem to have suffered from the level of competition. All of the main players have made money. None have been forced out of the industry or gone broke. And the risks of placing work in less experienced firms has been managed effectively. There is no reason to attribute the problems of the Collins submarines to this problem: difficulties arose in the work of highly experienced and reputable international companies that were leaders in their fields.

It is true that overseas defence industries have been progressively consolidating in the years since the Cold War ended, but this does not mean that Australia should abandon competition. While other countries might have a reduced number of firms researching, developing, designing, constructing and marketing surface combatants, that does not mean that Australia can only support one company constructing, upgrading and maintaining submarines, combatants and support vessels. The fact that Australia is not going to design vessels and weapon systems from scratch is a key difference.

Overall then, the concerns about the impact of competition on the viability and efficiency of the shipbuilding industry seem a little overstated. This is not to say that there are not important issues for Government to address in thinking about the way it interacts with the industry as its sole customer. Some of the points made by Peter Reith and others are valid, such as concerns about managing the workload to avoid booms and busts. Clearly there is more work to be done in this area. But a significant departure from the policy of open competition that has served well over the past decade or two does not seem necessary.

CHAPTER

4

A model for reform

The Government has been understandably careful not to foreshadow in too much detail just what approach it intends to take to reform the shipbuilding industry. And final proposals will no doubt await advice from Defence, which is apparently not expected until September 2002. But from the principles set out in Reith's speech of June 2001 we can infer the direction of Defence's thinking.

Based on those principles one model for reform might be:

- Sell ASC to one of the other two key industry players, Tenix or ADI.
- Perhaps encourage amalgamation of Tenix's and ADI's shipbuilding and repair operations.
- Enter into a long term partnering arrangement with the resultant entity as the single 'tier one' naval shipbuilding company that would be the designated prime contractor for all future shipbuilding work.
- Seek to develop open-book accounting arrangements with the new tier one partner in an attempt to ensure value for money.
- Encourage the tier one partner to maintain maximum competition between a range of 'tier two' major subcontractors, which could include a number of other shipyards and thereby perhaps forestalling the need for any closures.
- Possibly encourage the tier one partner to build a long-term relationship, perhaps via equity participation, with a major international defence technology company from the United States or Europe, who could provide the high-technology inputs required for naval combat systems. Alternatively, they might require the tier one partner to be able to source equipment from any foreign vendor.
- In return, offer the tier one partner a strong measure of assurance about the future flow of work for the company.

Early morning photograph of HMAS Manoora at Forgacs facility in Newcastle. © Defence Public Relations.

This would be a relatively radical outcome. We are not suggesting this is what the Government actually intends to do. But this model at least has the virtue of putting the issues clearly before us, and provides a template against which to consider the strengths and weaknesses of various options.

Problems with the inferred model

It is easy to see why this would be an attractive scenario for a company that became the tier one partner. How well would it work for the rest of us? There are a number of potential problems with the inferred model which would need to be carefully considered and balanced before it, or anything much like it, was adopted.

The first and most important is the risk that would be taken in reducing the discipline of competition on the Government's major supplier of naval ships. There is a clear danger that without that discipline the Government's tier one partner would become complacent, bureaucratic and inefficient. It would also be in a strong position to pressure the Government for ongoing work. Proponents of the inferred model point out, quite correctly, that a number of mechanisms are available to manage this risk down. They include alliance contracting, open book accounting and competitive subcontracting at the tier two level. But the risk remains, and it is significant, especially if the Commonwealth entered an arrangement that committed it to a long-term relationship with a single company which would be difficult and expensive to break if it went bad. A single tier one company might also be vulnerable to industrial relations problems.

Secondly, such an arrangement could make it very difficult to know whether the Commonwealth was getting value for money or not. Without competitive tendering at the prime contractor level, it would be hard to

benchmark the prices being paid for ships built in Australia. There would be no local comparisons available, and international comparisons would be imprecise at best. It would be easy to drift unwittingly into a situation in which we were paying much more for our ships than we should.

Third, the model presupposes that the shipbuilder will invariably be the prime contractor. However, with the increasing complexity and cost of sensor and weapons systems, it might be better in some instances to have a systems integrator or combat system specialist as prime contractor. It is difficult to see how a one-size-fits-all solution can be made to work.

Fourth, the management of the Commonwealth's end of a long term partnering arrangement would be very demanding and may be beyond the skills of Defence. Supporters of the inferred model point out that partnering relationships have worked well in other industries such as construction, mining and offshore oil and gas. But in those industries the relationships are managed between two highly commercial entities, both of which are operating in very competitive environments. These environments impose strict disciplines on both parties, and put pressure on management on both sides to ensure that the partnership really serves the interest of each of them. No such disciplines would be present in a relationship between Defence and a monopoly supplier, and the skills and incentives needed to impose them would be hard to find in a bureaucratic management culture.

The first and most important is the risk that would be taken in reducing the discipline of competition on the Government's major supplier of naval ships.

Fifth, the inferred model would risk reducing the Government's flexibility in the shipbuilding program if, as part of the deal, the Government needed to commit in advance to providing specific work to the tier one partner. This would be a major problem if, for example, the Government was committed to building the Air Warfare Destroyers at a specified date, and then found that it wanted to slip the project significantly. It might want to do that, for instance, if it decided to buy into an overseas shipbuilding program, or if it needed to re-program major investments to allow funds for an interim fighter lease.

We do not believe the problems in the naval shipbuilding sector are as serious as many others suppose.

Sixth, the establishment of a close relationship with a single international defence technology partner would provide some benefits, but it would also risk costing Australia flexibility, and prevent us choosing the platforms, weapons, sensors and systems best suited to our needs. It would also reduce competition between overseas technology partners and make it harder for us to get good deals on price, technology release and intellectual property issues.

Seventh, the inferred model would place a lot of power in the tier one partner at the expense of the tier two and three subcontractors. The tier one partner would itself be in a monopsonistic position in the industry, and there would be real risks that it would abuse its position at the expense of subcontractors who might then leave the sector. Many of these would be vulnerable small and medium enterprises. Their views would need to be sought.

Eighth, the inferred model appears to restrict the opportunities for new large companies to enter the industry and take on the role of tier one partner. This might be unfortunate. As the Commonwealth's prime contractor, it is vital that a tier one partner has the strength to carry significant risk, so it needs to be a big, financially robust company with the capacity to endure lulls in work. It would also be preferable to have a company with a capacity to diversify markets for shipbuilding skills into other sectors. Both ADI and Tenix are substantial and very capable companies. But many other bigger and more diversified Australian companies would satisfy these criteria as well, or better.

Ninth, the inferred model leaves unclear the future of the small ship construction sector. This sector is in no need of reform; it has a diverse range of competitive and innovative firms with a good record of achievement and clear capacity to deliver Navy's needs for smaller ships. It could be a grave error to deprive these companies of work, and deprive Defence of talented, innovative and efficient suppliers, by assigning small as well as large ship construction to the Commonwealth's tier one partner under the inferred model.

Lastly, the inferred model does not address the strategically more urgent problem of ship repair and maintenance. Any comprehensive plan for the future of Naval shipbuilding needs to do this. The Government is clearly aware of these risks. Obviously, Cabinet will weight the costs and benefits of proposed reforms very seriously.

As we explained in Chapter 3, we do not believe the problems in the naval shipbuilding sector are as serious as many others suppose. We also believe that the reform proposals reflected in the inferred model appear to carry significant risks and problems of their own, as we have outlined in this chapter. On balance we do not believe that the pressures and problems in the sector justify the risks involved in the implementation of a package of reform proposals of the kind embodied in the inferred model.

Aerial view of Australian Marine Complex being developed at Cockburn Sound, Western Australia.

The McIntosh–Prescott View

In 1999 John Prescott and the late Dr Malcolm McIntosh undertook a review of the Collins submarine project for then Defence Minister John Moore. Elements of their work bore on issues relevant to current proposals for shipbuilding reform. Some extracts from their report are provided here. They offer an interesting sidelight on many current issues.

> 'It seems inevitable that there will be a shakeout in shipbuilding capacity in Australia to two, or more likely one, major yard specialising in defence work. Even then, it is likely to depend, to a large extent, on upgrades and repairs and maintenance for its viability.'

> 'It is not for us speculate on which yards, much less which owners, might go and which might survive. We merely note the various views put to us that there are long-term difficulties in sustaining such heavy manufacturing activities … and … we strongly recommend that the Government leave it to the market to sort out.'

> '… if only one yard is ultimately sustainable, it is extremely important that it remain in majority Australian ownership and untied to overseas companies, except for particular projects. While it may be tempting to create the widest possible field of buyers and to encourage overseas investors, we believe that if a monopoly or near monopoly does develop, and it ties Defence to a single overseas source, Defence will pay many times over in subsequent contracts for any increase in purchasing price for the Government's assets.'

> 'The Commonwealth should avoid putting itself on both sides of a contract (as both buyer and seller). If that is not entirely possible, it should put as much commercial distance as possible between the two and make sure each is expert in the field it is expected to cover.'

Source: Report to the Minister for Defence on the Collins class submarine project and related matters. June 1999. Malcolm McIntosh and John Prescott.

CHAPTER 5

Five modest policy proposals

We do not believe that the case has been made for the Government to radically restructuring the naval shipbuilding industry and reduce the role of competition. But there are five clear steps the government can and should take to improve the way Defence works with the sector, and to enhance the way industry supports Navy.

Let commercial forces shape the sector

There is nothing sacred about the current arrangement of three major naval shipbuilders. Left alone, the sector will evolve as commercial forces drive the entry and departure of companies. Those that are innovative and efficient will prosper at the expense of static and poorly run enterprises. This is the mechanism through which the market continuously adapts and drives efficiency. It is best to let these commercial forces decide how many shipbuilders we can support in the country.

The alternative is for the Government to force an outcome on the industry as a whole, but there are serious risks in doing so. The more prescriptive the Government is about the industry structure, the more it will unavoidably take on the risk of making it work. If it is not careful it might end up owning the solution—literally.

If a dominant tier one prime contractor were to emerge then it would still be important to seek competitive offers for new projects.

Smooth the shipbuilding workload

As we argued in Chapter 3, the biggest problem the naval shipbuilding industry may face in the next decade is that, under current plans, it could have more work than it can handle.

HMAS Anzac being launched, Tenix facility, Williamstown, Victoria. © Defence Public Relations.

The project timings in the DCP are determined primarily by the pay-off dates of the vessels presently in service, and by financial programming considerations. This does not necessarily deliver a workable ship acquisition program. There are two problems. First, there is tight bunching of three large ship building projects involving at least eight hulls commencing around the end of the decade. As we have seen, these ships are beyond the capacity of current assembly facilities. It would be better to space the building of these ships so that industry has a steadier workload over the next two decades.

Second, two of the projects have long time gaps. There is a five-year gap between replacement of the first amphibious ship and the replacement of the next two, and a six-year gap between replacement of the tanker and the afloat support ship. In both cases it would seem more sensible to compress each project's timeline and to build a single class of ship consecutively in each instance.

The Government has placed great emphasis on working with industry to smooth out the peaks and troughs of uneven workloads so as to allow a more even flow of contracts. This is a good opportunity to prove its bona fides. Unfortunately such program changes come at a cost. It would be hard for the Government to bring many major shipbuilding projects forward, as investment funds through to the end of the decade are fully committed. So any change would most likely involve delaying projects. This would have significant operational and strategic consequences.

Reform Naval repair and maintenance

The highest strategic priority is to fix problems in the repair and maintenance of Navy's ships. Three steps are critical. First, as much as possible of the work that is conducted in port rather than at sea should be contracted out to industry. In the long term this should both save money

Defence needs to ensure that repair and maintenance is properly funded.

and improve the workload and viability of the ship repair and maintenance industry. Second, Defence needs to ensure that repair and maintenance is properly funded. Recent Defence budget papers have repeatedly asserted that navy repair and maintenance is underfunded, but no provision seems to have been made to fully address the problem. Also, properly funded repair and maintenance would help industry retain skills pending the start of new construction later in the decade. Third, Defence needs to let long-term, properly funded maintenance contracts with industry for all of the fleet.

Sell ASC to the highest competent bidder

The task of selling ASC has perhaps been made to seem more complicated than necessary by the way it has been wrapped up with more ambitious reform proposals. It is probably better to approach the sale of ASC as a discrete job. It is still complicated enough, for the reasons spelled out in Chapter 3. It is also urgent and important, because until ASC's future is resolved, the long-term support for the Collins submarines will remain in limbo.

Three things need to be done before a sale can be finalised. First, Defence needs to work out what the long-term repair and maintenance needs of the submarines are, how much it will cost, and how it is going to be paid for. Second, the intellectual property disputes with HDW/Kockums need to be resolved, so a buyer knows what exactly the Commonwealth has to sell. And the outstanding contractual issues with Defence need to be fixed.

Third, the Government needs to decide what kinds of buyers it will regard as acceptable. We suggest that the Government should encourage offers by

large companies outside the current naval shipbuilding sector. Many of these might have the skills to manage ASC effectively, and would be better placed than companies inside the sector to win non-defence work for ASC. And they might help sharpen up competition within the sector, which would be a good thing.

Unfortunately, the desire to have the very best conceivable equipment for the Australian Defence Force, as opposed to the best available equipment that does the job, routinely takes precedence in Defence planning.

Avoid Australian-unique requirements

The real costs and risks of unique Australian specifications have yet to become fully apparent. Australia has vastly increasing parent navy responsibilities, none more so than for the Collins class submarine.

Irrespective of any plan for the sector, the best ways to reduce risks, contain acquisition and support costs and ensure timely delivery of capability, is to minimise Australian-unique requirements for Navy vessels. Technical, cost and schedule risk can all be reduced by adopting mature designs. This also has the potential advantage of better linking naval support and Australian industry into global supply chains.

Unfortunately, the desire to have the very best conceivable equipment for the Australian Defence Force, as opposed to the best available equipment that does the job, routinely takes precedence in Defence planning.

Contributors

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Simon Harrington recently retired from the RAN as a Rear Admiral. As Support Commander (Navy) he had been responsible for the Navy's ship repair program at a time when the Anzac and Collins Classes were first entering service. He was on the Acceptance Board for the Australian built FFGs. He also served in ships that underwent refits in Melbourne, Sydney and Perth.

Garry Jones is a company director and consultant. From time to time he has been involved in shipbuilding issues as well as broader defence policy matters.

Stefan Markowski is an academic whose prime interest lies in defence economics, management, procurement and logistics. He has published widely on these topics. He was instrumental in establishing an international forum on defence procurement in the Asia Pacific region.

Related Papers

Previous papers on the ship construction and repair industry have contained conclusions and recommendations, many of which are still relevant. This paper does not address all issues in depth and interested readers may wish to look at three documents in particular:

W.J. Rourke, *An Economic Analysis of the Australian Shipbuilding Industry* prepared in 1994 for the Industry Policy and Programs Branch of the Department of Defence.

Defence Industry Committee, *The Australian and New Zealand Ship Construction and Repair Industry*, May 1995.

M.K. McIntosh and J.B. Prescott, *Report to the Minister for Defence on the Collins Class Submarine and Related matters*, June 1999.

Acronyms and abbreviations

ADF	Australian Defence Force
ASC	Australian Submarine Corporation
DCP	Defence Capability Plan
DDG	guided missile destroyer (1950's United States design)
FFG	guided missile frigate (1970's United States design)
HDW	Howaldtswerke-Deutsche Werft GmbH
LCH	Landing Craft Heavy
LPA	Landing Platform Amphibious (amphibious transport ship)
RAN	Royal Australian Navy

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Setting a Course for Australia's Naval Shipbuilding and Repair Industry

Within a few months Cabinet will decide who will build and repair our warships and submarines over the next two decades. A lot is at stake. For the big industry players, there is $10 billion worth of work in new projects, and hundreds of millions more in repair and maintenance work. For the rest of us, there is the cost-effective delivery of Australia's vital naval capability. If Cabinet gets the decision wrong, we could waste billions, or undermine our maritime strategic posture. Or both.

Last year the Government shifted the emphasis of defence industry policy away from open commercial competition towards long-term co-operative relationships with preferred suppliers. Applied to shipbuilding this approach could result in a monopoly, with a single company taking the lead on every project.

Before agreeing to that outcome the Government should:

- Clarify the objective, which is supporting our Naval capability. Defence industry is a means to that end, not an end in itself.
- Focus on ship repair, because it is more important to be able to repair and maintain ships in Australia than to build them here. Start by fixing the under-funding of naval logistics in the Defence budget.
- Resolve the confusion about who owns the intellectual property in our submarines before trying to sell the Australian Submarine Corporation.
- Review the Defence Capability Plan to provide a more realistic ship-replacement schedule.
- Fully examine the consequences of a monopoly, both for Defence as a customer and for small and medium enterprises as suppliers. Assess Defence's capacity to manage the relationship with a sole supplier effectively.
- Provide scope for market forces to help shape the outcome.
- Avoid the unnecessary risks and costs of building unique Australian ships or systems.
- Aim for a flexible structure that will still look smart when, inevitably, naval shipbuilding plans slip and change.