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SENATE

FOREIGN AFFAIRS, DEFENCE AND TRADE REFERENCES COMMITTEE

Reference: Naval shipbuilding in Australia

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SENATE

FOREIGN AFFAIRS, DEFENCE AND TRADE REFERENCES COMMITTEE

Monday, 3 July 2006

Members: Senator Hutchins *(Chair)*, Senator Johnston *(Deputy Chair)*, Senators Mark Bishop, Hogg, Joyce and Stott Despoja

Substitute members: Senator Bartlett for Senator Stott Despoja

Participating members: Senators Abetz, Adams, Bartlett, Bernardi, Boswell, Brandis, Bob Brown, Carol Brown, George Campbell, Carr, Chapman, Colbeck, Conroy, Coonan, Crossin, Eggleston, Chris Evans, Faulkner, Ferguson, Ferris, Fielding, Fierravanti-Wells, Fifield, Forshaw, Hurley, Kirk, Lightfoot, Ludwig, Lundy, Ian Macdonald, Marshall, Mason, McGauran, Milne, Nash, Nettle, Payne, Polley, Robert Ray, Santoro, Siewert, Sterle, Trood, Watson, Webber and Wortley

Senators in attendance: Senators Mark Bishop, Fierravanti-Wells, Hogg, Johnston, Payne and Trood

Terms of reference for the inquiry:

To inquire into and report on:

The scope and opportunity for naval shipbuilding in Australia and in particular:

a. The capacity of the Australian industrial base to construct large Naval vessels over the long term and on a sustainable basis;

b. The comparative economic productivity of the Australian shipbuilding industrial base and associated activity with other shipbuilding nations;

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

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

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STEVENSON, Dr Terrence, Chief Technology Officer, Raytheon Australia **2**

Committee met at 9.06 am

ACTING CHAIR (Senator Hogg)—I declare open this meeting of the Senate Foreign Affairs, Defence and Trade References Committee. Today the committee will conduct its eighth public hearing into Australia's naval shipbuilding industry. The committee is due to report to the Senate on 7 December 2006. The committee's proceedings today will follow the program as circulated.

These are public proceedings, although the committee may agree to a request to have evidence heard in camera or may determine that certain evidence should be heard in camera. I remind all witnesses that in giving evidence to the committee they are protected by parliamentary privilege. It is unlawful for anyone to threaten or disadvantage a witness on account of evidence given to a committee, and such action may be treated by the Senate as a contempt. It is also a contempt to give false or misleading evidence to a committee. If a witness objects to answering a question, the witness should state the ground upon which the objection is taken and the committee will determine whether it will insist on an answer, having regard to the ground which is claimed. If the committee determines to insist on an answer, a witness may request that the answer be given in camera. Such a request may, of course, also be made at any other time.

[9.07 am]

FISHER, Mr Ron, Managing Director, Raytheon Australia

STEVENSON, Dr Terrence, Chief Technology Officer, Raytheon Australia

ACTING CHAIR—Welcome. A copy of today's opening statement is before you. Do you have any questions regarding that document?

Mr Fisher—No.

Dr Stevenson—No.

ACTING CHAIR—The committee has before it submission No. 35 from Raytheon Australia. Do you wish to make any amendments to your submission?

Mr Fisher—No.

ACTING CHAIR—I now invite you to make a brief opening statement and then we will proceed to questions.

Mr Fisher—I would like to thank the committee for the opportunity to appear before it today and to address the questions you may have arising from the Raytheon Australia submission to this inquiry. May I begin by providing you with a brief history of Raytheon in Australia. Raytheon Australia is a wholly owned company of Raytheon, the company, in Boston US and we are the fourth largest defence company in the United States. Our core business in Australia is mission systems integration and mission support. Raytheon has had a presence in Australia since the mid-1950s, and we have been a major supplier of weapons, sensors, command and control systems to the Australian Defence Force. As a result of the government's defence and industry policy statement in 1998, the Raytheon company decided to invest further in Australia and establish a local capability. Since that date, Raytheon Australia has grown to a workforce of over 1,100 people, with operations in all mainland states and territories and an annual turnover for indigenous business—that is, not products out of the US but the stuff we do in Australia—of up to $390 million in 2005.

We are involved in a number of major programs in which we are responsible for systems integration. Examples of these are air warfare destroyers, the Collins class replacement combat systems and simulators for the upgraded FA18. We also provide mission support in the areas of avionics for the Royal Australian Air Force, the Collins class submarine and Tidbinbilla's Deep Space Communications Centre. Finally, we have a geospatial imagery business that provides imagery and other value added products. One of the things that we are very proud of is the fact that the company is staffed entirely by Australians, over three-quarters of which are engineers and technicians.

However, a key to Raytheon's success and growth in Australia has been the ability and the willingness of our parent company to invest and strengthen the capability of Raytheon Australia.

This has been done by the transferring of technology, knowledge, skills and processes. In Australia, we have coined the term 'reach back' to describe this process, which was first demonstrated on the Collins class submarines and is now being used to support the air warfare destroyer program. It also works in reverse, with the parent company benefiting from advances made in Australia. For example, Raytheon Australia is now the company's centre of expertise for integrating combat systems into conventional submarines and has developed an innovative way of interfacing United States-designed combat systems to existing sensors and weapons.

Mission systems integrate a role, which we are very proud of, with Australia as an MSI or mission systems integrator in the maritime aerospace air warfare and surveillance domains. To perform this role, the MSI must possess the domain knowledge to understand the customer's mission and capabilities, as well as having the skills and processes to execute the engineering solution. A further objective of a good mission system integrator is to deliver the final capability on schedule and within budget or, as we like to say in Raytheon, 'Early is on time; on time is late.'

The core competencies of an MSI are as follows, we believe: systems engineering, where supporting disciplines are systems analysis, systems architecture, software engineering, hardware engineering, structural engineering and configuration management; project management; integrated logistics support; and contract management. Each of these core competencies represents a capability that Raytheon Australia has sought to develop.

I would like now, with permission, to move on and address the inquiry's terms of reference. The first one I will address is the capacity of the Australian industrial base to construct large naval vessels over the long term on a sustainable basis. In Raytheon Australia's opinion, there is no question as to the capability of Australian industry to construct large naval vessels. With an ambitious program of naval shipbuilding, the issue is one of industry capacity, the most crucial element of which is the availability of appropriately skilled people. The latter challenge has four dimensions to it: the size and make-up of the existing workforce, the capacity to train new workers, carrying out the required work in a more efficient and effective manner and programming the work in such a way as to reduce the overlap between competing programs.

To meet the current and future obligations that Raytheon Australia has, we have an exchange program with our parent company, we leverage off what we call our gene pool strategy—and I digress slightly; a gene pool strategy is that we are established in all mainland cities and we use that as the hub to go to the universities, the SMEs and the local workforce—and we engage and work with universities. Also as an aside, we run internal courses, send people to the United States to undertake courses with our parent company and encourage our people to learn from external training providers here in Australia and overseas.

To address the second question—the comparative economic productivity of the Australian shipbuilding industrial base and associated activity with other shipbuilding nations—from a systems integration perspective, three years ago Raytheon Australia conducted a benchmarking test against our parent company in the United States. The study showed that we 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.

The third part of the inquiry is the comparative economic costs of maintaining, repairing and refitting large naval vessels throughout their useful lives. I would like to start with an assumption I would make that no one off-the-shelf platform can address the unique strategic circumstances in Australia. To support my assumption, I offer the following observation: a large cost factor in warships today is in electronics—that is, the sensors, the combat management system and weapons—and the ongoing modification, adaptation and enhancement of these systems to meet current and future threats. The cost of making any changes in electronics to offshore supply platforms, if they do not have an established company here, will be expensive due either to work being done in the country of origin or to the cost of setting up an entity and maintaining the entity through the life of the platform. Therefore, I suggest that, for Australia to capitalise on the long-term economic and strategic benefits of this type of work, it must be undertaken by Australian based organisations that are very competitive in both dollars and productivity. It is my belief that this will ensure that we have the knowledge base to meet our national needs going forward and to develop the skills necessary to meet our national strategies.

Regarding the last point of the inquiry—the broader economic development and its associated benefits—Raytheon Australia has not undertaken specific research that could contribute directly to this issue. However, two studies conducted by Tasman Asia Pacific and Tasman Economics into the impacts of the Anzac and minehunter coastal projects respectively have been acknowledged to have provided robust examinations and soundings of the findings. A final conclusion from one of those studies demonstrates that the benefits that accrue to Australia from high-level local industry participation in major projects are just not economic. Participation in the Anzac ship project has improved the capability of Australian companies to contribute to defence. Thank you once again for the opportunity to address the committee. I submit myself and my colleague for your questions.

ACTING CHAIR (Senator Johnston)—Thank you. My apologies for being late—such are the vagaries of leaving Perth at a quarter past 12 this morning. I am sure, Mr Fisher, you are aware of that long trip to your new premises over there. Thank you for your submission also.

Senator MARK BISHOP—I also welcome the gentlemen to the table. Thank you for your submission. It was very interesting. I read it yesterday afternoon coming over. At page 3, starting under the heading ‘Systems integration’ and going on to page 4, you attempt to draw a distinction between the desired outcome of systems integration in terms of all the bits and pieces that go inside a particular platform and your company’s role as mission systems integrator. You say that is your particular purpose or particular mission. I do not quite appreciate the distinction between the systems integration role and your mission as mission systems integrator. You might just explain that a little more carefully so that I have it firmly in my own mind, because you have clearly made much of it.

Dr Stevenson—The mission systems integrator role is a high-level role which starts out working with the customer to document and capture the user needs. You start off with a concept of operation, because you are trying to understand how the users will use the system. Then you work with them to develop a technical specification which you will use as the basis of your ongoing design. So the mission systems integrator involves that whole process, from the start in capturing those requirements through to the actual sell-off and fuelling of the system. Then we roll over into what we call our mission support role. The mission support role will be moving backwards into the mission systems integrator role when there are evolutionary upgrades of

technology and things like that, then back to the support role. The system integrator is embedded within that mission systems integrator role. The mission systems integrator develops the overall architecture. It is like building a house—you would architect the system. At the same time, it looks at its architecture to see how various things can be integrated to that architecture.

So the system integrator is looking as a subordinate task to the MSI, which is also architecting how it integrates all the various components. In the case of, say, a destroyer or large ship, there is integration happening everywhere. When we talk about our mission as MSI, we are saying that the ship is there, it is a structure and it provides what we call hotel services—in other words, it provides power, infrastructure and facilities to support our systems. So we have to work very closely with the shipbuilder to make sure that they dimension the power requirements and the other hotel services so that our systems can work within that platform. One level of integration is to integrate to the shipbuilder in those areas of power and hotel services. The more complex task is when we integrate our system within itself—like the radars, the combat systems, the sonar and the other sensors.

Senator MARK BISHOP—So for an organisation like the Department of Defence to get maximum value out of a company like yours, you have to be necessarily involved in the process right from the beginning?

Mr Fisher—That is correct.

Senator MARK BISHOP—It is simply not acceptable for them to say: 'We want to have a ship of this tonnage. We want to be able to project this type of force. It has to be able to sail this distance. It has to remain at sea for such a length of time. It needs to have such self-protection measures, and it needs to have a series of capabilities to exert force.' It is not sufficient for them to draw up those desired outcomes and some of the technical specs and then tell you or another company to go away and come up with a product?

Dr Stevenson—Historically there have been two models. The old model is where our customer would do all those concepts of operations and technical specifications and then go through DMO and let this to tender for acquisition. That model has probably led to a lot of problems because, basically, if that up-front activity is not done correctly, when you get down to the stages of integration suddenly you see that there are things missing. Basically, you are trying to integrate functionality on how this thing will work, and you realise that back at the early stages of the concept of operations, where we were trying to say how the user would use this system, there is a disconnect. Basically, that is the old model.

The new model is where we work with the customer in getting that knowledge up-front, and we help them engage the users to understand how they will use that system so that there is no gap in the handover stage between acquisition and capability. Basically, it is like this air warfare destroyer at the moment—we are working with our customer in capability, helping to develop those documents that will help us with the design, and it will be a seamless transfer, where we go and actually do the acquisition and the development of those systems.

Senator MARK BISHOP—In that context, the government in the last few years has had an inquiry into the systems, it developed the Kinnaird report and it implemented all of those recommendations, and we now have the sort of two-stage process for approval of major capital

items. Do you have any comment or criticism to make of that two-phase system in the context of this discussion and how you believe it is a better way or a more preferable way for both you and Defence to operate?

Mr Fisher—We believe that the MSI suits the Kinnaird process because, in step 1, you are working with the customer to develop the capabilities, what the cost models are, what the structures are and what the specifications are so that when you go to government you understand what the systems integration work is, the project management work is and the logistics work is. It allows you to do that so, when you come up for the second pass, there is not a swag, as there tends to be with some people. You walk through it with the customer community, and they are comfortable when they go to government and say, 'We believe it will take X months at these dollars,' because they have had good factors. Going back, 'mission systems integrator' is a new term in Australia. Raytheon Australia are systems integrators, program managers, project managers, logistics guys and contract management, and we are bundling all that up under the MSI role to help our customer and the customer community make sure that we do not have failures downstream.

Senator HOGG—Are you really saying to us that it has shifted to the stage now where the system is developed before the platform—the system is developed and then you find the platform that meets the requirements of the total integrated system that you might have? Or is it still the other way around—that you decide on the platform and then try to fit integrated systems into the platform?

Mr Fisher—No, the reverse. The strategic assessment is, 'We need this capability.' You then go into the contracting community and say, 'We want to have this capability.' Companies like ours would then say, 'We would like to be the MSI. We can help you develop the capability through specifications, thought processes and integrated master schedules,' and lay it all out for them. That is the first pass. During that process, just like with the air warfare destroyer, we would be working with the existing design and the evolved design, because they have not decided which platform to use yet. We would be working with the customer community to help make the best decision in a whole-of-government sense.

Senator HOGG—So you may well end up with a dramatically modified platform to meet the system capability that has been defined—

Mr Fisher—Yes, to meet the capability.

Senator HOGG—even though you are using someone else's basic model or mould in terms of the platform. Is that reasonable?

Mr Fisher—Yes, and we understand what the capability is. You go and shop. You go around the world and you shop and you believe that product X meets it. But Australia is unique in our own environment with the things that we need to do. There is the example that one of the committee used—that sonar is different for the southern hemisphere and the northern hemisphere.

Senator MARK BISHOP—Mr Fisher, the chair just asked me a pretty pertinent question, so I will ask it of you. In terms of this discussion on the mission systems integrator, how does that

mission, that purpose and that preferred way of your company working fit with a foreign sourced company that might be awarded the contract to build the hull or the entire framework of the particular ship?

Mr Fisher—My view is that—

Senator MARK BISHOP—You are talking about the AWDs and you can deal with a range of companies in South Australia that have certain contracts so far. What happens with the LHDs, the amphibs, if that job is given to a yard in South Korea, China or somewhere and you still tender for the systems integration role? How do you carry out your purpose efficiently when the job is being done in a foreign shipyard?

Mr Fisher—If they are going to build a turn-key, drive-away thing, like a car, and then deliver it, it is hard and expensive. But part of the process of understanding the LHDs is that they have two platforms. They have already done this side. It is either this one or this one, and they are running a tender for both of them.

Senator MARK BISHOP—In tandem.

Mr Fisher—The caution I would put into it is that you may have to modify those platforms to meet the needs of the Australian Defence Force, which are unique compared to the Spanish or the French model. Therefore, the skill set you have to have in country must be able to do that. If you go back to the Collins class submarine, we all thought that Kockums were going to be with us for life. In fact, they are now owned by the Germans. So one of the things we are very careful of in a national sense, when we source from overseas—which we do—is to make sure there are enough belts and braces in the system that we can modify and enhance that product to meet our needs. To answer your question, you need to influence the capability people so that they bring in Australian industry.

For example, with an AWD, the existing ship for AWD is the F100. We are engaged with Navantia on the F100. We understand what they do because we are going to Australianise certain parts of the F100 as well if we go that way, and we are doing the same with other things. What the customer community has done—and done very smartly in fact—is got at a neutral level, core level, where we do the work one time. So, if the government decides to pick this ship or that ship, we have spent the money and done the work, and we can put in an either/or. In the DMO sense, they have engaged the offshore builder and told the offshore builder, 'You have Australian companies that are going to come and live with you and understand what you are doing, and they have this responsibility.'

Senator MARK BISHOP—In your mind, would that same framework of activity have to apply to the construction of the LHDs, if they were going to go offshore?

Mr Fisher—If they were going to go offshore, you would have to do that.

Dr Stevenson—Yes.

Senator MARK BISHOP—Again at pages 3 and 4 and onto page 5 of your submission, you are somewhat critical of Defence's behaviour in the past. Indeed, halfway down page 5 you say:

The latter model was the predominant approach adopted by Defence in the past and had the distinct disadvantage of a lack of consistency and knowledge in transitioning from capability to acquisition, leading to problems in the acquisition phase. It also limited the flow of industry experience into the planning stages of the project.

That is in the context of repeated cost overruns on a whole range of projects. They are all in the press—Collins, Seasprites, Tigers, refits and now, apparently, the AWACs. Is what you identified and I just read out still a problem with Defence, and is that an issue now going forward in this future contract for the LHDs?

Mr Fisher—I think it really relates to the legacy before the two-pass process. Under that process, the guy in capability would draw up the spec, open the door, pass the book out and close the door. Under General Hurley now, they are actually identifying those guys in capability and they project the goal with the project. The interesting part is that the air warfare destroyer model is actually doing in an alliance sense and LHDs in a contractual sense. However, you will find that they are transitioning those people in capability to both senses. So although there are two different models, the LHD guys who are developing it are going across into the DMO project and having ownership.

Senator MARK BISHOP—But the LHD project will be a fixed price contract, won't it?

Mr Fisher—Yes, everything is a fixed price contract.

Senator MARK BISHOP—Everything is fixed unfortunately.

Mr Fisher—No—I am doing all right.

Senator MARK BISHOP—You have used the word 'legacy'. Do you mean—

Mr Fisher—You mentioned Seasprite—legacy; Collins—legacy.

Senator MARK BISHOP—But in terms of contracts for major platforms which are close to being settled now or are likely to be settled in the foreseeable future, is the issue you have identified in the past as a legacy issue still a current problem, or is it now history?

Mr Fisher—I do not believe so. I have not seen it.

Dr Stevenson—I think at the moment only the JB2072 and AWD have adopted the new model. I do not think other programs have adopted that model yet.

Senator MARK BISHOP—Do you think it is necessary to adopt that model for all programs in the future?

Dr Stevenson—I can offer an opinion. I guess what we are finding is 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. Just reinforcing what Mr Fisher has said, basically there is a lot more interaction between capability in DMO now than there was previously.

Senator MARK BISHOP—Are current problems in terms of continuing contract overruns, for whatever reason and whatever platform, defence problems in terms of lack of skill, systems design and knowledge of all the products sufficient for them to get their specifications right? What is the kernel of the problem?

Mr Fisher—I think the blame is on both sides—industry and DMO. We have had an industry that has been zealous in bidding for work and putting in schedules and costs, and we have had a customer community—again I will go back to legacy, because Dr Gumley is trying to correct it—which has not been as well aware of modern project management. I have made a very general statement because, of course, there are always pockets of very clever people. I would say that, under Dr Gumley, industry is more aware—if your schedule is 12 months, your schedule is 12 months. But the prior practice was that, if they brought it to nine months, they would win the job. Industry is being held more accountable for its overruns than previously. Before that, people used to do a CCP and just change it.

Senator MARK BISHOP—In terms of awarding the contract, in your mind are the contract drafting people, the design people in terms of the systems, and defence's detailed knowledge of what it wants and its ability to communicate the same to suppliers up to scratch? Is that consistent or on par with your experience with the United States and the United Kingdom?

Mr Fisher—I think between the US and the UK it is the same. They do nothing special in that sense. Again, it is pockets with respect to contracting people. One of the benefits of our report on the air warfare destroyer is that you are actually developing it and workshopping the issues. Then DMO outside that has its governance. You are actually with the Commonwealth people, our alliance partners, doing it together. Then there is a safety check by government to make sure that the right answer comes up. So in my personal opinion there needs to be more workshopping on contractual measures now than previously—take it or leave it. The people who got the contract would take it and then fight it forever.

Senator MARK BISHOP—So, in terms of the contract design and the drafting of it, there needs to be improvement in that area?

Mr Fisher—There is always room for improvement on both sides.

Senator MARK BISHOP—Let me ask it this way: have the shortcomings that have been identified in the past in terms of contract design, contract specification and the like been of such an order of magnitude that they need serious attention on the part of defence and then on the part of the supplier community?

Mr Fisher—Speaking for Raytheon Australia, we have not found that.

ACTING CHAIR—Given Raytheon's experience worldwide, and particularly in the United States, is it used to shouldering a very significant burden in terms of the risk of a project? Australian SMEs, contractors and, to some extent, primes, are confronted with a defence department evermore keen to move the risk across the line onto their side of the equation. I take it that Raytheon is pretty used to that from its US experience.

Mr Fisher—Yes.

ACTING CHAIR—How do you perceive that the community is dealing with the tougher line I think the DMO is pushing out there—or is there a tougher line? Let us take one step back.

Mr Fisher—It depends on what sort of eyes you look through. It is like if you were contracting anything—if we were contracting to build a house, we would want to make sure we got the right job and put the right Ts and Cs and look for damages and so forth and so on. If you sign up for a job, you make a decision and it is either yes or no. If I do not like them and I think it is too risky, then I can walk away. 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.

ACTING CHAIR—So if you talk the talk, you have to walk the walk.

Mr Fisher—We did.

Senator MARK BISHOP—There has been a fair bit of press in the last couple of years about some failures of systems developers. Where integration of an existing IT model is concerned, it is often one of not—I am told—understanding enough of what the system can or cannot do, taking the systems proponents' sales spiel too willingly and then being caught by the fact that promises on interface and integration are never as simple as perhaps alleged by the seller of the particular product. Has that been a problem from your observation of Defence in the past—that is, not fully understanding the detail of the risk and assuming that it all can be worked out in the implementation stage? If that has been a problem in the past, does it continue to be a problem with these major electronics we are purchasing all over the place?

Dr Stevenson—Just from a generic point of view, when you are talking about large IT projects, I think a lot of the problems that happen are that the supplier will specify a particular off-the-shelf product. There will be a disconnect. When they bring the integration together, it will be seen that the functionality that it has is not what the users actually wanted in toto. So basically then to change these off-the-shelf products to make them meet the original requirement is very difficult and very costly. Basically, the downside of using COTS is that, if you use it and then through exploration you find it does not have all the functionality that you thought it would have, you either leave it and accept it and go back and change the original user requirements or you tailor it but at very high risk, realising that you can become an orphan. Certainly, if you are buying IT equipment which is large volume, they are not going to change something small as a one-off at any sort of small price at all.

So what I think you see happening in integration—and the same sort of principle extends to Defence systems—if we with our customer specify a particular radar and then in the integration phase find that the radar does not have the extent of functionality we thought it would have, we have an issue where I have to go back and change the original definition of the problem we are trying to solve or change that product. If it is a one-off again, it is very expensive to do that.

Senator MARK BISHOP—Necessarily that process is part of a learning curve that companies go through and industries go through and presumably the people in Defence have had to go through. It has been identified as a significant problem with a range of platforms which we are purchasing which are topical in the press today. Is that issue that you have just identified in

response to my question still a major league problem or is it to be characterised as a legacy issue?

Dr Stevenson—No, I think it is still an issue.

Mr Fisher—Yes, I would agree.

Senator MARK BISHOP—So the appreciation of risk in seeking to amend purchased off-the-shelf systems in this complex world is not sufficient on the part of Defence—the appreciation of the risk.

Dr Stevenson—If that is your method of operation and there is a lot of pragmatism that, if I use COTS then I can take things and do it very quickly. But if it does not have the required functionality then there has to be a certain amount of flexibility to accept that that is the issue. If I specify something to you that does not come up to the specification and then you hold me accountable for it, there has to be a flexibility between us to manage that issue because, if I go back to the supplier of this system and say you have to change this one of 10,000 units you have, it is going to be an unpleasant sort of interaction because it is going to be expensive.

Senator MARK BISHOP—If that is a continuing issue in a purchase of large complex IT systems for these major platforms—and you appear to be saying it is a lack of appreciation of the degree of risk involved on the part of the contractor company—how does Defence overcome that problem? How does it overcome that issue?

Mr Fisher—I will use the air warfare destroyer and Collins for a start. The Collins combat system failed the first time around because it was new—it was not anywhere else. The second time around, it was delivered ahead of schedule. The second time around, we took the combat system that was in service in the United States submarines and built an interface which allowed us to have German sonar, French sonar and British radar weapon systems in the combat system. The combat system was the risk part. That did not change. We knew what we were buying. We managed to mitigate the risk down to a single interface—the server—which allowed us to interface anything we wanted. The benefit of that was that we could add things that were unique to Australian requirements but not touch the command and control system on the submarine.

The combat system on the air warfare destroyer is a similar model. We have bought from the United States Navy the Aegis system—which I call 'shrink-wrapped' because it has been delivered to the wharf all wrapped up and we just plug it in. In Australia we have unique sonars, EW systems and so forth and so on. On the destroyer, we are using the server we used in the Collins—the same technology and innovation. We can tie in whatever sonar, ESM and so on that we decide to have. So we have learnt that way.

There are still isolated cases where, because we have a unique Australian indigenous product—which we believe we must sustain—we force into it a weapon systems or weapons platform, which we call a foreign body. There are examples going on today where we have a weapons platform that has a radar warning receiver. We are going to put in an indigenous one, which has never been integrated to that other platform before, and it is going to cause difficulties. That is where we still have not quite learnt our lessons. With that comes all sorts of things that the platform was not built around. It did not have them built when it had this system

in. Its weapons systems attached to it could not understand it, and you have all those innovation issues. We go from one extreme to the other. We still have pockets of that within Defence.

Senator MARK BISHOP—Is commercial rivalry between systems developers an issue when integration finally has to be managed?

Mr Fisher—There is always rivalry.

Senator MARK BISHOP—There is always competition, but is it a major problem?

Mr Fisher—No. We are such a small industry that we know each other. For example, I compete against the guys in ADI, or Thales. I compete against the guys in SAAB. I grew up with them in the Navy. Ignore the accent; I have been here for 45 years. We compete, but we are friends. We all have a commercial interest, but once we sign up for the job we are away.

Senator MARK BISHOP—Similarly, do security issues get in the way where systems from, say, the United States are to be protected?

Mr Fisher—One of the reasons that we did the Collins project was to protect the CCS mark II. We developed the interface to allow Australia to have STN sonar from Germany and Thales sonar from France on the submarine, because the customer believed that was the right sonar to have for our environment. Companies like mine are fortunate in that we are able to provide that protection for US technology which is considered to be for Australian and US eyes only.

Senator MARK BISHOP—On page 9 of your submission you referred to the advantages of buying off-the-shelf and the downsides when the system is altered by this country. How big a problem is that when changes to specs are sought and it becomes difficult, entails extra cost and causes the cost of the project to blow out? It seems that being too 'leading edge' is a perennial problem within Defence. What are your observations on that?

Mr Fisher—First of all, you have to be leading edge if you want to say ahead of the game. There is no point in me buying a piece of kit that my neighbours have. I would like to be one step ahead in a national sense and a strategic sense.

ACTING CHAIR—There is no prize for second place?

Mr Fisher—Correct. I was in the Australian Navy for 22 years. My view is that you have to be bold and take risks.

Senator MARK BISHOP—But there is a cost to that, isn't there?

Mr Fisher—I understand that. But there is a national cost, may I add, if you do not do something. So the balance is that you sustain an industry in Australia—and we have just spent the last 20 years developing it. When Beazley came in and all the projects started, in my view the Australian industry started to mature. We need to capitalise on that investment today and make sure we sustain the Australian industry and those niche SME industries. It does take risk. You have to make sure those companies are encouraged to stay in the game. I go back to the buying of offshore systems. When you do that, you want to make sure that those Australian

companies and organisations are there with the offshore supplier so that we have the technology transfer—there is a premium, by the way—and the skills set to modify, adapt or enhance it 10 years from now if we want to.

Dr Stevenson—As you develop systems with your parent or an overseas company, it is the knowledge that you have there that helps you with the evolutionary upgrades through the life of that program. If you do not get that, it is a whole new learning curve down the track when you want to do the upgrades—and it makes the systems more difficult to maintain.

Senator MARK BISHOP—So you are saying that, if you want to have cutting-edge technology in your platforms for national security reasons, there is necessarily a cost—possibly a high cost—in the outlays and in the maintenance of an indigenous industry over time. Alternatively, you can go down the path of off-the-shelf purchases of platforms or systems. If you do so and seek to change either the platform or the systems, there is a huge range of unanticipated and consequential costs in going down that path, which may not be factored into your original risk assessment. It seems to me that there are necessarily going to be huge technical problems—and, hence, cost and risk problems—whichever path we go down. Is that necessarily a part of this business, or can that apparent continuing and huge overrun on cost and time be avoided in a different way?

Dr Stevenson—We are definitely getting better at managing it. There is a risk either way but, when we are looking at the selection of systems or at augmenting existing systems for a certain capability that our customer wants, we do very detailed analysis. We know the gaps in capability that we are looking at, and we know the cost of capability in that gap. Through modelling and simulation, and support through groups like DSTO, we now have a much better knowledge and understanding of the risk that we are getting into—and generally we can mitigate the risk significantly.

Senator MARK BISHOP—Do DMO and Defence have sufficient knowledge of the risk? It is one thing for you to have sufficient knowledge of the risk in your area of expertise, but their knowledge necessarily covers the field more generally.

Mr Fisher—They, like industry, are maturing. When we all started off under the Collins program, both industry and DMO—or Acquisition, as it was called in those days—were naive. I think there is a level of maturity. DMO is more rigorous today on risk in schedules and cost. Dr Gumley is forever mentioning it. We are professionalising program managers, which we did not do before. We are formalising training and we are becoming more educated. We have an industry base that has been around since the mid-eighties, so we have had 20 years of people in the industry, which we did not have in the days of the legacy programs such as the Collins. What those guys did with the Anzac ship is a great success story—and we have learnt lessons there.

Senator FIERRAVANTI-WELLS—At page 1 of your submission you have commented about the value of fabrication and consolidation—and you put the figure at 10 to 20 per cent of the cost of the vessel. It seems that you have dismissed the actual construction of the vessel. Nowhere in your submission did I see the point being made about the integration of the two, right from the beginning, lowering the risk. Could you comment on that?

Mr Fisher—It was not my intention to dismiss that, because it is very important. All the records will tell you that the fabrication and construction of the steel is around 35 to 40 per cent of the job. Electronics, depending on whether it is combat ship or a supply ship, can range from 30 to 60 per cent of the job. It is important to be as one with whoever is building or designing the ship. For the air warfare destroyer, we are working with the design guy and the shipbuilding alliance. I imagine that the two companies, Tenix and ADI, are doing exactly the same on the LHD. Everybody is tied together. I looked at it through the eyes of an electronics house. It was not my intent to dismiss it—far from it. If the shipyard, the fabricators and the module builders are not aligned, we would all fail. That is why we have an integrated master schedule which is normally run by the shipyard guys.

Senator FIERRAVANTI-WELLS—This inquiry is about building ships. That is why I make the point. That was my impression from what I had read.

Mr Fisher—That was not the intent.

Senator FIERRAVANTI-WELLS—On page 8 of your submission you make the assertion—if I have read it correctly—that we really do not have the know-how in Australia to develop world-class naval combat management systems. In effect, you are saying that we have to go overseas and that we do not have the capability in Australia to develop an indigenous industry.

Mr Fisher—It is a bit of both. Over the whole life of the system, if we do not have a parent navy, be it European or the US, to share the cost, it will cost us a tremendous amount of money forever—because we are a country that is upgrading, modifying and enhancing as the threat changes. And it is difficult to export our own stuff—not impossible, but difficult. The example we use is the 9LV—which is on the Anzac ship—which is derived from Sweden and therefore had a parent navy. It was modified and enhanced in Australia to meet Australian requirements. So it did not start from scratch and it was not really by itself. The CCS mark II, for the submarine, was from the US, and millions of dollars were spent on it. It is like buying an aeroplane and asking whether we need to buy a new combat management system. What we need to do is take whatever is available in the parent market and be able to modify and enhance it to meet Australian needs.

Dr Stevenson—In combat systems there is an area called ‘tracker and data fusion’. That means bringing together the various sensors of the system so that you can make some sense out of them and use that for targeting your weapon systems and things like that. For most of the combat systems, we are working with DSTO and others, such as the University of Melbourne, who have expertise in that area. We can put in local content without corrupting the overall systems. So there are areas, as Mr Fisher has just said, where we can add our expertise—and, if we are good at a particular area, we can enhance that system.

Senator FIERRAVANTI-WELLS—I would like to pick up on the point you made about legacy. I want to go back and see where we have learnt from that. This inquiry has heard of various problems that have occurred in the past. I want to go back in history a bit. Mr Fisher, I note that you had a senior position at Rockwell at some stage in the past. Were you involved in the integration of the combat system into the Collins class submarine?

Mr Fisher—I was in the latter years, yes.

Senator FIERRAVANTI-WELLS—Right from the beginning?

Mr Fisher—No. I ran the logistics department for a while. I joined Rockwell in 1989. In 1994, I became deputy general manager of the naval business, which had Collins.

Senator FIERRAVANTI-WELLS—We basically saw Rockwell failing with Collins and then Collins going to Boeing, who had some problems with it. Now, as I understand it, you are conducting an 'upgrade' of the Collins combat system. When did you take over that work and how is it going?

Mr Fisher—The original Rockwell combat system was an orphan: it had never been done before, it was not in service; it was somebody's concept. In fact, history will tell you that, when the US ran the submarine combat system tender, Rockwell's tender came in third, and then they sold it to Australia. We took over Boeing in 2001. I left Rockwell in 1996, and in 2001 we took over. We managed to stabilise a program, we transferred people to-and-fro and then there was a small tender against STN's new combat system. We completed the integration ahead of schedule, three or four months ago, in Western Australia. We have been able to transfer that skill and that knowledge to the submarine fitters in the west. It has been a highly successful program for us.

Senator FIERRAVANTI-WELLS—In other words, reading into what you are saying, basically you have moved the workforce. Effectively, the same workforce moved from Rockwell to Boeing and now to Raytheon.

Mr Fisher—Yes. What happened, as we said in the paper, is that the wherewithal was in the engineering community. What they did not have was the main knowledge in combat systems.

Senator FIERRAVANTI-WELLS—So you have basically concentrated all that in South Australia now? It is the same people—

Mr Fisher—No. We started off in North Ryde. We took Australian engineers to Portsmouth, Rhode Island and put US engineers in North Ryde. We stabilised, developed and so forth. In 2004 we transferred the combat system to Western Australia and migrated some key people from the east coast to the west coast and, using our gene theory strategy, we then hired local people and taught and trained them. So the Collins class submarine is being looked after in Western Australia.

Senator FIERRAVANTI-WELLS—In effect, the key personnel who have been making decisions about Collins, through to all the iterations and now to AWD, are basically the same people. That is the point I am making.

Mr Fisher—I would say that my key personnel—

Senator FIERRAVANTI-WELLS—In the context of learning from the mistakes of the past—that is where I am coming from.

Mr Fisher—Yes.

Senator FIERRAVANTI-WELLS—So the same people who have been through all that are now involved in the AWD. We are talking about legacy and not making the mistakes of the past. The question I am asking is: are you still dealing with the same people? Have they learnt from the mistakes in the past? Are we not going to repeat the same mistakes of the past?

Mr Fisher—I believe we have learnt.

Dr Stevenson—They have definitely learnt. The difference, when Raytheon came on the scene with the combat system, is that they actually brought domain experts and were able to turn the situation around. We had very good engineers, but not engineers with the domain expertise. There was domain expertise transfer. The philosophy of the company was to have people here to mentor and nurture those people for one to two years. The point is that they have all gone back and the expertise now resides here in Australia, and those people are engaged on AWD.

Senator FIERRAVANTI-WELLS—I would like to ask a couple of questions, given that this committee has examined issues of conflict and the need for protocols in the past. Could you tell when Mr Warren King left Raytheon to join DMO as the AWD project director?

Mr Fisher—In 2004 or 2005. I do not know exactly.

Senator FIERRAVANTI-WELLS—I understand that, when he moved to DMO, Mr King was general manager of Above Water Warfare division at Raytheon.

Mr Fisher—He was.

Senator FIERRAVANTI-WELLS—So he left his position at Raytheon, which was directly responsible for air water warfare issues, which I assume dealt with AWD, to head the very division that was then to determine the systems engineer for the AWD project. Is that the case?

Mr Fisher—Yes, he is the program manager for that.

Senator FIERRAVANTI-WELLS—In April, Raytheon was named as the preferred tenderer for the AWD combat system engineer. So Mr King was the AWD project manager and was also the chair of the evaluation committee?

Mr Fisher—I do not believe so, for the CSSE.

Senator FIERRAVANTI-WELLS—I understand that he was. That is what the minister's press release said.

Mr Fisher—I cannot comment. I do not believe so.

Senator FIERRAVANTI-WELLS—The concern that I have is in light of issues about conflict that we have examined. Do you see a conflict in that situation?

Mr Fisher—No. My understanding is that he was not part of the evaluation. SAAB, BAE and our company competed for the job. It is my understanding that the probity of the process is very strict, as you are well aware. It is the same with Dr Gumley and the ASC. I believe Sir Laurence

Street signed off on it. Senator, if you know something more than I do, then I am at a disadvantage.

Senator FIERRAVANTI-WELLS—I am reading from the minister's press release. In the context of conflicts, I put that on the record. Could you give us an indication of how—

ACTING CHAIR—Just before we move on from that, in fairness to the witness, maybe we should table the press release.

Senator FIERRAVANTI-WELLS—I will get a copy of that. Perhaps you could give us an indication of how the AWD project is going from Raytheon's perspective.

Mr Fisher—Very good.

Senator FIERRAVANTI-WELLS—How is the alliance going with ASC, Gibbs and Cox?

Mr Fisher—Very good.

Senator FIERRAVANTI-WELLS—So the rumours in the papers about difficulties with the alliance are not true?

Mr Fisher—Not true.

Senator FIERRAVANTI-WELLS—Do you envisage that the project will be delivered on time and on budget?

Mr Fisher—Yes.

Senator FIERRAVANTI-WELLS—The reason I ask is that there is a concern that if the AWD project is not delivered on time and on budget then of course it could pose a risk to the LHD project building up in Australia.

Mr Fisher—You are probably not aware that we have hit every milestone that has gone forward so far. In fact, one of the major milestones was the systems requirement review of the Aegis system which we did some six months ago. It was ahead of schedule, so I am comfortable that the alliance is working well, teams are working well, it is a great model and we are on time.

Senator FIERRAVANTI-WELLS—Thank you.

Senator PAYNE—Thank you, gentlemen, for your submission and your contribution here this morning. I wanted to ask you a couple more questions about how you build your skilled workforce. It is more at the grunt end, I suspect, than the high end in some ways. You have some very interesting information in your submission on pages 9 and 10 in particular about how you are doing that, and it has been a matter of some interest to the committee in all of its deliberations in recent weeks. You refer on page 9 of your submission to the availability of sufficient skilled workers in a tight national workplace becoming an issue and go on to talk about some of the things that Raytheon is doing in particular. Could you take us through what

initiatives you might be pursuing to both attract and retain the sorts of skilled workers that you need in your various activities in Australia?

Dr Stevenson—Being a mission system integrator, our main role is to do system engineering. System engineering involves anything up to 10 different competencies, from what we call requirements management, where they define the problem, to verification and validation, where they say the system has met the requirements that were originally stated in the first problem. For everyone who comes into Raytheon—and we are going through a progressive stage at the moment—we have a five-day system engineering course, which is the base course and it comes out of what we call the Raytheon learning centre. Our US parent has made this course available to us. It has then trained up people like me to make sure that we can deliver this course.

Senator PAYNE—Here?

Dr Stevenson—Yes. We have run seven courses in Australia up to now in different states. We invite our customer and their internal employees to be on that course. The intention is that, for the next three years, we will run up to six courses per year and make this available to the public, DMO and other agencies. We see that, to make us better at our job, we have to make the customer understand our processes as well. This will give us over 400 trained people just in system engineering. In addition to this, we have more advanced training and we send people on what is now called the certified architect course. About two years ago we recognised that architecture as an MSI is an absolutely critical competency. Our parent was recognising the same thing about the same time as us and they developed what I would say is a world-class architecture course. We have now sent two of our people on this course. It is a two-year course; they have completed it. Both those people are now part of the AWD team and in the next few weeks I will be sending the next candidate on this course and we hope to have at least two per year for the next four to five years to give us a critical mass in that particular area. In addition to that, in specific areas within that system engineering, we do other training with our parent. Towards the end of this year I have got some people coming from our parent to do process training to help us in CMMI and other activities to increase our capabilities. Within the company we are constantly upgrading our skills.

Senator PAYNE—How do you hang onto them? If they are so well-skilled they are probably going to be poached.

Dr Stevenson—We make ourselves a very good workplace for them to be. Raytheon is a very exciting company to be with. People enjoy that, they enjoy the challenge, they like winning things like AWD and its new technology and they enjoy that sort of profession.

Mr Fisher—We are reviewing our retention packages this week.

Senator PAYNE—Okay.

Mr Fisher—One of the concepts I am bringing forward with my leadership team in the next two days is a concept we usually call '9-80', where if you work 80 hours in two weeks, you can have one day off. It allows people more balance. What happens every second Friday is that the workforce has a day off because most people work more than the normal hours anyway. We do not tend to worry about people coming and going. These are the things we are doing. We are

looking at superannuation packages, salary packages, overseas training packages, just to retain workers because the market will become competitive.

Senator PAYNE—There is a reference also on page 10 to programs with universities that you are running to encourage graduates to come to Raytheon. What is the nature of the programs and are there any universities in particular that you would nominate?

Dr Stevenson—Basically, we have relationships with probably 10 to 12 universities. The way those relationships are conducted is that we have staff members who actually participate in advisory boards and engage with these universities. One example is QUT and another is the University of Queensland, where our engineers go in and are part of the review of final year projects. We prefer to actually engage the universities rather than just say, 'Here's money to use,' because we find they do not always use it where we think they should use it. We actually go in there in person and participate in the advisories and the engagement. Through doing these projects with them, we find that we see the better universities and their staff. We see good students come to us as future employees. We can actually look around at the various universities now and say which particular university has a particular attribute that we like and which universities do not. We can go through all the universities in every state and see the good and the bad, and we give feedback to them on those issues.

Senator PAYNE—Is it quite an intensive process or at least focused and very specific?

Dr Stevenson—It is very focused. Each of my engineering directors has an interface with a university. I am probably on the advisory board of at least five universities. They ask us, 'How do you think our courses are going?' We are very blunt on that one. The university might want to go off and do academic things, but we say, 'You are not listening to industry.' We give that feedback. They do not always like it, but they generally respond to it.

Senator PAYNE—You make a very interesting observation on page 8 of your submission and comment on the first term of reference for the inquiry in relation to the construction of 'large naval vessels'. The observation you make as specialists in your field is about what the next generation of naval vessels might in fact look like and that we are potentially looking at increasing complexity rather than perhaps just size issues.

Mr Fisher—Yes, and that is why we feel that we have to have the skill set in Australia. The hull could be 80 or 300 metres long, the mission might be this or that, above or below, and you have to have the skill set in Australia to meet the needs. When you go back and look at different types of ships—from the DDGs, FFGs to the Anzacs—and the different types of threats, you will see that it really is the system skill set that you want to hang on to in Australia.

ACTING CHAIR—Are you talking about LCSs evolving?

Mr Fisher—LCS is another type of ship which Austal is engaged with, as you know, in the US.

ACTING CHAIR—You make a very interesting point on page 10 in respect of benchmarking yourself against your experience in the US. You state that Raytheon Australia:

... could conduct many of the functions associated with systems engineering and systems integration at less than two thirds the cost of doing them in the United States.

Could we drill down to why that is? As an adjunct to that, what does the US do that we could take and apply to our own situation—and given the size of the US, let's move size to one side, because they have lots of projects happening all the time on a cost-plus basis? They are the two questions: how do we achieve the cost differential and get the two-thirds advantage and what do they do that is better than what we do?

Mr Fisher—From a business perspective, our salaries are probably two-thirds of what their salaries are.

ACTING CHAIR—That is about currency and salaries.

Mr Fisher—We ran a model on productivity of lines of code and systems analysis. We actually did a series of models and we found that our productivity was in fact slightly better than our US counterparts. We had better productivity in the sense of what we were doing and we had a better dollar rate.

Dr Stevenson—They draw on economies of scale, which we cannot draw on. However, because of the nature of having a US parent, we can draw on those economies. Basically, I am a part of my parent company's engineering structure, so I get to see trade studies and analysis that I could not get in Australia. So I can draw on that. Not only is there that cost differential in that we are cheaper, but I get to see all the things that they do—the good and the bad—and I am able to draw on those and take advantage of them. The other thing is that if I put my hand up for help, I get it straight away.

ACTING CHAIR—So when are we going to see some export capability emerging from that advantage? Is there a possibility or is it such a niche area that that fact and the security provisions and all of those things mean that it is ours, it stays ours and we do not share it other than with our parent or our two allies?

Mr Fisher—We, Raytheon Australia, have just not got there in respect of exports. Our first attempt was that we were doing the conventional combat systems for the Spanish submarine. Raytheon lost that job, so we have not had that. There are plenty of examples of other companies who have been able to export based on the technologies. We are just not there yet in the sense of all the opportunities. Today we are really focusing on our day job, which is to deliver our projects and not get too carried away with going to chase the rainbow.

ACTING CHAIR—Look at ACIL Tasman. In our committee hearings most witnesses have said that the ACIL Tasman example of the Anzacs is plausible. As you have mentioned it and have set it out, do you have any basis on which to question the findings in the ACIL Tasman report? They are appearing before us later. Are there any things in their analysis that you see as being fuzzy or questionable?

Mr Fisher—No.

Senator HOGG—I have a couple of questions that follow on from Senator Payne's question to you about your participation in the advisory boards of various universities. Are your competitors on those same advisory boards? In other words, is it just a Raytheon led direction in terms of trying to get specific skills or are you collaborating with your competitors to try to get the skills base that you need?

Dr Stevenson—Our competitors are doing similar things but I do not think they are to the same extent. Because we are Australia wide, we have relationships with most of the universities. Additionally, I think that something unique to us is that our parent, through us, has relationships with, say, the University of Melbourne and puts in substantial funding because it recognises them as having world-class expertise in a particular area. I can draw on that expertise and I can draw on that relationship as well. Our competitors will have relationships in a particular state or two states but we tend to have relationships in all states.

Senator HOGG—All right—

ACTING CHAIR—I am sorry to interrupt, Senator Hogg, but there is a problem with the sound system. We will have a short suspension.

Proceedings suspended from 10.13 am to 10.24 am

ACTING CHAIR—I call the committee to order. I thank our witnesses for their patience. Senator Hogg, you had the call.

Senator HOGG—I have just found out that they have lost the start of my sequence of questioning. It does not matter. We have been able to shortcut things due to the fact I had a discussion in the break with Dr Stevenson and Mr Fisher. I want to find out how this brave new world operates, and I was using the LHD project as an example. You have been explaining to us the mission systems integrator role that you see yourselves playing. I am wondering where you and your competitors fit into the scene in a contract situation where you have two major companies like ADI and Tenix. Are you advising the two major competitors for the prime contract on how the system should fit in? From what I understand about what you have said this morning, it seems to me the systems integration seems to be paramount, so do you, therefore, get involved in advising the two potentials for the prime? Where do your competitors fit into that? Or are you no longer part of the process, in which case how does the system work now, and into the future? And what is the best system to get the best outcome for our defence dollars?

Mr Fisher—The LHD is a traditional procurement process, and Raytheon Australia is not engaged. The Raytheon company will be offering product to both, but Raytheon Australia is not engaged. The traditional process is that there is a prime which is Tenix and there is a prime which is ADI, and they form a team around them. We feel the difference between the air warfare destroyer model and the traditional prime model is that we have a customer with us all the way through, and when you get to second pass, it is a kind of buy-in by everybody. The traditional prime role is that they will give the project office a number and give them visibility of how they got to the number, but the project office would not have been with them all the way; there would be the reviewer rather than the developer and the reviewer.

You could end up being lulled into a false sense of security with respect to when you go to second pass, depending on whoever wants to get across the line. If you had done the approach on the LHD the same way it was done for the air warfare destroyer—where you selected the MSI first and then you selected a platform and then you selected an existing design—you would have then been able to tie all that together. With the air warfare destroyer, we have the customer, the alliance partners, together as we develop the models. So when you go to second pass, you will be far more comfortable.

Senator HOGG—From what I have heard from you and from reading your submission, it really seems to me that the traditional concept of the prime being the designer of the frame has now shifted to the designer of the systems. Is that a reasonable assessment?

Mr Fisher—That is true. In fact, in the US model for the DDG1000, Raytheon is the MSI and it has Northrop Grumman and Bath Iron Works, along with Lockheed Martin, as part of the subcontract. As the mission systems integrator, it is responsible for putting it together. In that sense, that is the new model going forward, rather than the traditional primes.

Senator MARK BISHOP—Now that the last Anzac ship—I think it is No. 10—has been delivered, does your company perceive any challenges arising in the development of the AWD, given that much investment in the electronics systems of the Anzac class vessels was originally curtailed in order to put hulls in the water, at the expense of systems fitted to existing platforms?

Mr Fisher—It is a different model. When I was in the Navy, we used to say the Anzac model was 'fitted for but not with'—room and space. It was a deliberate model to get the hulls. Therefore, as the threat evolved over time, you could add things on to it. So the Anzac model was, 'It's this class of ship to do this class of job, and today we will put these things on it, because that is what we can afford and what we want, and over time we will evolve.' The Tenix-Saab alliance got a contract about six months ago for half a billion dollars to upgrade the surface warfare suite and the underwater systems suite. It was a deliberate policy to do it that way. The air warfare destroyer is completely different again. It is an anti-air warfare ship. It is not an evolution. Obviously, there will be room for growth, in weight and space, depending on the threat, but it really is a specific mission.

Senator MARK BISHOP—When the air warfare destroyers come online they will need to be able to partner with the Anzacs in any future naval task force. Is that in turn going to impose limitations on what systems can be fitted to the AWD in order to facilitate ship-to-ship communication and interaction when the proposed large amphibious ships come online?

Mr Fisher—No, it will not. There will be interoperability, or collaboration, in that we have the same types of weapons systems on Anzacs as we have on the FFGs today—ESSM type stuff. You will have the same communications suites on AWDs as you will have on amphibious ships. You will have the same communications today on Anzacs as you have on FFGs. It does not matter if it is a brown box or a yellow box; they can interface and talk to each other. So there is no restriction on it in terms of it being a radio built in Europe or a radio built in Australia or a radio built in the United States; it is the protocols which are similar.

Senator MARK BISHOP—So, even in terms of going further with the much-advanced systems for the AWDs, is it part of the design feature that they will be able to operate with each of the pre-existing units of platforms?

Mr Fisher—The air warfare destroyer is for anti-air warfare; Anzacs are not. The electronic picture being used on air warfare destroyers is able to be down-linked across to Anzacs as to amphibs communications. So everybody will have the warfare picture in that sense.

Senator MARK BISHOP—You put the proposition that the frigates, the FFGs, the amphibs and the AWDs will be able to talk to each other; their weapons systems will be able to communicate with each other; and each will be able to do different things as part of an integrated group. Is that also going to apply when the JSF comes online? When that becomes operational here in Australia, is there capacity in the AWD to be a part of a platform in the integrated battle space of the ADF joint task force in 2015?

Mr Fisher—I do not know enough about the JSF to comment, but even with FA18s in today's environment—and I used to be a controller—you can target, talk to and position the aeroplanes and the weapons systems. I do not see it being any different.

Senator MARK BISHOP—I will change the topic now. You argued in your submission that you were a leader in the field of ongoing support and evolution to final decommissioning and disposal. To what extent, if any, does Raytheon envisage that defence personnel will have responsibility for systems maintenance in the AWDs?

Mr Fisher—There will always be a requirement for a first line—to maintain those skills on the ship when they are away. The real trick today is getting a balance between giving the sailors time ashore and time at sea. There will always be a requirement for the sailors to be able to be ashore and to maintain, and there will be a blend of that and contract support.

Senator MARK BISHOP—So the Navy personnel, both onshore and offshore, would have to maintain state-of-the-art readiness?

Mr Fisher—Yes. You will find that it will be the same ships' crews. They will rotate through. They will do some time at sea and then they will do a shore posting. They will be able to provide support—just like they do today—to the ongoing ships.

Senator MARK BISHOP—Once the system is implemented, trialled and ticked off, will the ongoing maintenance of the system essentially be a job for defence personnel, or for your company via provision of a civilian workforce?

Mr Fisher—It would be both. Take the submarine as an example. The ongoing maintenance of the Collins class submarine is done by the Collins class submarine sailors and officers. The software upgrades are done by Raytheon. There is a blend of technician work, where we provide support to the submariners—like when there is requirement for a surge. So the partnership between industry and the Navy is vital. That is why I go back to saying that with anything new that we get from offshore we must transfer the electronic skills to Australia to be able to do that because there will be surges, and there will be modifications required that will not have the deep expertise of the sailors.

Senator MARK BISHOP—You spoke extensively at the beginning on your company's role as a mission systems integrator. To what extent is the company here in Australia reliant on subcontractor technical support in its provision of mission systems support? Or is that done wholly inside the company?

Mr Fisher—As the mission systems integrator, we bring skills from around the nation. One of the things we are very strong on—and I will let Dr Stevenson talk about it—is the engagement of SMEs.

Dr Stevenson—On an annual basis I look at the capability of the company to fulfil the role of an MSI. It is very blunt and brutal. We identify the capability areas that we do not have but that we need to survive. Rather than reinvent the wheel in those areas, because we cannot cover all things—it is like a world hunger type problem—we go out and identify SMEs which have the capability areas that we want and we engage them. For AWD, there are probably three or four SMEs within the team as well as us working with our Commonwealth customer. With the submarine combat system, you will find there are SMEs working as part of our team. They are doing what we call capability work. This is not product work. Down below the line they will do product work as well, but there is a firewall between those two capabilities.

Senator MARK BISHOP—Why is that?

Dr Stevenson—Because basically we are helping the customer design the system and define the problem. It is just like Raytheon: we may not select our own product. We are not going to put an SME in a position where we are going to select their product over someone else's. Sometimes this causes some discomfort for the SMEs because we basically say: 'You may be a partner with capability, but when it comes to selection of products it is a transparent, open process. If you have the best product, you get selected; if you do not, you do not.'

Senator MARK BISHOP—But there is going to be continuing subcontractor involvement at both capability design and product level and you expect that to continue?

Dr Stevenson—Yes. We have an inverted triangle, as we call it. Above the line, with our SMEs, we are growing. They are part of that team. We have about 30 SMEs in the capability area engaged with us at the moment.

Senator MARK BISHOP—In that context, how many subcontractors—what you call SMEs; it is the same thing—are US based and how many are based in third-party nations, not Australia?

Mr Fisher—None, none.

Dr Stevenson—They are all Australian SMEs.

Senator MARK BISHOP—With respect to your distributed test and evaluation network, how much of that network is controlled exclusively by Raytheon?

Dr Stevenson—I would say just about all of it.

Mr Fisher—We call it a collaborative environment.

Dr Stevenson—Basically we own and service that whole area. We have SMEs in that area with us as well.

Senator MARK BISHOP—Who has priority call on that network? Is it the US Department of Defense?

Mr Fisher—No. It is for the air warfare destroyer.

Senator MARK BISHOP—It is specific to the AWD?

Mr Fisher—Yes. The model you have seen in the paper is the model which they used in the US. That is a US model. We are emulating the same in Australia and that belongs to the air warfare destroyer project. The program manager owns that. One of the things we would like to eventually do is to use that skill set to link back into the US to put work the other way.

Dr Stevenson—I think the issue there is that, if we required a node for expertise in the US, they could become a part of that Australian network.

Mr Fisher—We could plug it in.

Senator MARK BISHOP—The Australian shipbuilding market is limited in terms of the number of vessels to be constructed and the degree of advanced electronics materiel to be used. Is there any argument at all for limiting the number of vendors that are active in the marketplace and supplying essentially the whole suite of electronic materiel that is used inside the more modern platforms?

Mr Fisher—I would not restrict the supply of vendors, because you can then pick and choose the best.

Senator MARK BISHOP—Is that a philosophical point in response to the benefits of competition?

Mr Fisher—Yes. Currently there are three people doing naval systems integration: ADI, us and SAP. One of us would call ourselves MSI, and the other guys are traditional. You could have three or two—it does not really matter in that sense—but you want to make sure that you keep competition in the supply of product. You have to have a skill set in country that can take product from anywhere around the world and tie it together. That is the skill set you need here in Australia. You do not want to be, 'I make a combat system and therefore I am delivering combat systems.' The example I draw on is the way we provide electronic warfare training to the Royal Australian Navy. We fly a Lear jet with $25 million worth of electronics inside it. The whole job was $40 million, which we invested and did. Not one piece of kit is Raytheon's. We had a skill set that could take anybody's product and put it together. That is the uniqueness of what an MSI does in Australia and that is the way we should be shaping the future—not only us but other companies. We must have the skill set processes and knowledge in country to take anybody's stuff and put it together.

Senator MARK BISHOP—Okay. We now come to the heart of the problem. That is an argument for the benefits of competition on product supply, and you say one of the ways you

overcome multiproduct supply is by having sufficient expertise in this country to weld them together and use them together. Does that also apply when you have dozens of systems being imported into this country, hence dozens of products, dozens of command-and-control systems, dozens of platforms? Or are we getting to the stage where we have got too many products, all very complex, and hence the major integration problems occurring, not just across platforms in the Navy but across helicopters and planes as well? Are they all able to function as part of a unified approach, and is that necessary?

Dr Stevenson—When we do our trade selection against the requirements, we narrow that field down. You could have a very large number of suppliers out there, but traditionally we will come down to three or four that meet or partially meet the requirements.

Senator MARK BISHOP—Of the particular project?

Dr Stevenson—On a particular area. If we are looking at radars for search, say, or sonars, we will very quickly come down to a small subset that actually has the capability we need, and we will only deal with those. We will make a selection from one of those. There can be as many as you like out there, but not all of them will meet our requirements.

ACTING CHAIR—Just before we finish, Senator Fierravanti-Wells wants to table a document.

Senator FIERRAVANTI-WELLS—I would like to table a transcript of a media conference for AWD announcement, dated 31 May 2005. I also have a copy for you, Senator Bishop, if you would like to refresh your memory.

Senator MARK BISHOP—Thank you very much.

ACTING CHAIR—Mr Fisher and Dr Stevenson, thank you very much. We have gone a long way over time. It is not often the committee has Raytheon before it, but it is a special event. Raytheon's vast experience and ability in all of these very complex projects is well known and I thought the committee would enjoy taking the opportunity to have the quite long discussion it has had with you. Thank you very much for coming.

Mr Fisher—Thank you for having us.

[10.44 am]

GAUL, Mr David John, President, CEA Technologies Pty Ltd

ACTING CHAIR—Welcome. Do you have any comments to make on the capacity in which you appear?

Mr Gaul—I am also co-founder of CEA Technologies.

ACTING CHAIR—You have been shown a copy of today's opening statement. Do you have any questions regarding that document?

Mr Gaul—No, I do not.

ACTING CHAIR—I now invite you to make a brief opening statement, following which we will proceed to senators' questions.

Mr Gaul—To give you an overview: CEA started in 1983, when I and my business partner, Ian Croser, left the Navy. Ian was weapons electrical engineer officer on HMAS *Canberra* when I was the XO there. I had a warfare operator background and Ian had the technical smarts, so basically we moved out of the Navy together and set up CEA. It is now 220 strong. Its main office is here in Canberra; there are offices in Adelaide, San Diego and Melbourne. It has a turnover of about $50 million and is very much part of the Australian defence and the US defence scene now.

What do we do and what do we supply? We specialise in the design, development and manufacture of radar and communications systems. Our core capabilities include active phased array radar for antiship missile defence; maritime surveillance; communications and direction finding systems; vessel traffic management; antenna design; data fusion; and radio frequency systems. We supply the Australian Department of Defence, the American Department of Defense, the Bahrain coastal surveillance system, the solid state continuous wave illuminators for the Baynunah class corvettes in the United Arab Emirates and commercial customers. We recently signed the design and development contract to install CEAFAR, which is our surveillance radar, and CEAMOUNT, which is a missile illuminator radar, on all the Anzac class ships as part of their antiship missile defence upgrade. That is CEA in a nutshell.

ACTING CHAIR—Thank you very much. Since 1983 the world has changed substantially in this area of technology. Australia has embarked upon the acquisition of a phased array radar system, Aegis. You are in the marketplace for phased array radar, as I understand it. How do you see Australia being able to compete? You have inaugurated a company in a very competitive high-tech area. What are the problems that you have had to confront in order to achieve the credibility and recognition that you have achieved to be on the platforms and doing the things that you are doing? Take us through the trials and tribulations, in a brief way, in how you have got to the point you have. I was assisting in the naming ceremony of two Armidale class patrol boats. Your communications system is lauded as being one of the best in the world.

Mr Gaul—That is right. It took about four years before we got any traction with Defence at all—they just did not want to know us while we were in our embryonic stages. I can understand why.

ACTING CHAIR—Tell us why.

Mr Gaul—Huge risks. We could disappear—

ACTING CHAIR—Who are these guys?

Mr Gaul—The technical people within Navy and stuff like that, which is where we wanted to try and come into. But eventually they came to us. They said: 'We've got a real problem. Can you design a specialised com system for the submarines? What's your price? How long will it take?' We quoted something like three months and something like $60,000. They came back to us within a week and gave us a purchase order. We realised sometime later, having successfully delivered that product, that we left something like $220,000 on the table and about another 10 months. We have not been without a Defence contract since, basically.

ACTING CHAIR—And that is the underwater communications system—the seaphone system on Collins?

Mr Gaul—No, it was a surveillance communications system for the Oberon submarines, mainly in covert work.

ACTING CHAIR—So take us through: that was your first success, and Defence was very pleased and happy to see the capability you could provide and the cost that was available from an Australian manufacturer and producer. What came next?

Mr Gaul—The next major one was the communications electronic support measures equipment for the Anzac frigate. Again, it was a new development. Navy wanted to broaden the capability in that area and there was nothing off the shelf that could do it. So we put a system together in conjunction with Telefunken, a German supplier at the time, and that was very successful when aboard the Anzac frigates. That was a big project because, by the time it was finished, we were talking probably $3½ million. It started getting us traction for long-term deliveries and quality assurance. All those issues had to be addressed to successfully deliver that and, of course, we grew as a company. We probably would have been about 60 to 70 people by the middle of that contract.

ACTING CHAIR—What is the defining feature of your success? I think it is not unfair to say that Defence, DMO and Acquisition, as it was, are all a bit sceptical about Australian manufacturers of high-tech gear. What has got you to where you are? The credibility that you are held in I think is exceptional for the small company that you started out as. What is it that gets you to be putting systems where you are putting them—AWD et cetera?

Mr Gaul—It is just a step up each time—bigger, more difficult, a more stretching project—and as long we deliver, we get the next one. You keep moving up the chain, as it were, to where we are now with the AUSPAR development, which is a high-powered active phased array missile system that both the Australian and US governments are funding. That is going to replace

Aegis. That is where we are headed. We are talking about a CGX downstream, which is the major US platform of the future. That is where our focus is. It is not a couple of years away, an AWD or anything like that.

ACTING CHAIR—I take it there is a huge cost advantage—

Mr Gaul—Very much so.

ACTING CHAIR—in the nature of what you are providing as opposed to what Lockheed Martin or one of the big—

Mr Gaul—That is right. There is a huge cost gap and also a capability gap that is quite significant.

ACTING CHAIR—Just for those like me who are not too good at acronyms, what is CGX?

Mr Gaul—That is the new cruiser that is on the drawing boards for 2020 or something like that, for the US Navy. They are the future cruisers of the US Navy. They are about to come out with the initial development contracts for that.

ACTING CHAIR—So there is the DDX, which is sort of an equivalent to an Arleigh Burke but is the next generation, and the CGX is the Ticonderoga next generation?

Mr Gaul—That is right.

ACTING CHAIR—Okay. I am with you.

Senator TROOD—I wanted to ask you about your experiences in exports. You mention some of those in your submission and your remarks. Perhaps you can tell us when you began your export activity and how that came about. Was it part of a very conscious strategy you embarked upon or was it perhaps serendipitous?

Mr Gaul—I think it was, to a degree, serendipitous. The actual first export order we got was from Raytheon when we were about three months old, when we did a study for the air traffic control people in Raytheon about new radar systems for CASA. The first product that we exported was the antenna which we developed for the Collins submarine. It was an active antenna and very specialised and had a very broad bandwidth coverage. That was exported through Argo Systems in the States to a couple of customers.

The major break came when our vessel traffic management system in Brisbane and the Esso Bass Strait oilfields attracted a customer for the US Navy who provided mobile systems. It was called the MIUW program. They had an upgrade program. They saw our systems, they came out and saw our customers, and then they ordered a whole lot of systems. That generated about a $50 million export product line. That came out of an NPDP grant by the IR&D board at the time of $1½ million to get into the Brisbane port system. It was a very good payback.

Senator TROOD—How much of your company's revenue is generated through export activities? Is it a relatively small part?

Mr Gaul—Obviously it fluctuates from year to year, because 12 months is always too short as a cycle. But, generally speaking, it can range between about 70 per cent down to 30 per cent.

Senator TROOD—You formed partnerships with Saab and Northrop.

Mr Gaul—Yes.

Senator TROOD—Is that part of a broad export strategy that you have adopted? And is that now the means by which you are advancing your export activities?

Mr Gaul—Very much so, particularly for the European area. Saab are going to take the system that we are putting in for the Anzac frigate ASMD upgrade and try to sell it into the European navies. At the same time, Northrop Grumman have come on board as a minority shareholder, having exited our investors. They are going to make the US markets open up for us. Obviously their strategy there, again, is the CGX in particular.

ACTING CHAIR—Is the Northrop Grumman entry a public number in terms of their expenditure?

Mr Gaul—No.

ACTING CHAIR—I will not ask the next question.

Senator TROOD—One of the things that we are interested in in relation to shipbuilding is the capacity of Australian companies to develop export activities. You have obviously had some success in this area. In terms of export strategies, do you think it is critical or is it just particularly valuable for your company to have these contacts or alliances with larger overseas corporations? How easy would it be for you, recognising of course that you have obviously got a considerable degree of expertise and that you have had success? Clearly Saab and Northrop are larger organisations than yours and with international reputations in a way in which as yet CEA perhaps does not have.

Mr Gaul—I think those relationships 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. Then we went out and selected our gorilla, basically, and we went through a very vigorous process to do so. Saab was also considered as part of that process, but obviously the American market is much more in our foci than is the European market. You can understand why. Saab are very comfortable with the outcome of where we are at now, and so we have two partners moving forward.

Senator TROOD—Can you tell us whether or not any of the government agencies like Austrade, for example, were of any particular value to you in developing these export activities?

Mr Gaul—They have been valuable in the Middle East, because they have very good traction and contacts and things like that there. But, apart from that, it has normally been our direct efforts.

Senator TROOD—If there is some commercial-in-confidence issue in regard to any of the following questions then please feel free to be cautious about it. Can you see markets in other countries at the moment?

Mr Gaul—Very much so.

Senator TROOD—Where would they be?

Mr Gaul—For instance, in Canada there is the Halifax frigate and there is the 996 radar upgrade for the UK market. There are several projects, like the LCS, that are going to be part of the stepping stones that we need to step across to get to where we want to get to.

ACTING CHAIR—Did the Armidale build have a bridging effect for you and Austal?

Mr Gaul—Yes. I see Austal as another partner going forward. It is a matter of identifying the right project, because we have a very good working relationship with Austal.

ACTING CHAIR—So, from little things, big things will hopefully grow?

Mr Gaul—Very much so. That is really what it is all about. The incremental increase over 23 years is why we are here.

Senator FIERRAVANTI-WELLS—Mr Gaul, you were present when I was asking questions of Mr Fisher. Would you care to comment on the assertions in his submission that the best combat systems come from overseas—that was really the effect of what they were saying in their submission—in the context of the successes and achievements that a company like yours has had?

Mr Gaul—Yes. The air warfare destroyer is a different system in that it is a total system approach. Although we have competing technology coming through, there are timing issues involved in that. While I can see a role for our systems in an upgrade program downstream, to meet the timings of our defence department, they had to rule a line and say, 'We are going to make a decision on the current technology base now, and that is it.' It is old technology. In the first place, 1975 is the basis for the technology. That is why it will eventually be replaced.

Senator FIERRAVANTI-WELLS—Can you tell me the percentage, roughly, of combat system work, if I can put it like that, that has been done or has been allocated to wholly owned indigenous Australian companies?

Mr Gaul—No, I would not have those figures; DMO should. My estimate would be that it would be very small—it would be less than 10 per cent.

Senator FIERRAVANTI-WELLS—Do you think it is just a cultural change that has to happen?

Mr Gaul—I think it is happening. I think there is a desire, which is spreading, to make it happen. Our success and the success of others have led to that and they will continue to lead to that. It is just a matter of getting the opportunity and making the most of it.

Senator FIERRAVANTI-WELLS—Does the fact that most of these companies are privately owned companies have something to do with it, or does that only become a factor when the alternative is a much larger public company?

Mr Gaul—It only becomes a factor when you are starting to get to the size and getting the traction where you are receiving global recognition. At that point, obviously ownership becomes a major issue. That is why we fought very hard to get the model that we have now.

Senator FIERRAVANTI-WELLS—Do you think sometimes that it is used as an excuse?

Mr Gaul—No. Any global company that finds that it has a significant SME opportunity, with significant technology, will do the type of deal that we have done with Northrop, because it makes sense to do so. But you have to be able to be in a position to do that, and we could not have done that without the involvement of the US and Australian governments in our IP agreements and things like that.

Senator FIERRAVANTI-WELLS—With the awarding of the AWD contract to South Australia, do you see the concentration of shipbuilding as being detrimental long term to shipbuilding, particularly on the east coast? Will shipbuilding on the east coast of Australia diminish in time?

Mr Gaul—I do not think I am really qualified to answer that, but my observation is that shipbuilding is changing and has been changing for the last 20 years. The example is the Henderson boat yard opening up in Western Australia, and there is ASC in South Australia. It makes a lot of strategic sense for our shipbuilding to be down at the bottom of Australia, away from any threat and things like that, and there are more modern uses that the eastern ports are being put to. So I think it is a natural part of evolution.

Senator FIERRAVANTI-WELLS—We have heard from several witnesses that the greater the complexity of warships, the greater the need to build in country so as to retain those skills for through-life support. Do you want to comment on this and, if you can, to what the extent cost-effective support and upgrade of ship systems is dependent on those systems having been designed and integrated in Australia?

Mr Gaul—I think that is a very important point. You can only properly support these complex systems if you actually have the expertise in country, because once Australia owns the product and is using it the last thing it wants to do is be beholden and having to send a whole or a platform to a foreign port to get fixed. That would be strategically nonsense. You just would not want to contemplate doing that at all. You must have indigenous support capability. The only way to get that is to be involved in the integration and build in the first place. So Australian companies must be involved.

Senator FIERRAVANTI-WELLS—In other words, even if there is some premium for the long-term benefits to servicing, repair and maintenance, it perhaps outweighs an initial cost saving that may be achieved.

Mr Gaul—Not only that, but the strategic aspect outweighs that too. You must be able to do it, otherwise you are in the position that we were in Vietnam where we could not get Bofors ammunition because Sweden said no. You must have the capability in country.

Senator HOGG—I have a couple of questions in respect of skills. Obviously you would employ a fairly highly skilled group of people.

Mr Gaul—That is correct.

Senator HOGG—Do you have difficulty in attracting those people and in retaining them, and do you have any relationships similar to Raytheon with universities and the like as sources of recruitment into your organisation?

Mr Gaul—Yes. We have relationships with the Adelaide universities and with Wollongong, and in the past we had a relationship with UCan here in Canberra, but they have since stopped the engineering course there that we were so interested in. We have also had some interaction with ANU. However, the main way in which we go about attracting new graduates is to get into the universities and offer work experience, which we pay for. We pay them a proper wage for coming and working in the holiday period, which they have to do anyway under engineering rules. So we get to see them and they get to see us at a very early age. A lot of our recruits come through that method. I would say we have been doing that for the last 15 years. We have even offered work experience through high schools to get people. For instance, we grabbed our senior RF engineer out of high school and gave him work experience. He came back every holiday during his time at university and has not been anywhere else since. Of course, the retention issue is a major one. We have employee share ownership schemes, option schemes for equity events and things like that. We try very hard to do the best we can to retain them. We recognise that people really are the key and you have to go all out to cover that field.

Senator HOGG—Do you get any access to R&D funds that might be provided through governments, regardless of the level of government?

Mr Gaul—Yes, we—

Senator HOGG—Also, what sort of commitment does your company itself have to R&D through its own funds?

Mr Gaul—Currently, R&D is running at about 15 per cent of turnover and we are projecting not to pay tax until 2009, as we gobble up that tax concession, which has been a major incentive for us to continue to do R&D from day one. Our R&D back in the early days would have been 85 per cent. We learnt to do R&D for profit as a company, and it is part of our ethos. It is essential. We would not be in this position now if we had not had a significant R&D program all the way.

Senator HOGG—Is your R&D solely situated within your company, or do you do that with alliance partners as well?

Mr Gaul—No, it is primarily within our company. All of our IP is ours and we control it very closely.

Senator HOGG—Given that, how important for you in going forward with future contracts with Defence are alliances, as opposed to you operating as an individual in the marketplace?

Mr Gaul—They are very important, and that is why we have special agreements underpinning our AUSPAR developments going forward in the future so that the Australian IP is maintained and controlled here in Australia by us, with the oversight of both US and Australian government bodies.

Senator HOGG—Last but not least, have you noticed over a period of time a change in the way in which Defence operates in terms of the tendering for contracts? Your company has been around since 1983 and you have been successful. Have you noticed any improvement, any change or any detriment?

Mr Gaul—I think the current system is a step in the right direction. There is more rigour, as Mr Fisher was saying, and that is healthy.

ACTING CHAIR—Are you are talking about the two-part system?

Mr Gaul—Yes. The two-part system is a pretty rigorous process. It does cause delays, which cause us problems, but Defence is very flexible and able to overcome that with CCP activity and things like that in our case so that contracts can still march forward until everything lines up. As long as that flexibility is there, I think the system will continue to work.

Senator HOGG—It is just that I think Mr Fisher mentioned that a greater consultative process now seems to have emerged with Defence—not at the stage of the letting of the contract, but prior to that.

Mr Gaul—Very much so.

Senator HOGG—Has that helped your company in developing a better relationship with Defence?

Mr Gaul—Yes, it has. We have proactively developed projects from just the capability dreaming stage to actually implementing a live program like a CTD for CEAMOUNT, for instance. That came out of interaction with the capability development group and then the development of a suitable project and contract.

Senator TROOD—I would like to follow up a couple of remarks about skills that Senator Hogg was asking you about. In particular, have you ever been in a position where you have been critically short of skills for a particular project, or have the recruiting techniques that you have used always been adequate for your purposes?

Mr Gaul—The answer would have to be yes, but I think we have got by by delaying another project in some way and making it up later—by internally balancing things. However, it does get quite critical at some stages. It is an issue that senior management need to be addressing all the time. It is a changing world. Gen Y are coming through, and they are totally different. They are outcome based and not time based or anything like that when you are employing them and things like that, so you have to change with that.

Senator TROOD—Do you feel confident that, down the line and into the future, you can continue to acquire the skills you need to carry forward these fairly ambitious projects?

Mr Gaul—I think that, as long as the government puts in place the right policies to encourage the overcoming of skills shortages, yes. Certainly, from our side, industry will do its utmost to overcome the issue, but it needs a partnership and the government has to do its job as well.

Senator TROOD—I am tempted to inquire at some length as to whether or not, in your view, the government is doing that at the moment

Senator HOGG—That is a very good question; I will ask it for you, if you do not want to.

Senator TROOD—I do not want to detain the committee. Essentially, are the settings right for your industry that give you that confidence?

Mr Gaul—Yes, but I think that at secondary level much more emphasis could be put on engineering skills and attracting people to engineering, rather than accountancy and law. I see that as the biggest drawback to Australia going forward—a lack of engineering—and the way to overcome that is to get them early. Having the science prize for the secondary teacher in the PM's science awards was a great step forward. But a lot more needs to be done in that area to raise awareness and get kids to take on engineering, rather than to drift into uni and then decide to do a BA and maybe then become a lawyer.

Senator TROOD—You seem to be saying that you feel confident that CEA can attract people to its business, but the pool of people from whom you draw needs to be broader and there needs to be a greater emphasis on developing those kinds of engineering skills—is that right?

Mr Gaul—That is right, yes. I think that is where the focus needs to go.

ACTING CHAIR—Just to finish off, is CEA Technologies a private company—a proprietary limited company?

Mr Gaul—Yes.

ACTING CHAIR—Does it function with a board of directors?

Mr Gaul—Yes, it does.

ACTING CHAIR—How many patents does it currently hold; can you tell us that?

Mr Gaul—Yes, none.

ACTING CHAIR—So its intellectual property is retained on a confidentiality basis.

Mr Gaul—That is right.

ACTING CHAIR—You said that you have a turnover of $50 million per annum. Does the company have a value that you can tell us about, or would you rather not disclose the value of the company?

Mr Gaul—I would rather not disclose that. We are moving towards IPO in three to four years.

ACTING CHAIR—That is very interesting; we will stay tuned to that. Thank you very much for coming. It has been fascinating. As I say, some committee members have seen and heard of your company through the capability that is being installed in some of our more complex platforms. We wish you all the very best and, again, thank you very much for coming along; we appreciate it.

Proceedings suspended from 11.18 am to 11.27 am

ADAMS, Mr Harold John Parker, AM, Board Chairman, Australian Association for Maritime Affairs

ACTING CHAIR—Welcome. As is our usual course, we have given you a copy of the opening statement. Do you have any questions about that?

Mr Adams—Not at all, Sir.

ACTING CHAIR—We have your submission, which is No. 13. Do you wish to make any amendments?

Mr Adams—No.

ACTING CHAIR—I invite you to make a brief opening statement, following which senators will ask you questions.

Mr Adams—Thank you. As indicated in our submission, our association welcomes this inquiry, in that it addresses all those issues involved in the design, construction, fit-out and through-life maintenance of naval vessels. This includes the necessary updating and modernisation of ships in order to meet the rapidly changing environment of naval warfare in joint operations.

Already in Australia we have extensive naval shipbuilding and support facilities which extend, top wise, from Darwin to Cairns down through the south and over to Fremantle in the west. As you all know, the Royal Australian Navy currently has 56 vessels in commission. They all need technical backup and support. This in itself is no small undertaking when you consider the range of ships involved and the span of technology. It is interesting to note that the Navy today is a diesel/gas-turbine Navy and that all the steam-driven ships were phased out in the last two decades. That has had a huge impact on the manpower requirements of the Royal Australian Navy.

This inquiry has asked us to address the question of whether the planned new amphibious assault ships should be constructed in Australia or overseas and also the economic issues involved. In our submission we support the principle that Australian made is best. However, it is appropriate to point out the program under way for a naval replenishment tanker to replace HMAS *Westralia*, which will be called HMAS *Sirius*. This was built in Korea but is being fitted out as a naval replenishment ship at Fremantle at a cost of $60 million. I therefore suggest that important issues like this need to be addressed with an open mind. In our submission we recommend that these ships be built in Australia. In reaching this conclusion, we based our position on the study of the Anzac frigates program conducted by the Tasman Asia Pacific organisation in 2000, which outlined the many economic, technical and social benefits that flowed from this project. It is sad to note that this project is now finished. One wonders what the future holds for all those companies and people involved as the next fighting warship—what I call the ‘misnamed’ air warfare destroyer—is to be built in Port Adelaide.

The question as to the problems of maintaining skills and expertise has been addressed in our submission. To a degree these are met through modernisation, refit and update programs, such as the ongoing FFG modernisation. You will appreciate that our association does not have expertise in the field of shipbuilding or economics. We have pointed out over time that, particularly with the advent of the marine gas turbine and the marine diesel engine, the hull and engine component of a warship comprises about 20 per cent of its steam-away cost. The vital area which I see this committee as being focused on is that associated with sensors, weapons, information-processing, and command and control systems. In this area, as we have pointed out, there is world-leading expertise in Australia.

It is our view that it is within Australia's capability to build naval vessels of the order of 25,000 tonnes in Australia. But we do not have the capacity in our organisation to make a judgment as to the economics of an Australian-built or an overseas-built vessel, which I note is an issue in your third term of reference. We as an organisation are really unable to respond in a positive way to that. We see this as a question for expert economics organisations or the Defence Materiel Organisation. But, as we have pointed out, there are issues other than pure economics which need to be considered. One option—and it may not be a realistic one—would be to build the ships overseas, sail them to Australia and fit them out here. Relevant to this inquiry, as we have pointed out in our submission, is the Maritime Industry Association of Australia study into the whole spectrum of maritime industries in Australia. They point out that there are 29,000 people employed in that industry with an annual expenditure of $5.5 billion, which, they suggest, leads up to the establishment of a CRC for marine technology. This is a recommendation which we believe your committee could take up. Some one million Australians, I am told, put their toes in salt water, figuratively speaking, every day. Maritime is big in Australia.

Finally, I thank the committee for receiving our submission. I point out that we are not a lobby group but an organisation established to advance the national interest in maritime affairs. We were established to generate greater public awareness and discussion of maritime affairs generally. We are not orientated to any single industry or interest. We provide a focal point for all those with an interest in maritime affairs: people in business, tertiary education, the marine professions and the public service. We are concerned to promote the national interest across the range of maritime affairs. We do this through our two publications—*Maritime Studies*, a copy of which I have passed over, and *Australian Maritime Digest*, the latest copy of which has just hit the streets today. We publish that every month.

In this regard I might point out that, apart from conferences and seminars which we run from time to time, we have also contributed to the important parliamentary committee process. Only two weeks ago we appeared before the Senate ECITA committee on the management of marine protected areas, which we see as an important feature. Bearing in mind that one-third of the world's marine protected areas are to be found in Australian waters, that alone represents a challenge to the Australian government. My background, sir, is Navy and, as I indicated, I am chairman of the board. Thank you for your attention.

Senator HOGG—It is nice to seek you once again before a Senate inquiry, Mr Adams. In your submission, in paragraph 4 on page 2, you make reference to the fact that:

The failure to sell the ANZAC frigate into the South East Asia region is seen as a failure of Government which was well-placed to extend the building program by aggressively selling it into the South East Asia region ...

Do you believe that there was the capacity to sell the Anzac frigate into that region, given that the governments of many of those countries might not necessarily be favourably disposed to purchasing from Australia for no other reasons other than they would see the need to build in-country themselves? How do you believe that we, as a nation and as a government, can promote—

Mr Adams—I am unaware as to whether that was ever explored. But the point I really make is that Australia as a regional power is not a nuclear power, it is not a superpower and it is not an ex-colonial power. Therefore I believe that we are, in terms of our credentials, a country that is well placed to explore how we can help those nations—whether it is the Philippines, Malaysia or Indonesia, to which we have sold patrol boats to before—and if they would be interested in buying the product that we produce here, and therefore keeping our industries ticking over. As I say, I believe that there is a psychological advantage, if you like, that Australia has compared to the great powers. Whether we have ever explored that or not I do not know, but I believe it is something that could well have been explored.

Senator HOGG—You were right in terms of the patrol boats. The Pacific patrol boats have worked well.

Mr Adams—We have even sold some to Yemen.

Senator HOGG—That suits the nature of the defence requirement of some of our South West Pacific neighbours in particular. But is it necessarily the responsibility of the government to sell the likes of the Anzac frigate, or is it more for the company that developed and produced the Anzac frigate in the first instance to go out and sell it?

Mr Adams—I would have thought it was a joint program. I do not think you could sell a frigate overseas without getting the imprimatur of the government. I think in one of the submissions it was indicated that there was an option, or there was a possibility, of selling the submarine to Egypt, who have a requirement for submarines to replace their force. I think it was in one of the papers that we published in our magazine. So that was an opportunity that may have been further explored.

Senator HOGG—All right. The only other question I want to ask is in respect of paragraph 5. You refer to a need 'to establish a Co-operative Research Centre for Marine Technology'. Could you elaborate on that, please? Where do you see that fitting into the ship-building process?

Mr Adams—I see that, sir, as really following on from the previous speaker, who has a requirement to have expertise in electronics across the board in his organisation. There is also a requirement for people to provide the whole structure of a ship-building organisation. We have an extensive boatbuilding industry. They have built police patrol boats in New South Wales. So there is a symbiosis between naval shipbuilding, if you like, and the skills there and what you might say are the more high-tech naval skills. I think a CRC is an area where that could be managed together.

As I think our paper indicated, there are 29,000 people involved in that marine industry. That was an initiative of the department of industry and trade, and it has been taken up by the Maritime Association of Australia. Their recommendation is to provide a focus by a CRC. It

would be an ambitious project, but I think it is worth pursuing as there are one million Australians involved, one way or another—whether they are draftsmen in an office or welders on the platform—across the whole spectrum, from naval architects right through.

Senator HOGG—So you are saying there is nothing along the lines of a CRC for marine technology at this stage.

Mr Adams—Not that I am aware of, no. If we are looking at skills in Australia, and moving people into areas where you can get job satisfaction in a more creative world, then I think a CRC would be an issue that could be brought forward.

Senator HOGG—Has this been raised with the government department, such as the department of industry?

Mr Adams—I believe it is being run with the department of Industry, Tourism and Resources. What is happening about it, I don't know. The committee is looking at skills across the board, the high-tech skills, but there are also middle range skills that we need to look at.

Senator PAYNE—I want to take up where Senator Hogg left off. The idea of a CRC for marine technology I think is a very interesting suggestion for the committee's consideration. You suggest that it would be operated out of a particular university, as most CRCs are. Is that your suggestion, or is that what you would support?

Mr Adams—I believe that is probably the way to go, but one would have to be guided by the education people as to which would be the best way to go. You would probably not hope to produce naval architects out of it—they would come out of the normal stream of engineering in university—but I can see it producing skills in the range of draftsmen and metallurgists and so on, which we need to develop.

Senator PAYNE—What you say about that middle band of skills development is very relevant in this area. If it were to pursue the concept of producing naval architects, for example, I suspect it might become too narrowly focused, but if it is broadly focused and it can address that middle band, that would be useful.

Mr Adams—It could be, but I think it needs to be explored.

Senator PAYNE—The committee is hearing from the department of industry this afternoon, so we will have a chance to explore that a little further.

Senator TROOD—In the summary of your submission, the first point, which is 12, you make the point that building large naval vessels in Australia is wider than narrow economic issues. Then you go on to make some points about cost balance. Could you elaborate on this idea that there are more things to be concerned about than just economics in relation to shipbuilding?

Mr Adams—I think it really revolves around the fact that you are going to create skills in a community that can actually do the job, and those skills will be available to maintain those ships into the future—or other ships that may come along. In other words, there is a symbiosis between the skills required to build and construct the ships in Australia and the skills you will

need to maintain them into the future, and that could apply to other vessels as well. As I indicated, we have 56 in operation at the present time. So I think there is a big-picture approach that we need to look at in this as well as the economics. As I indicated earlier, there may be a halfway house. Whether or not there is a halfway house would need to be explored.

Senator TROOD—Can I press you on that a little further. I understand the point you are making about the acquisition of skills and the retention of capabilities for the through-life of the vessels, but does your association put the view that there is a strategic imperative about shipbuilding in Australia, or is that not a view that you take?

Mr Adams—I think there is a strategic imperative to a degree, but it does not have to be principled to the point where everything must be built in Australia. We should do the best we can to get the building done in Australia so that the architects, the draughtsmen and these people involved in that sort of thing get experience in that area. But if, as I have indicated, there is a halfway house or another way of doing it which may be more economic you would go that way, and I do not think there would necessarily be a great loss of strategic capability.

Senator TROOD—You would not be uncomfortable if we built ships overseas? You could see some advantages in doing it in Australia, but you are not theological, if you wish, about the need to build here?

Mr Adams—Not theological, no.

Senator FIERRAVANTI-WELLS—I would like to pick up on a couple of points. In paragraph 10 you talk about hull fabrication and you make the comment:

The cost of hull fabrication and engine fit out is related more to design and efficient work practices than wages: this has been proved in Japan which, despite high wages, is still the world's biggest shipbuilder.

Could you elaborate on that, please.

Mr Adams—What I am trying to say in that paragraph is that there is nothing particularly unique or special about building a hull. Since the Deeming revolution in Japan, where modular construction has become the way to build a hull, it has now been emulated, particularly in Korea and also now in China. The particular concept is known worldwide and there is nothing particularly special about it. In fact, I understand a shipbuilder in Korea is on $70,000 a year and yet they can turn out a general vessel cargo ship in 35 days because of the way this modular construction works. You would really have to get a shipbuilding expert to tell you how it is done, but there is no black magic about it—that is probably what I am really saying—and there is no reason why that cannot be adopted here.

Senator FIERRAVANTI-WELLS—Following on from that, in the next paragraph you make the point that allied to hull fabrication is the high quality of steel that we have in Australia. Are you saying there that, if the hulls are built overseas, there is not only some compromise in quality but a potential compromise in shelf life, if I can put it that way?

Mr Adams—No, I am not really saying that. What I am saying is that Australia produces as good steels as anyone. My understanding from a briefing I received on the submarines is that the steels in our submarines are world class, world's best practice and better than anything else.

Senator FIERRAVANTI-WELLS—It comes from Port Kembla.

Mr Adams—If we build them here, there is no reason to not use the best steels. When looking at battle damage and that sort of thing, which hopefully will not occur, you would find that you really have to have a degree of substance in those ships to be able to absorb the battle damage. Of course the quality of the steel is the thing that gives you the chance to absorb battle damage and get on and do the job. My understanding is that our steel makers can do the job. I am sure those steels would be available overseas. So, again, I do not think there is any black magic in it, but I would point out that Australian steels can do the job as well as overseas steels.

ACTING CHAIR—Mr Adams, thank you very much for coming before the committee. As always, it has been most interesting and entertaining. Thank you very much.

Mr Adams—Thank you, Mr Chair.

[11.51 am]

JAMES, Mr Neil Frederick, Executive Director, Australia Defence Association

ACTING CHAIR—Welcome. You have read a copy of today's opening statement. Do you have any questions flowing from that?

Mr James—No.

ACTING CHAIR—I invite you to make a brief opening statement and following that senators will ask questions.

Mr James—Ladies and gentlemen, thank you very much for inviting us to appear before this committee. We owe you an apology for the tardiness of our submission, which is still not in. Unfortunately, we have had a problem with illness, both in my family and in the family of two members of our committee writing the submission. But it will be in very soon. If I may preface my remarks by saying that the ADA has always been a big supporter of the Senate committee system. We think that the machinery of government oversight provided by Senate committees is a very useful thing for the nation. We are also an apolitical organisation and we note the recent changes to the Senate committee system. We would hope that they do not mean any diminution of the ability of the Senate to oversee the workings of the executive.

In terms of the topic of this committee, the history of naval shipbuilding in this country has been a sad saga. We are a maritime country, but we have a continental mind set. You see this in the decline of the merchant marine. In fact, in the forthcoming issue of our quarterly journal, *Defender*, we have an article on Australian strategy, which discusses our terms of trade in some detail and how much is carried in foreign ships and how that is now a major strategic interest for Australia. The problem here is that there have been numerous parliamentary and other official inquiries into naval shipbuilding over the years, but we have never actually quite solved the problem because there has been no long-term strategy. We are now reaping what we have sowed. You can go back to the cancellation of the light destroyer project by the Whitlam government back in the early 1970s where the Navy put up a case to sustainably build a 20 capital-ship navy over a 22-year period—basically, building one ship a year. It would have sustained naval shipbuilding in Australia virtually into perpetuity. But instead of that project being adopted, the decision was taken to buy a foreign ship. Indeed, the Navy was asked to submit six choices. The FFG was the sixth choice and that was the one they got. This was a classic example of what happens when you under-resource defence for a generation: under governments of both political persuasions, you end up with sixth-choice ships like the FFGs and indeed the Anzacs, which, when they first came on line, were disgracefully undergunned.

It is really a scheduling problem, but there is no point crying over spilt milk. We cannot go back and recreate history, and it is unlikely that we will have the ability to develop a major naval shipbuilding industry in this country ever again. The comparison here, of course, is with the aircraft industry. Up until now we have built most of our fighter aircraft in Australia, but we are certainly not looking at building the next generation of fighter aircraft in this country, although there will be some local involvement in the assembly.

With regard to the capacity of shipbuilding, it is important to note some of the examples that have been quoted—like Austal, who build very fine ships. They have built very good Armidale-class patrol boats, but the Armidales are not warships. In effect, they are a civil ship, are painted grey and have a naval communications system and a very good gun on the front. Apart from that, they are by no means a warship. We would suggest that a lot of the examples that have been cited to the committee are a little optimistic. Certainly, while the free trade agreement with the United States did not involve any negation of the Jones act—and Austal had to build a shipyard in Alabama to sell its ships in the United States—we are going to have a real problem even at that level of the industry.

There is one issue that does need to be addressed with regard to submarines, and that is simply: where is the next generation of Australia's submarines going to be built? No-one else in the world now builds large, long-range diesel-electric submarines. The Americans are talking about building some for the Taiwanese, but even then they are nowhere near the size of the Collins. If the next generation of Australian submarines are not to be nuclear powered then it is highly likely they will have to be built in Australia because there will be no-one else to build them. Therefore the capacity of ASC to continue to build submarines is in a different setting to the capacity of the rest of the industry to build surface ships, and that is something we would like to formally record.

The ADA's bottom line, though, is that, whilst we need to maintain the capability to repair and maintain ships in Australia and we need some capacity for fit-out for modular construction, the important thing is that the Navy gets the ships first rather than where the ships are built. That is particularly the case with the larger amphibious ships, which I note are not strictly amphibious assault ships as was mentioned earlier. Because there is a 10 to 30 per cent premium on building those ships in Australia, this is not a decision that is going to be made on anything other than political grounds. It is going to be made on how much clawback the federal and state governments think they are going to get in our taxation and, indeed, in votes in the next election through pork-barrelling, depending on where they are built.

The world-wide trend in the UK, France and Spain and in countries like that with significantly greater navies and significantly greater naval export industries is that their shipbuilders are suffering too. Whilst we do not agree with some of the criticisms that naval shipbuilding in Australia is hopeless, we need to be quite realistic about what is going to happen over the next generation.

Finally, we would like to note that a lot of the criticism of the new amphibious ships and, indeed, where they should be built is coming from interests connected with the air power lobby. This is a reasonably blatant example of how a well-resourced lobby tries to sell aeroplanes by talking down the value of ships.

In the last three or four months I have personally looked over the facilities in Western Australia and South Australia in some detail. From our discussions with people, particularly in Western Australia and particularly with the Western Australian state government, they are not convinced that the competition for skilled workers from the oil and gas industry is a serious problem to building and maintaining ships in Australia. Indeed, the impression the state government gave us was exactly the opposite: that the large-scale oil and gas projects being

conducted in Western Australia are in effect providing a skilled workforce for naval shipbuilding. No doubt that is something they have raised with you as well.

In conclusion, the association's position is a simple one. It is more important that the Navy gets the ships than where they are built. The Navy certainly needs three new destroyers. It probably needs, eventually, a fourth one. We certainly need the two large or medium sized amphibious ships and also, eventually, probably a third one. It is more important that the Navy get them and get them reasonably quickly than that we squabble forever over where they are going to be built. If they can be built here in Australia, that is well and good, but in strategic terms it is certainly not a must-have.

Senator MARK BISHOP—You started off your statement by giving us a little bit of history, which you referred to as a sad saga in terms of the continental mind set in this industry, and you referred to the decline of the merchant navy. You said there had been no long-term strategy and you were critical of a decision of the Whitlam government, I think it was, in the early seventies which, by implication, you said was responsible for the decline then loss of a naval shipbuilding construction capacity in this country. That is a synthesis of your introduction. Then twice in your statement you said, essentially, that it was important that Navy get the ships first, not where they were built. It seems to me that there is a contradiction in the thrust of your statement. Either your first argument that it was good in 1973 and 1974 stands objectively and holds or it was not good then; hence, the opposite now applies in terms of your comments, 'It doesn't matter where they're built, as long as the Navy gets the things.' I may have misunderstood you or unfairly characterised your remarks. What is the position of your organisation in terms of the strategic needs to have a shipbuilding industry?

Mr James—I think the way to look at is that the strategic situation has changed over that period. At the time the Whitlam government and then the Fraser government gave insufficient support to naval shipbuilding in Australia, the strategic situation we faced was much different from what we now face. So, whilst the policy on shipbuilding necessarily might not have changed much over time, the strategic situation under which those policy settings were made has changed.

Senator MARK BISHOP—Do you refer there to the end of the Cold War?

Mr James—Essentially, the end of the Cold War but also the deterioration in our regional strategic situation over the last few years. Certainly, if we had had by now the medium sized amphibious ships that the Navy will get over the next 10 years, a lot of our ability to resolve regional crises, both humanitarian and peacekeeping, would have been considerably easier. The problem with being a maritime nation with a continental mind set is it is not just naval shipbuilding that has got it in the leg over the last generation or two; it is the decline of merchant shipbuilding and the merchant navy. It is quite strange that small countries such as Norway, which is considerably smaller than us, maintain very large shipbuilding and merchant shipbuilding industries and merchant navies and yet we essentially have not been able to.

Senator MARK BISHOP—By implication, but for the strategic situation as identified in the early seventies and then in the late eighties with the end of the Cold War and now the current situation, in your organisation's mind there is no independent objective reason for the creation or

maintenance of a shipbuilding industry in this country, apart from the fact that at certain times it is related to the geopolitical situation of the world?

Mr James—The problem is a simple one—that is, we cannot go back and fix the mistakes of the past. The reason why a comprehensive and integrated and regularly resourced shipbuilding program in this country collapsed from the late 1960s into the late 1980s is that not sufficient money was spent on defence. It is very hard to go back and fix that. But you can maintain quite a sound argument that, if a bit more money had been spent a bit more regularly, the overall cost of maintaining a naval shipbuilding capacity and a bigger Navy in this country would not have amounted to much more than the amount of money we eventually spent in the long run having to go back and fix some of the problems. The Anzac upgrade is a classic example where a virtually worthless warship has now been turned into something that is actually useable. But the parallel with the aircraft industry is an important one. We are not going to be building modern jet fighters in this country from now on, and it is pretty unlikely that we will be building modern warships forever and a day.

Senator MARK BISHOP—So you do not see anything in a strategic dynamic going into the reasonable forecasting future that justifies a domestic naval construction shipbuilding industry in this country?

Mr James—It would be good if we could afford it, but the problem is that, unless we are able to export those ships, the size of the navy we have is unlikely to sustain a major shipbuilding industry. The air warfare destroyer project is a good one, the submarine project is a very good one, the amphibious ships project is a very good one, but what about the next generation of frigates? Certainly, the next generation of frigates is going to have to be a reasonably large project. It would be very handy if they could be built in Australia but it is not going to be absolutely essential so long as we maintain the ability to repair and maintain whatever ships the Navy acquires. The decision on whether we need to maintain a naval shipbuilding capacity in this country is very much going to be a political one rather than a strategic one.

Senator MARK BISHOP—You referred to a premium of 10 to 30 per cent that might be involved in having an indigenous construction industry in this country. I know that the figure of 30 per cent was bandied about in the early 1970s through the 1980s when there was a significant premium attached for a whole range of reasons. Can you refer us to any source material that justifies that upper end figure in the current environment? The direct evidence we have from a range of companies and industry groups, albeit pushing their own barrows, is that a figure of 10 per cent is pretty well acceptable and no more. Why do you say 30 per cent?

Mr James—The 30 per cent figure either came from the ASPI study or was a DMO figure; I would have to check. I have a hunch it was a DMO one.

Senator MARK BISHOP—I think you are right, but it is unsupported. In the DMO's figures it was an assertion unsupported by any material. Do you know any source material that justifies that?

Mr James—The simple answer to that question is no. We would take ASPI and the DMO at their word, and I am pretty sure it was a DMO figure.

Senator MARK BISHOP—I know where it came from. You are right, it was a DMO figure, but in none of their published material is it supported by any empirical evidence. They could have said 30 or they could have said five.

Mr James—Presumably the next time the DMO is in front of the committee you can ask them that question.

Senator MARK BISHOP—The problem we have is that a range of expert organisations quote it as holy writ and they all refer back to the DMO. The DMO refused to justify it, but you keep asserting it.

Mr James—Certainly the advice we have got from companies affiliated with the associations who are into shipbuilding is that it is nowhere near 30 per cent. However, I am cynical enough to admit that it is in the interests of those companies to provide a lower figure than—

Senator MARK BISHOP—I accept that. We had AIG and Mr O'Callaghan down in Sydney the other day telling us 10 per cent and I take that with a grain of salt because it would suit the interest of his company but, by the same token, when other people assert 30 per cent or 50 per cent, I am similarly sceptical.

Mr James—The key question we have asked people on the figures is: does their 10 per cent include the tax clawback or is it after the tax clawback?

Senator MARK BISHOP—Yes. That is a fair call. Going back to your introduction, you said it is not possible to recreate a naval shipbuilding industry now, for all the reasons you have advanced. Even in the context of the AWDs, whether they be three or four, the amphibs, whether there be two or three, the new generation of frigates that has to come on in the next 10 years, the rebuilding of the submarines over the next 10 or 15 years and the other projects identified in the DCP, do you still hold the view that it is not possible to recreate a reasonably sustainable naval shipbuilding industry in this country?

Mr James—It depends on what you are talking about as the size of the industry. We are always going to have a reasonable capacity for the lower end ships like the Armidales, the pacific patrol boats and indeed landing craft and things like that.

Senator MARK BISHOP—I was talking about the middle to upper end.

Mr James—But, when you look at the middle to upper end, if the French, the Spanish and the British are having a problem, I think it is fairly inevitable that we will have a problem. Given the rationalisation that has occurred in the shipbuilding industry in those countries and given that, in France and Spain in particular, the major naval shipbuilders are significantly government owned and subsidised—and the EU is cracking down on this—the sheer weight of economics would indicate that a large-scale naval shipbuilding industry in this country would probably not be sustainable over the next 50 years. We could be wrong, but certainly the worldwide trends would indicate that.

It may be that some technological innovations, and modular construction is a good example, can postpone that or can adapt it, but it is fairly unlikely that we are going to maintain a large

naval shipbuilding industry over the next 50 years. The important thing is that the industry is big enough to build those ships that we can build here and, more importantly, to repair and maintain the Navy. On strategic grounds there must certainly be no loss of capacity to repair and maintain our ships in this country. That is why the move of shipbuilding to the south and the west over the last 20 years has been quite useful, particularly in the case of Western Australia, where for the first time on any scale outside Sydney Harbour you have a capacity to build and repair ships in the same port as a major Navy base, which is no doubt a very large advantage. The Navy is looking at moving a lot of the maintenance off Garden Island and across to Henderson for exactly that purpose.

Senator MARK BISHOP—Is your organisation satisfied that it is possible to maintain a reasonably efficient repair and maintenance industry in this country, without the implicit subsidies that come from some form of Indigenous construction industry?

Mr James—While the oil and gas industries, for example, continue to be a major source of wealth, expertise and skills in this country, we should be able to maintain a reasonable capacity to repair and maintain our Naval ships. It is also encouraging to see state governments for the first time since Federation actually pumping some money into Defence, as is happening in South Australia and Western Australia and to a lesser extent in Queensland. But, given the current structure of the Australian economy, there is no real reason why we cannot maintain a reasonable capacity to repair and maintain our ships. The problem in the long term is whether we can maintain the capacity to build the next generation.

Senator MARK BISHOP—But your organisation is satisfied that there is sufficient capacity to maintain the repair and refit side of the equation and that it does not need to be linked to the domestic construction facet of the industry?

Mr James—It does not need to be linked, but it is obviously preferable that it is linked. The capacity to repair and maintain can be maintained with one proviso, which is that governments continue to resource Defence sufficiently so that there can be a logical schedule of refit, maintenance and, indeed, construction. That has not been the case to a large extent over the last 30-odd years, and that is why we are in this pickle.

Senator MARK BISHOP—Okay. The net of your submission is that it does not matter where we construct the ships, but it is important that the Navy have them and have them on time to suit our strategic interests; that is your first point. Your second point is that it is essential to maintain a repair and refit capability over the generations and that, if there are implicit subsidies that come from the construction side, well and good. The extra assistance from state governments in more recent years is welcome and necessary to maintain the industry into the future. But, having entered those caveats, you are still of the view that we do not need a domestic construction industry, notwithstanding the significant flow of benefits down the line.

Mr James—That was a very good summary of our position, except for a little bit at the end. In a perfect world, all other things being equal, it would be great to be able to build the next generation of naval ships in Australia. On economic grounds, we remain reasonably pessimistic as to whether we will be able to do that, given world trends.

Senator MARK BISHOP—As you are a Navy man, you will be properly interested in this discussion. What is the business of the air power lobby? This is the first time that it has been introduced and I cannot resist taking the bait. Tell us about that.

Mr James—To defend my compatriots in the Navy, I was not a Navy man; I was indeed an Army one.

Senator MARK BISHOP—That is true—sorry.

Mr James—The association has been worried for some time about the number of biased newspaper articles written by various columnists attacking the medium sized amphibious ships, using colourful terminology about aircraft carrier sized ships and also reasonably strong attacks on the air warfare destroyers. It would be our observation that a lot of those newspapers columns are being written by people with links to the air power lobby, and they would appear to be reasonably well resourced. As we noted in an article in *Defender* as long as two years ago, it is simply stupid to expect a modern navy to not have any destroyers. Essentially, the argument that the air power lobby are putting forward is that we do not need the air warfare destroyers because the JSF will solve all the problems forever. For generations, the air power lobby have been promising a lot and have never delivered.

The important thing is that the Australian Defence Force is a balanced force and that we have strategic redundancy in our capabilities. The JSF may indeed be a you-beaut, superb silver bullet fighter, but if we were to invest all our air defence capacity in just Joint Strike Fighters then we would be making the same mistake that we made when we invested all our money in the Singapore strategy in the late 1920s and 1930s. So our concerns about the lobbying of vested interests from the aerospace industry are based on the fact that it would appear to be the industry that pumps the most money into the defence debate in Australia—and I might add that none of it comes to us, basically because we are independent—and it is skewing a lot of the public debate, and we think that is not a good thing.

Senator MARK BISHOP—I have some questions about the relationship between the AWACS and the JSF. I might come back to those when my colleagues have exhausted their time.

ACTING CHAIR—That might be a good idea.

Senator MARK BISHOP—It is interesting stuff.

Mr James—Unless the JSF floats, it is probably not a subject for this hearing.

Senator MARK BISHOP—No, but you have now introduced the air power argument. I will let this go.

ACTING CHAIR—I am relieved to hear that.

Senator PAYNE—That was a passing observation, not necessarily the introduction of an argument. I was going to do similarly to Senator Bishop—that is, try to draw together the threads of the observations that you had made. As you said, Senator Bishop had done that mostly in his last couple of questions. I think you began by saying that there have been many reviews, many

inquiries, over an extended period of time in relation to this subject area. I need to paraphrase obviously, not having access to the transcript, but at the beginning of your remarks I think you said that no real solution had been presented. Is that right?

Mr James—Yes, essentially. The ADA has been around since 1975, and we have put in submissions on this topic before. The country has grappled with this problem basically since 1942, when we started building large numbers of warships here under the pressures of World War II and, indeed, all through the 1950s, 1960s, 1970s and 1980s, when the naval shipyards were in effect owned by the government and, in industrial terms, were probably the least efficient commercial enterprises in the history of the country. No doubt you have had a briefing from Tenix about when they took over the Williamstown naval dockyard. I can never remember whether they reduced the workforce by sacking five-sixths of the workers and that productivity went up by four times, or if it was the other way around, where they sacked a quarter of the workforce and the productivity went up by six times. It is all to do with a seedy deal that was done between the Federated Ship Painters and Dockers Union and the Communist Party back in 1948, where the Painters and Dockers said, 'If you let us have the rest of the wharves, we'll let you have the naval shipyards.'

Senator PAYNE—That was slightly before my time.

Mr James—Long before your time, Senator Payne. This is a longstanding problem in Australia. We have never got this right. Once we stopped building large commercial ships in Australia, the writing was on the wall for our capacity for naval shipbuilding in the long term, unless there was a sustainable schedule of regular work for the industry. In fact, that has not occurred. It has come in fits and starts.

Senator PAYNE—Which comes back to your point about needing to be able to export what we build in part.

Mr James—It would be great to be able to export ships, but there is a problem. The Anzacs are a classic example. They are based on a MEKO design. The Germans are trying to flog a very similar ship to the same types of countries that we would be trying to flog it to. Also, whilst this country quite rightly does not pay bribes to South-East Asian governments, we are unlikely to have much success with defence exports. That was certainly the case with the failed offshore patrol combatant project with Malaysia, which had numerous unsavoury spin-offs—the Seasprite helicopter being one. The problem with that is that, unless we pay bribes, we are not actually going to sell ships in South-East Asia in particular. We are certainly not advocating that Australia should start paying bribes just to facilitate an export industry, because you can see where that has got us with the wheat exports to Iraq.

Senator PAYNE—I am confident that there is no intention of exploring that road. You made some observations about the continuation of a naval shipbuilding industry in Australia being dependent basically on political decision making. I think you used some rather more cynical terms in your remarks on that point. You also observed that it is a good thing to see state government support engaged in the area. You are perhaps drawing a very fine line. It is good if state governments are doing that sort of thing; it is a cynical exercise if the federal government is exploring it. I may be wrong and I am happy to be corrected. Can you explain to me where you perceive the difference?

Mr James—If we were able to go back to a clean sheet of paper at the beginning of the Collins project, we would not have built them in South Australia. If we were going to build Collins again, we would build them in Western Australia because that is where they are based. The fact that our submarine construction and maintenance facility is in South Australia and not in Perth, where the submarines are based, will be a major and long-term problem over the years. The decision to build them in South Australia, whilst it can be justified on economic grounds, was essentially taken at the time for mainly political reasons. If we were addressing it on a clean sheet of paper, it would not happen, but we have to live with history. ASC now has an extensive facility in South Australia and certainly, even if it were technically feasible to move it, politically and economically it is just not going to happen.

Regarding my remarks on state governments finally pumping some money into defence issues, I will simply say that, for basically the first 90-odd years of federation, that was an extremely rare occurrence. Defence has been fully funded federally. It is good to see the states actually helping, because the trend in Commonwealth-state relations in this country over the years has been for the federal government to continually have to spend more of its money on state responsibilities such as education and health. The upshot of that is that less federal revenue has been available for defence. One of the reasons we are in the pickle that we are in with so many defence projects and with naval shipbuilding is because of the diversion of federal funds to state responsibilities. My remarks that it is good to see some of the money finally coming back the other way should be seen in that context.

Senator PAYNE—I will view them in that context. Taking the example that you have just used—that is that the problems are caused by building the subs in South Australia in the first place and not in Western Australia where they are based—I assume that the problems that you hypothecate about are because the support or the expertise is based in South Australia, where the submarines are built, and not in Western Australia; or do I have the wrong end of the stick there?

Mr James—ASC actually maintain a facility of a reasonable size in Western Australia. The point is surely a simple one. Henderson is a very short distance from where the submarines are based at Garden Island. Adelaide is a much further distance. Given that the submarines were always going to be based in Western Australia, if we were doing it again I would suspect that greater effort would have been put into the possibility of actually building them where they were going to be based.

Senator PAYNE—That raises in my mind a question about your thesis on the state of the naval shipbuilding industry generally—that, in strategic terms, it is not a must that they be built in Australia; it is more important that Navy get them. You raise questions about how to construct the next generation requirements that the Australian Navy will have. Aren't there going to be the same sorts of ongoing support issues that you raised—through-life support, repair and maintenance—if we do not have the fundamental platform capacity for naval shipbuilding itself?

Mr James—Yes and no.

Senator PAYNE—That is a very political answer. Thank you so much for answering us in those terms!

ACTING CHAIR—We love 'yes and no' answers!

Mr James—Sorry about that!

Senator PAYNE—You are amongst friends. Do not worry.

Mr James—Modular construction has alleviated that problem to a large extent. If you look at the Anzacs for example, some of the modules were even built in New Zealand.

Senator PAYNE—Why do you say 'even' built in New Zealand?

Mr James—Just in terms of the 1,200 nautical miles distance across the Tasman.

Senator PAYNE—So it is close?

Mr James—Relatively.

Senator PAYNE—Not that it is a surprise; it is just that it is close?

Mr James—Relatively. What I am really trying to say, if I can simplify it, is that, all other things being equal, it would be lovely to have a naval shipbuilding capacity in Australia, but, if you look at what is happening around the world with the naval shipbuilding ability of countries with significantly larger navies and significantly larger export industries, you will see that they are having a problem, so it is likely that we will face a problem over the next generation. Probably no-one in Australia would not like to have, in perpetuity, the capability to build all the Navy's warships in Australia, but we have never done that so far and it is unlikely that we will ever do it in the future. Therefore, the bottom line must be that our defence capability must be the most efficient it can be given the limited amount of funds that are historically allocated to defence. We are doing okay at the moment, but this is, in Australian historical terms, a temporary aberration.

In the future it is likely—because of economic pressures, the ageing of the population and all that type of thing—that the defence budget will be savagely slashed again. If that happens, it is most unlikely that we will sustain a large-scale naval shipbuilding capacity here in the long term. The bottom line is that the Navy needs the ships. To an extent, it does not really matter where they are built, but it would be nice if they could be built here. There must be the ability to maintain and repair those warships in Australia in perpetuity.

Senator MARK BISHOP—Could I interrupt? We are using the words 'naval construction' and 'build'. Are you talking about the 20 to 30 per cent which is essentially the whole construction or also the 60 to 70 per cent that goes into command and control, weapons systems, electronics and all that sort of thing? What are you talking about?

Mr James—We are actually talking about both. The hull construction is essentially the popular or visible part of it, but what you put inside it is the really expensive part. We are certainly doing a fair bit of the inside bits, but most of it is under licence from foreign companies and an awful lot of it is manufactured overseas. Given technological complexity, that is likely to continue. For instance, it is not likely that we will build an Aegis system here in Australia. We might assemble bits of it locally, but we will essentially buy an American system. You can maintain an argument either way: that it is easier to maintain the capability to build hulls and

machinery, or that it is easier to maintain the capability to build the electronic and weapons systems that go inside the ship. We are not convinced either way that for the long term we can sustain all of Australia's naval shipbuilding capacity, either for hulls and propulsion systems or, indeed, for the bits that go inside. That is not the historical record and we cannot really see it changing.

Senator PAYNE—Does the ADA hold any view that there is any value in capacity building, skills training, for the Navy itself from having a naval shipbuilding industry in Australia—construction and build, as Senator Bishop put it? Is it important for Navy practitioners to have access to the sort of capacity that you are suggesting is not necessary in Australia, particularly in terms of systems and the 60 to 70 per cent aspect of the construction that we were discussing a moment ago?

Mr James—Yes, it is, but it is a bit of a double-edged sword.

Senator PAYNE—You are very good at that today, Mr James!

Mr James—Well, it is of obvious benefit to the Navy for the Australian defence industry to have the maximum capacity it can have, in terms of skills transfer, efficient use of resources and indeed cheaper projects over the long run. Unfortunately, there is also a demand-pull effect on retention, hence my 'double-edged sword' comment. The benefits of having a good industry to sustain the Navy probably outweigh the dangers to retention, but you certainly need to keep in the back of your mind that a thriving industry will keep sucking people out of the Navy because it will pay more. That is not to say that we should not have an industry so that we can keep a Navy. I guess that would be a simplistic solution.

Senator PAYNE—I do not think that is in our terms of reference!

Mr James—It is a very difficult issue, but on balance, yes, we agree: it is better that there be a thriving industry to support the Navy, even though there will be temporary distortions caused by it.

Senator PAYNE—We look forward to receiving your submission. You have the advantage of finalising it after the discussion here today.

Mr James—It was not an advantage we consciously sought, Senator.

Senator PAYNE—No; I understand that, and we extend our sympathies to those who are unwell.

Senator HOGG—Mr James, in terms of the naval shipbuilding industry and the requirements of our Navy, do you have a view of what we need strategically to defend our shores, in terms of the mix and match?

Mr James—I am just looking at the clock!

Senator HOGG—It may well be something that you can take on notice and put in your submission. It seemed to me that, as you were outlining what we need, you were saying, 'And

there might be a need for an extra destroyer' and 'And there might be a need for something else.' Do you have a concept as to the mix and match of what we need in the Navy and therefore what our naval shipbuilding industry might rely on for providing into the future?

Mr James—That is a very good question and it goes back to a point I made in my opening remarks, about the 20- to 22-ship program that was planned back in the early 1970s. Most strategic appreciations of protecting Australian sea lanes and protecting overseas exports indicate that we need a capital ship Navy with around 17 vessels, minimum. We have not had a 17-vessel capital ship Navy in a very long time, and essentially the destroyer and the frigate force have been about two-thirds of that figure.

It gets back to that simple point about the rule of three. If you are going to have defence capabilities, you need to maintain them in threes so you can guarantee having at least one and generally two available at any one time. That is why the air warfare destroyer project—an ugly term; we prefer just to call them the new destroyers—probably needs to be a four-ship project in the longer term: to guarantee that we can have two to three online at any one time. Similarly, buying two medium sized amphibious ships, with a sea-lift ship further down the track, is only mildly retaining the rule of three. It would be better to have three of them in the long term.

We have tried to maintain the FFGs and the Anzacs in blocks of three—reasonably unsuccessfully at times, but that has been the intention. If we as a country could decide on the type of Navy we needed, and we could resource and sustain it over time and have a scheduled shipbuilding program of churning out a major capital ship every 12 to 15 to 18 months to two years over the generations we would not be in the situation we are in. Therefore your question is a good one. One of the problems we are facing is because we never agreed on what we needed and then agreed on a program to sustain it over the long term. We should have made those decisions in the 1960s and 1970s and we did not, and we are now reaping the results of our inability to make that decision.

Senator HOGG—Is it too late to make that decision?

Mr James—Probably not, but in all honesty I cannot see any government of either political complexion addressing it. You have the problem, too, in that the current fleet has many legacy systems that will be with us for many years. But certainly when we look at the replacement frigate, some serious thought has to be given to the number of platforms we should be buying and the period over which they should be bought, or indeed constructed, here in Australia. The Navy is about as small as it should ever be. It certainly does need to be bigger. The cost pressures on having a bigger Navy are that we neglected the Army for 30 years, so we are now spending a lot of money to fix the Army. With the replacement fighter and strike aircraft it will be the biggest single defence project in Australian history. So the cost pressures against having a bigger Navy too will be difficult.

Senator HOGG—I saw corvettes mentioned in one of the latest submissions today, and they were mentioned earlier today. You have not mentioned them at all. I do not know if there is a role for a ship of that class. Dare I say that you did not mention the aircraft carrier? Is there a role and a function for that, given that we are going down the path of buying the JSF? You can get vertical lift-off and land aircraft in the JSF as well. If you ask some Navy people, that is in their grab bag anyway, I suppose. I am asking your organisation.

Mr James—The argument against corvettes is a simple one. It is to do, essentially, with sea-keeping in the region, particularly southern waters. One of the key reasons we need destroyers is because they can handle the sea-keeping requirements of the Southern Ocean much better than frigates. Our problem over the last generation has been that our ships have been too small, not that they have been too big. The last thing we need is another class of smaller ships. The New Zealanders have two offshore patrol combatants, essentially for political reasons. The project was built down to a price for fisheries protection. Most professional sailors believe that the New Zealanders are going to have very serious problems operating these ships in New Zealand waters because they are just too small. Any modern naval warship needs to be big enough to carry a helicopter, and corvettes, whilst they might land a helicopter, certainly cannot carry one. All you would have is another program like the Armidales, which are a great patrol boat and are a very good fisheries and immigration law enforcement vessel, but they are not a warship.

So we should be very careful about the siren song of any smaller ships when we actually need bigger ones over the longer term. They are cheaper to operate because you do not break them up as much by way of action in the Southern Ocean. The aircraft carrier question is a simple one. If we were to have aircraft carriers again, there would be no point just having the one. We would have to have at least two and probably three. That is probably unsustainable, both on the cost of initial construction and on the cost of manning and maintaining them over the life of the ship. Our new medium sized amphibious ships—and I use the term 'medium sized' deliberately, because they are medium sized by world standards—are not aircraft carrier sized, as the air power lobby keep saying in their scurrilous newspaper articles. The size of that ship is driven just by the requirement to have a simultaneous six-helicopter lift, so you can lift an infantry company group and put it somewhere on the ground.

With anything smaller we are risking the lives of the force members whom we put in. It is theoretically possible for those ships to be adapted in the longer term with ski jumps to take some vertical take-off jet aircraft. That is certainly unlikely to happen in the short term. Whenever this is raised by people, the ADA generally says, 'Please stop talking about this because you are playing into the hands of the air power lobby and we mightn't get the ships which we really need for amphibious purposes if they are able to keep peddling the myth of their quasi-aircraft carriers for the long run.' Given that the next generations—the sixth or seventh generations—of fighter aircraft are likely to be unmanned, the aircraft carrier argument is an argument fast moving into historical obscurity rather than offering a future capability.

Senator FIERRAVANTI-WELLS—The 2002 DMO paper, *Australian Naval Shipbuilding and Repair Sector Strategic Plan*, basically suggested that the government should establish a one purchaser, one supplier model, the argument being that having a single supplier results in greater efficiencies. Do you think that the decision to concentrate shipbuilding in South Australia, given, most recently, the awarding of the AWD contract to South Australia, will in effect achieve that result?

Mr James—It might indirectly. There was a lot of speculation at the time that the decision to give the contract to ASC was a political decision driven by four South Australian cabinet ministers. We certainly did not think that was the case. Quite clearly it was won because they put up the best market case. They won it on their merits. Competition is always good but let's face it: the competition we have had for recent projects has really been international competition. Each of the major international shipbuilders has had an Australian partner. It has not been the

Australian partners competing on their own. In effect, there have been wider international partnerships competing, and that is probably unlikely to change in the future.

Senator FIERRAVANTI-WELLS—You made a comment earlier, if I understood you correctly, that ASC should stick to building submarines. I did not quite follow that. Would you elaborate on your comment please. Were you implying that we should have specialised shipbuilders in Australia? Was that what you were saying?

Mr James—No, not at all. We are not saying ASC should stick to submarines, but we do make the point that, unless by some miracle someone else in the world starts building large, long-range diesel-electric submarines, it is likely that ASC is going to be the only supplier for the next generation of Australia's submarines, unless they are nuclear powered vessels. That makes ASC a special case in terms of the strategic needs of this country, because only a lunatic would advocate that we do away with our submarine arm. In strategic terms it is a major combat multiplier—and a major deterrent—for a country like ours that is so dependent on exports carried in ships.

Senator FIERRAVANTI-WELLS—Taking that a bit further and following your argument through, what do you think of the refocusing, if I can put it that way, of ASC in terms of its now going into shipbuilding, as opposed to having a submarine focus? What are your views on that?

Mr James—You would have to ask ASC about this. Certainly their public argument is the ability to build surface warships in the longer term and sustain the skills base to build the next generation of submarines. Given the strategic problem we face in building the next generation of submarines, it is likely—and I hesitate to say this—that there will still have to be significant government subsidies to ASC to do it, unless by some miracle the international competition for such vessels improves dramatically over the next 15 to 20 years—and that certainly is not the trend. The trend around the world is for the big submarines to be nuclear powered and for the diesel electric ones to be reasonably small. The Collins class submarines are a superb class of vessels but they are unique.

Senator FIERRAVANTI-WELLS—If I understood what you were saying, it does not matter where the ships are built as long as the Navy have them.

Mr James—All other things being equal.

Senator FIERRAVANTI-WELLS—A lot of the evidence that has come before us has focused on the long-term benefits and the cost savings over the life of vessels as far as repair and maintenance are concerned by building them in Australia. In light of what you have said, what are your comments in relation to that? Do you see just getting the ships as the highest priority rather than having the ongoing repair and maintenance skills over the life of the vessels and the potential cost benefits, notwithstanding the initial short-term increase in cost from buying overseas?

Mr James—What we said was that it is important that the Navy get the ships first. We also said it is important that the ability to repair and maintain them is retained in Australia. The ability to build the ships is the third-order priority. We have never said that we should not have the ability to maintain and repair them in Australia, because that is part of the operating capacity.

Senator FIERRAVANTI-WELLS—We will wait for your submission, Mr James.

Senator TROOD—On this matter of policy direction and the loss of capability that you referred to in the 1970s, is there some structural problem within the context of defence decision-making that precludes that decision or is it a political failure? You said in answer to Senator Bishop, I think, that it was not too late to rectify this position. What, in your view, would that require—to make it a viable policy in the future?

Mr James—There was no one cause for it and therefore there is no one solution. But until this country gets a far better capacity to assess its strategic circumstances, makes logical decisions based on that assessment, implements those decisions and has the political will to keep implementing them over the long term when it becomes politically uncomfortable to do so, we are going to be pretty much in the same rut. That is the problem that we have had in Australia. Our whole-of-government strategic assessment has not been well enough translated to a whole-of-government approach to things. For example, industry policy has always been looked at differently to defence policy. Both of them have often been looked at differently to trade policy. Unless we get a better whole-of-government strategic assessment on these matters, we are always going to have the problem. In a narrow, military strategic sense, Navy have been able to prove for years that they need a minimum of 17 capital ships. They have never had 17 capital ships because it keeps getting put in the political and economic too hard basket, and that is certainly something that we have to look at over the longer term.

Senator TROOD—You are obviously not optimistic that that issue can be addressed effectively in the short term?

Mr James—I like to pretend by academic inclination that I am a historian. Looking at Australian history, we have not really ever got it right and personally—this is not an ADA view—I remain reasonably pessimistic that we ever will get it right. There are just too many political pressures, and it boils down to that simple issue that no Australian ever changes their vote on a defence issue alone and therefore, under governments of both persuasions, the effort tends to go into those areas where the vote can be changed. That is why we have seen defence, which used to be the single greatest Commonwealth outlay, decline to sixth, and then it has got up to about fourth or fifth again over the last generation in particular. There just is not the political will on both sides of politics to adequately resource defence in the long term. The political process in this country is driven by a three-year federal electoral cycle and a fairly narrow perspective, whereas the defence capability planning and ship construction cycle, for example, is a 15- to 25-year cycle. There is this perpetual clash of perspectives. It is the ADA's view that we do not think that will ever change and it is certainly my personal view.

Senator TROOD—A suggestion was made to the committee that part of the solution to this need might be to build ships that have a shorter life—that instead of building ships that we kept in service for 30 years or so, we worked on a shorter time frame, we built them more regularly and we rolled them over more quickly. Does that have anything to recommend it to the association?

Mr James—We have heard this argument. It is largely driven by the fact that the proportion of the hull and propulsion system as to the total cost of the ship has changed over the years as modern propulsion technologies, in particular, have got a lot cheaper. There is some merit to it,

so long as the platforms are big enough. One of the key problems with the FFGs, for example, over the life of the ship is that every time you need to put something new into it, you have to completely redesign the ship because there is no spare space inside. You really have to think what can come out so something else can go in. It is a bit easier on the Anzacs, and it is one of the reasons why the F1-11, for example, has been such a successful platform—the fuselage was big enough so that no matter what black box was invented there was room to put it inside.

You could mount a sustainable argument to build ships with a shorter working life as long as they were big enough hulls to take into account strategic and technological change. Whether you could convince governments to do that is another question because it probably would be more expensive. Given the choice between building a new class of ship or having a through-life extension program, what traditionally have Australian governments chosen to do? They have chosen to save the money upfront, and not save the money in the long term, by buying the new ship.

Senator TROOD—The argument is that it would sustain the capability at all levels. It would sustain the skills, it would sustain the design capability, it would sustain the welding capability. At every level it would sustain the capability over a period of time which would be a national asset.

Mr James—That is probably quite correct, and it would probably be cheaper in the long run. The problem is you have to convince the government to spend the money now and governments traditionally prefer to postpone big spending decisions into the future and spend the money elsewhere where they see a higher priority—generally a higher political priority.

Senator TROOD—I suspect you are not optimistic about that.

Mr James—No.

ACTING CHAIR—Following on from what Senator Trood has asked, you have used the expression ‘sustainable’ and ‘sustainability’ with respect to naval shipbuilding into the future. It strikes me that in almost every defence project we have ever undertaken there has never been, save for the through life support aspect of that contract, a view to sustainability. Each of the companies that has produced the capability has then contracted down to the maintenance, care and support through life and we have approached each contract on a one-off basis. We have had a tender process, or we have gone to a commercial provider and we have asked for the capability and we have not looked at, for the reasons you have said—the three-year political cycle—what is the strategic need. All political parties differ on that. We have simply gone forward and said, ‘Here is what we need now’ and the government has made the decision, bitten the bullet and gone forward and built constructed or purchased what it has wanted. Why do we need sustainability, given that to some extent that has served us reasonably well, given our size, and given the region?

Mr James—Surely it boils down to the bulk of the questions this afternoon. If we are to have a long-term sustainable shipbuilding industry in this country, then there needs to be a bipartisanly agreed schedule over the long term—and we are talking a 20- to 30- to 40-year term here, not a narrower term—to continue to resource that, irrespective of what occurs.

Probably one way to look at this would be to say: 'Why is it that the new destroyer project is only building three ships? Why not four, five or six?' The answer to that is simply that the amount of money that the government was willing to make available—and if the opposition were in power it probably would not be any different—was fixed not on the strategic need of the number of ships we required over the longer term but over the money that would be made available to build ships. In other words, the figure of three is driven by the finance, not so much the strategy. If we are going to have a sustainable naval shipbuilding program, we have to break that nexus.

ACTING CHAIR—You are saying that sustainability is the cost of the platform, which is a nefarious term, plus through-life support—that is all? You are not talking about having three viable, capable shipbuilders out there being able to produce vessels and to compete against each other to produce vessels in the nature of responding to government policy with unlimited resources?

Mr James—That would be sustainable in economic terms but it would not be our way of measuring strategic sustainability.

ACTING CHAIR—You are talking about a viable producer who can go on and deliver the capability and support it through its life?

Mr James—If we had a longer term program to, say, build a ship for the Navy every 18 months for 20 years, you would probably have reasonable competition because that would probably justify two different shipbuilders. That is certainly the British experience. But until we get that type of program, we are basically faced with, as you referred to earlier, the fits and starts injections of small projects where Defence is the monopoly buyer and any competition that we have generally involves international partnerships and is temporary rather than a long-term economic proposition for the companies involved in Australia.

ACTING CHAIR—But is it not the fact that not one of our major military allies, the UK or the USA, has developed—notwithstanding their demand being tenfold beyond ours—a reliable, sustainable naval shipbuilding capability? Ingalls and Bath Iron Works are always complaining that there is no consistency in the number of orders and the build is problematic. It is the same in the UK. Isn't that the nature of naval shipbuilding—capability changes, it is a moving feast and technology comes and goes?

Mr James—And the strategic pressures change faster than the life cycle of the ships. Aren't you now saying what I said right at the start?

ACTING CHAIR—Maybe I am.

Mr James—That if we look at the trends in overseas countries, and if they are having problems, then it is obviously going to be very difficult for us?

ACTING CHAIR—Don't we just have to shoulder that burden and say, 'If we want the capability, we have to pay for it'?

Mr James—Yes. But looking at it in historical terms, governments of both political persuasions have not been willing to do that.

ACTING CHAIR—No. It is a very high cost.

Mr James—Yes. They prefer to spend the money elsewhere because it is always very convenient to talk down the strategic situation and spend the money somewhere where the votes can be bought.

ACTING CHAIR—So it is about haggling to get the capability for the lowest possible price and trying to work your way through a project to have it delivered onshore at a price that is acceptable?

Mr James—Is not all politics haggling?

ACTING CHAIR—I think it is. I think that completes the evidence. Mr James, once again, thank you very much. I think that has been most fruitful. Thank you for your candour and the entertainment value you bring in that candour to the committee. Thank you very much; we appreciate it.

Mr James—Thank you.

Proceedings suspended from 12.59 pm to 1.37 pm

DOOLAN, Rear Admiral Kenneth Allan (Retired), Member, National Defence Committee, Returned and Services League of Australia

ROACH, Commodore Terence A, Member, National Defence Committee, Returned and Services League of Australia

ACTING CHAIR—Welcome. You have both seen a copy of today's opening statement. Do you have any questions or queries with regard to that?

Rear Adm. Doolan—No.

ACTING CHAIR—We have received submission No. 6 from the Returned and Services League of Australia. Do you wish to make any amendments to that submission?

Rear Adm. Doolan—No.

ACTING CHAIR—I invite you to make a brief opening statement, whereupon senators will follow with questions.

Rear Adm. Doolan—The Returned and Services League of Australia thanks the Senate committee for this opportunity to present its views about the future of naval shipbuilding in Australia. Australia will continue to enjoy the protection of its maritime surrounds for the foreseeable future, provided that the nation ensures it maintains the ability to project a naval force with state-of-the-art contemporary combat capability over long distances and that this naval force is one with which to be reckoned. To achieve this, Australian warships now in service or planned will have to be replaced and/or augmented at least twice over the next 50 to 60 years. This applies whether the vessels are surface combatants, submarines, mine warfare vessels, amphibious warfare ships or logistics support vessels.

Sensible long-term planning over this period would allow Australian industry to schedule the build of naval platforms to meet this need. Nations design and build and market warships to other nations for explainable reasons. They gain economically, industrially, scientifically and strategically. In sum, they sell warships to other countries because it is in their national interests to do so. Variations to industrial relations regimes, taxation laws, shipbuilding subsidies and a host of other like mechanisms are available to vendor governments marketing warships to other countries at a cost that is less than that for which the vessels can be produced in the buyer state. More to the point, most if not all of these mechanisms can be kept from public scrutiny under one guise or another.

Offshore construction would deny the very significant economic, employment, technical, educational and social multiplier benefits to the Australian people which constructing warships in Australia has brought in the past and would continue to bring in the future. It would demonstrate a shallow superficial analysis of the issues involved and an inability to take advantage of the opportunities to advance the capacity of Australian industry to compete in markets both in and beyond the defence environment.

A viable and competitive national naval shipbuilding and ship repair industry has been created in Australia over the past decades. The Returned and Services League of Australia considers that it is in the national interest to retain this important industrial asset. Decisions on the construction of future Australian warships taken either solely or largely on the basis of cheap bids from overseas vendors have the potential to undermine the hard-won gains of recent years. That concludes our opening statement.

Senator HOGG—Before you were here today, I asked a witness: does your organisation have a view of the mix and match we need strategically for the Navy over the longer term, or is it just on a case-by-case basis that we respond to the need as required? This is one of the things that, in my view, lead to the issue of long-term sustainable industry in this country.

Rear Adm. Doolan—In answer to your question, the RSL National Defence Committee believes that we should, from now on into the future, as we made clear in our opening statement, have either the replacement of or an augmentation of the current broad based fleet—in other words, the whole panoply—through into the future. As far as we can see into the future, there will be a need to maintain a viable combat-capable naval force in all its elements—in other words, surface warships, submarines, mine warfare forces, the whole lot. In other words, we see a whole package deal over the 50 to 60 years as being necessary, rather than it being on a case-by-case basis.

Senator HOGG—But you do not have any specifics as to what that strategic force we need would be made up of? In other words, is there a need for more destroyers, more frigates? Should it be at the lower end in patrol boats? Do you have some sense as to where the strategic needs lie?

Rear Adm. Doolan—To answer that question, I go back again—when I say 'combat capability', that means a force that can go out there and be part of a very large international force with friends and allies or that it can go out there by itself, if Australia is involved in something of its own doing, and be able not only to do the job but to survive in a combat environment. In other words, it needs to have the full panoply of naval force at sea—air coverage to protect it from the air, the ability to take on targets or weapons that are fired at it from the air, the ability to take on surface combatants and the ability to take on submarines. It needs the total panoply of what a naval force is all about. I will defer to my colleague here, who might wish to add to that question.

Cdre Roach—We need to maintain a balanced force, and to put an emphasis on any one particular arm of that force without sufficient reason would be unwise. At present we have a well-balanced force. We have a destroyer force, which is about to be augmented by the construction of the air warfare destroyers. The new submarines are now settling well into service. We need to ensure that the force remains balanced and that the capacity of our naval shipyards to produce that force remains intact.

Senator HOGG—One of the arguments that has been put to us is that, because things seem to be done on a one-off sort of basis, there is no consistency in the orders that roll through, there is no consistency even in the period that these occur so that you have peaks and troughs in the industry, which make it very difficult for industry to survive and cope. I am putting this in the broadest of terms: if there is a long-term sustainable force concept that is required, it may well

be possible to better plan the placement of individual platforms and therefore maintain a viable industry; otherwise our industry in the longer term will undergo some pressures, regardless of whether we like it.

Rear Adm. Doolan—We would respond by saying that is exactly the line we are taking. I will go back to my opening statement and say, if we look out over 50 to 60 years and have a consistent pattern of building warships in Australia and fitting in, as my colleague has said, 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.

Senator HOGG—I accept that. You may well need to take this on notice and respond later. Do you have, say, a 10-year, a 20-year and a 30-year perspective as to where our Navy should be at—not necessarily being overly prescriptive but in terms of its capability, its capacity to be able to meet our maritime commitments and needs? If you do not, I can understand. But if you do, it would be of interest to the committee to see such a plan.

Rear Adm. Doolan—We are prepared to take that on notice and come back to the committee with a more considered response than the one I am about to give and to which my colleague may wish to add. There are a number of factors that clearly have to be taken into account there and the fundamentals of naval warfare is one of them. Those fundamentals seem at the moment unlikely to change. However, if there is some remarkable technological breakthrough somewhere down the trail between now and the 50- to 60-year mark we were talking about in our opening statement then clearly that will change things.

Forces at sea, however, seem likely to have to cope with air, surface and subsurface threats for the foreseeable future. By ‘foreseeable’, again I am going out 50 to 60 years. Forces at sea need therefore to be able to not only combat those threats but also survive attacks from those areas. That, in turn, brings a need to have the capability in surface and subsurface platforms and aerial platforms borne by those surface platforms and in some circumstances by aerial forces which may be either land, aircraft carrier or space based, particularly if one is working with major friends and allies. It would very much depend upon the circumstances which any future conflict may give rise to.

That said, the experience which we share is that it is an unwise maritime commander at sea who does not ensure that he has available to him the full panoply of the wherewithal to cope. We have seen in the past examples where the lack of that capability has led people into danger. Let me give you an example. When I was Maritime Commander Australia and the commander of Operation Damask for our forces deployed in the first Gulf War, we were very concerned about mine warfare in the Persian Gulf. Mine warfare is a very cheap and easily done thing. What happened there is now a matter of history. Two ships of the United States Navy were severely damaged by basic mines. We knew there was a lack of capability in our forces at that time. Thankfully, with the advent of the Huon class minesweepers, that has now been largely alleviated. That gives an example of the sort of panoply of force I was talking about.

Let me just pick up on that particular force aspect. At some time in the future the Huon class minesweepers will have to be replaced by a then state-of-the-art contemporary mine warfare capability force. It is our contention in the RSL National Defence Committee that those mine

warfare vessels should be constructed in Australia. If we went out for sensible planning, we would now have that in the pattern saying, 'Here is the end date for the current series of forces to be retired,' because they will have reached their life of type, and by that stage we should have coming into force the next generation, built in Australia.

Senator HOGG—Hence my question to you about your timetable of 10, 20 and 30 years. That is the sort of thing I had in mind.

Rear Adm. Doolan—We will take that on board as you suggest, run that past our committee and come back to the Senate with a more considered answer.

ACTING CHAIR—What I would like you to discuss with the committee—and Senator Hogg has gone forward; I would like to go back—are the commands and the interaction that you had in terms of off-the-shelf purchases. Our DDGs were largely off the shelf from the United States, if my memory serves me correctly, and many other vessels back into the 1960s and late 1950s were like that. We have progressed from a country of somewhere between 10 million and 15 million to a population of 20 million, and we now take it upon ourselves, through a whole host of commercial developments in oil, gas, minerals and that sort of stuff, to go about the task of trying to construct—and succeeding in constructing—large ships for the Navy. Anzacs are the pinnacle of that, as is our current project, the air warfare destroyers. I am interested to know what the benefits and detriments are; what happened with respect to American built vessels that we took over, bearing in mind *Manoora* and *Kanimbla* fit that bill; the way you went about dealing with subcontractors and small to medium enterprises in providing the through-life support for those vessels back through the 1960s, 1970s and 1980s; and what difficulties we had, if any, in that regard. So take us back through your own experience and let us analyse what it was like back then, because I think that gives us a bit of a window into where we are going now.

Rear Adm. Doolan—I will start off in answering your question by going to the Australian experience rather than the DDGs in which I served—and I in fact served in all three of those.

ACTING CHAIR—Good. I was hoping you might say that.

Rear Adm. Doolan—I will come back to those as the second part of the answer to the question. I was the commissioning commanding officer of HMAS *Tobruk*, the current amphibious heavy lift ship, built at Newcastle. I therefore had the experience of seeing the work that went on in an Australian shipyard. I experienced what it was like to build in our country—admittedly to an overseas design, albeit modified by Australia—and I saw the benefits of having done that not only then but now. I will give you just one instance as an example of the benefits to other industries and, indeed, to the Navy. After we had gotten going and were doing first of class flying trials in Jervis Bay one Saturday, as is inevitable in a new ship, some things went wrong and one particular piece of equipment fell over.

If we had bought that ship, as we could have done, from a British builder, in all probability we would not have been able to continue with our operations. Because it had been built in Australia, most of the bits and pieces—whether or not they were manufactured in Australia—were delivered by Australian suppliers. It just so happened on that occasion that one of the senior sailors on the ship recalled who had done the job because he had been standing by the ship during that part of the build. We sent him ashore, because this was before the days of mobile

telephones, and he picked up the phone ashore—or perhaps he was put through by radio from the ship; I cannot recall. The end result was that he hauled this guy off the golf course on a Saturday afternoon. He went into his place of business in Sydney, he opened it up and pulled the piece off the shelf. They talked about it over the phone and got a general description of whether it was the right piece—it was. It was in a taxi on its way to the naval supply system and was with us within 24 hours.

We found that was just one instance of the many occasions during the first commission where you go through this very difficult period of bringing a new ship into service, where the support of not only the actual shipbuilder himself going to slipways but the very many industries which were part and parcel of that build was vastly important to us. That is the big advantage of building a warship in Australia. You have this background of a whole series of other small industries.

It is quite surprising—you would think that some of the industries must be involved just in defence, but they are not. In fact, they are just local electrical industries or cabinet makers or whatever, who are picked up at the time, who can provide a good quality product on time for the major contractor. That is the great advantage, in my experience, of having a ship built in Australia.

Let me tell you a story about another aspect of support for ships, and I am not being critical of systems here. Indeed, my service experience in the three DDGs and my experience as maritime commander, when I commanded the fleet and we had the guided missile frigates in our service was that, by and large, the ships were well supported. We came to understand the interface with the United States Navy over a period. Let me start with the DDGs and give you another example of this support aspect, which is just as important as the actual build of the ship. At the time that I was serving in the first of the DDGs—I served on HMAS *Perth* just before its third tour of the Vietnam War—we were working up and getting ready to go and there were any number of small bits and pieces, not critical bits and pieces, which we could not get supplied. There was no criticism, no stopping the ship going. It could be prepared for war, but there were little things like fluorescent lights for desks et cetera that we could not get. One of the benefits of having a local supplier is that you can go straight to them and get them. We did not have a local supplier; we had to go through our supply system which had to communicate with the United States Navy supply system and, with the extended time over the Pacific, it takes a long time to get things in. Sensibly, you do not buy too many and store them on the shelf. In other words, the 'just in time' principle is fine, as long as your supplier is next door.

When we arrived in the theatre of operations, our first port of call was Subic Bay. Almost every senior sailor on the ship descended upon the local United States naval base there and came back, as though they were going into a supermarket, with trolley loads of all these small bits and pieces. During our service in Vietnam we were able to be supplied by the USN and they did it exceptionally well, with all that panoply which they have as the back-up logistic force. In other words, the tail was shortened. We were there with them and so we did not have this business of having to go through the system. That is the experience of being away from and close to the support of a local supplier, which is very much part and parcel of running a modern warship.

Further, in my experience as the naval attache in Washington I was surprised one day when I received a piece of paper over my desk saying that the supply of clips which hold the

ammunition on the close-in weapons system ammunition feed belt was denied because it was contrary to the security interests of the United States of America. I looked at my calendar—no, it was not 1 April—and I thought somebody must have made a mistake.

My inquiries led me to find that we were entitled to go to a supplier, other than the foreign military sales system that the United States Navy runs, to acquire small quantities of these clips. I found that we had done this because our order, as a top-up supply, was quite small, that the clips we had acquired had been produced from the same production line and that this United States supplier had very sensibly bought the end runs of various big production runs and put them aside for customers such as us. They were all stamped and duly approved as being of the right specifications and having passed tests and the like. The more I went into this, the more I found that I was up against the entrenched bureaucracy of the foreign military sales system. In the final analysis, we had no alternative but to accede and buy our small supplies through that foreign military sales system. We could not budge them.

Again, it was a salutary lesson—and I mean no criticism by this—that this is the way the world is run. In other words, as I said in my opening statement, other countries have good economic reasons for doing what they do. The United States military has a foreign military sales system for very good reasons and it has benefited Australia but, in this instance, it would have been cheaper and quicker for us to have gone directly there.

So I hope that, with those few little stories, I have given you an indication of the sorts of things that are important when you are dealing with locals and with somebody in another country—and I could continue on a number of other topics. When you are building in your own country, even if it is an overseas design—and the shipbuilders have done this, as Carrington Slipways did for HMAS *Tobruk*—you sit with the ship designer overseas and nut out all the problems you foresee in building the ship so that you have that data and information. So we have what we effectively call a 'class authority' in Australia so that there is a technical basis upon which to maintain that ship through its life of service. For most warships, the life of service is 20 to 25 years—and it is vastly important.

ACTING CHAIR—Which is what we have done with Collins class and ASC. They are a design authority.

Rear Adm. Doolan—That is correct.

ACTING CHAIR—Commodore Roach, is there anything you wish to add?

Cdre Roach—I could provide similar stories to do with the maintenance of the Oberon class submarines, which we got from the UK—Scotts on the Clyde. The details are different but the principles remain the same. If you have the supply within Australian control, the supply chain is much less short. One of the overheads, though, of doing the shipbuilding in Australia is that you have to maintain an organisation like the class authority. If you buy from offshore then somebody else is paying that overhead. We need to recognise that.

ACTING CHAIR—And having someone else carry the overheads is as much a problem as a cost efficiency, to some extent, isn't it?

Cdre Roach—It is a deficit in the balance, but the other advantages are so overwhelming that they more than offset that small deficit. It also gives us a lot more assurance that we have the expertise within our own organisation to make informed engineering judgments about whatever issues may arise, rather than relying on somebody else's opinion—which, at the end of a 12,000-mile email chain or conference call, is never as well informed as when you have their representative on site to provide immediate advice.

Rear Adm. Doolan—If I could just add a postscript to my colleague's comment there. As a former operational commander for our combatant maritime force it was always vastly important to me that I had experts there, on the spot, to give me advice, particularly when things had to move fast. I will give you an instance of that: we were advised about the likely deployment of forces to the first Gulf War in the early part of August 1990. The Prime Minister of the day made his statement about the deployment of those forces on a Friday at about 10.30 in the morning. We deployed two frigates and a fleet oiler something like 72 hours later. It was a quite phenomenonal exercise. It could not have been done without everybody putting their shoulder to the wheel, and one of the great benefits was that we had all our expertise for most of the things in our own hands.

From an operational commander's point of view, having your class authority in Australia is very important. Okay, we did not have class authority for the FFG7, but it was a very populous vessel and by that stage we had already built a few of them in Australia so we were well aware of the capabilities of the ship and had a long experience of looking after them. But the Durance class, HMAS *Success*, we built here ourselves. We knew what we were talking about and I could rely on the fact that I was getting hands-on expertise. For an operational commander, when the chips are really down and you have to move fast, that is vastly important.

Senator FIERRAVANTI-WELLS—We have heard evidence about the long-term benefits of having repair and maintenance in Australia. It is clear from the examples that you have given why that is so. People have talked about a premium for building in Australia. Even if that premium were up to, say, 10 to 12 per cent, in your view would it be worth while in the long run, given the long-term benefits and the ultimate cost savings we would get from building in-country rather than purchasing off the shelf—perhaps saving in the short term but benefiting in the long term?

Rear Adm. Doolan—The RSL National Defence Committee looked at this quite closely and, as you will see in our submission, one of the things that we are very suspicious of is the so-called costs put forward by vendor nations as to what it actually costs to provide a warship to Australia. There is no way that we can be convinced that those figures will be absolutely precise. The reason we say that is for the reasons I gave in my opening statement—that is, we have no way of knowing what internal arrangements are made in those countries between those countries' navies and their shipbuilding and ship repair industries. We have no way of knowing and comparing in terms of finance how the industrial relations regimes in those countries pan out and whether the efficiencies they claim to gain are at the expense of industrial relations benefits that Australian workers enjoy. We have no way of knowing whether there are special taxation arrangements made between those governments and their shipbuilding industries and the like. So, until such time as we can be convinced that the so-called premium being paid is actually real, we take the view that the other benefits that flow to Australia are vastly more important. If in fact we could

get a strict comparison, we believe that those so-called 10 per cent premiums that you mentioned may be completely specious.

Senator FIERRAVANTI-WELLS—So we should really look at that with great scepticism?

Rear Adm. Doolan—Our view is that, unless you can be assured that when somebody says they will sell you a specific type of warship with specific capabilities at a specific cost and you know what goes into making up that cost, you should judge those figures with deep suspicion.

Senator FIERRAVANTI-WELLS—So what you are really saying is that you have to compare apples with apples. In other words, you have to get the breakdown of whatever the cost is overseas and compare it with exactly the same situation in Australia—that is the comparison you are really saying that those making the decisions should make.

Rear Adm. Doolan—That is exactly what we are saying. We are also saying that we very much doubt you will ever be able to get those figures. My experience with going around and looking at the two contenders for the Anzac ship was that there was deep suspicion in one country as to whether the other country's government was providing a huge amount of money behind the scenes to support their bid. When asked the question, I said as far as I knew it was a level playing field. But I had no way of knowing then; I have no way of knowing now.

Again I come back to it: why does another country want to sell Australia warships? They want to sell Australia warships because it is in their strategic interests, they want to sell Australia warships because it is in their economic interests and they want to sell Australia warships because it keeps their people in employment. Therefore, the reverse means that Australia does not gain those benefits which we would otherwise get. As both my colleague and I have stated, those benefits are very wide sweeping and they cover a raft of industries. In fact, we have quoted in our submission a number of papers to support that view. In summary, I put it to the committee that the RSL National Defence Committee remains to be convinced that the so-called bottom lines of figures being produced by overseas suppliers of warships are in reality the actual costs.

Senator PAYNE—Rear Admiral Doolan, that goes exactly to paragraph 8.4 of your submission: receiving accurate and detailed proof that one option is more economically viable than another. The matter I wanted to raise with you is one that both you and Commodore Roach referred to just before Senator Fierravanti-Wells began her questions, and that is really about the value of a connection between the construction and build process and the Navy itself. Commodore Roach, you made a point about being able to make informed engineering judgments and, Rear Admiral, you talked about the value to the operational commander of having the class authority in Australia. Taking those two specific statements and drawing them more broadly, when we were talking to Neil James from the ADA before the lunch break, one of the issues I tried to discuss with him was about what value there is to Navy of having the build occur in Australia, having a relationship that can start early in the process and continue through the through-life support. I would be interested in your views on that.

Rear Adm. Doolan—I will start off, and my colleague might care to follow me on that particular point. My view is to some extent coloured by my experience in two postings that I had: one commanding HMAS *Tobruk*, and the other one as the fleet commander. In commanding HMAS *Tobruk*, having had the ability to stand by the ship and watch the last part of its

construction, and having a number of my key people on board also stand by the ship and be present during the last part of the construction, through the launch and the fit-out, meant we knew that ship. We had a body of knowledge about that ship which gave us an assurance that we could safely operate the ship.

That is not to say you cannot get that if you buy it from an overseas seller, because you can certainly apply to them to have people standing by the ship. But when you are in an Australian shipyard with Australian workers bent on a common purpose, I found there is an enormous camaraderie, which was borne out in my instance on the *Tobruk* where to some extent—I suppose jocularly, until such time as I had proved that I could actually take the ship down the Hunter River safely—I was regarded somewhat as like a character out of Gilbert and Sullivan. Once I had achieved that, I was their skipper. We worked together with that shipyard as a team. We were Australians, working together to a common purpose. The value of that is incalculable.

Going to the fleet command, it is about the overall knowledge that a commander has of the assets he has under his command. All right, a commander obviously has to know his people and he has to know the training and all those sorts of things, but in terms of the hardware—the ships and the submarines and so forth—it is a case of knowing the advice you are getting is based on deep knowledge. It is those key critical questions that a commander has to ask from time to time, be they about a submarine, be they about a naval helicopter or be they about a surface combatant or a mine warfare vessel. You can only get that if you have people who have had the sorts of experiences I have been talking about. My colleague is far more experienced in submarines than I am, and he will undoubtedly want to have some say in this.

Cdre Roach—It extends not only to the construction of the ship but also the equipment, particularly the software that drives the electronic equipment, which is a key element of the weapon system. If that support is available in Australia, then there can be high levels of interaction between the operators and the engineers and the software engineers who are doing the design and refinement of the software in the weapons systems. In the build up of what was called the submarine weapons update program for the Oberon, it was a case where the overseas supplier provided equipment that met the specification, but, in fact, it did not meet the purpose for which we wanted it.

We developed the Submarine Warfare Systems Centre, which provided the interaction between the operators and the engineers, and we provided modifications to the original software, as supplied by the manufacturer, which was far superior in as much as that it worked, the torpedoes it was meant to control operated correctly, and it gave us the confidence to take on an indigenous integration of a new weapon system, the submarine launched harpoon missile. We did that here in Australia; we did not get anybody else to do it. So we had a deep knowledge within Australia of how that weapon system, the harpoon, could be controlled.

ACTING CHAIR—Thank you very much, Rear Admiral and Commodore. It has been most informative. I want to thank you, on behalf of the committee, for your submission, but also for the extra dimension we have put upon that submission this afternoon.

[2.25 pm]

LAWSON, Mr Mike, General Manager, Aerospace Defence and Australian Industry Participation Branch, Manufacturing, Engineering and Construction Division, Department of Industry, Tourism and Resources

PETTIFER, Mr Ken, Head, Manufacturing, Engineering and Construction Division, Department of Industry, Tourism and Resources

ACTING CHAIR—Welcome. You have both received a copy of today's opening statement. Do you have any questions regarding that document?

Mr Pettifer—No. We have both received it and read it and we are comfortable with it.

ACTING CHAIR—Very good. I invite you to make a brief opening statement, following which senators will ask questions. I thank you for the submission we have received. We are working our way through it so that we can ask some intelligent questions.

Mr Pettifer—I apologise for the late delivery of our submission. I am pleased that you have got a copy of it now to look through. I thought we might briefly run you through some of the key points of that submission by way of introductory comment. I will get my colleague Mr Lawson to do that shortly. First, by way of background and context, I will make a couple of points about the department. We are responsible for a range of industry policies and programs in the department, and basically they are about supporting the performance of Australian industry. When we are thinking about policy issues, we do not attach a particular significance or importance to the fact that a firm or an industry might happen to be in the defence sector. Our policies and programs, whether they be in the defence area or elsewhere, are really focused on three broad themes. These are key issues in terms of industry competitiveness and they focus on fostering innovation, encouraging investment and developing international competitiveness.

An important point to realise is that competition and market orientation are at the centre of the government's industry policy approach, so the policies that we have are designed to work with the market rather than against the market. That is an important touchstone for the way we think about industry policy. So our work on defence industry operates within that broader policy framework and we have a particular focus on trying to facilitate the participation of Australian defence firms in global supply chains. Perhaps we can talk about that a little bit later on. I will ask Mr Lawson now to speak to our submission, which goes to the specific terms of reference for the inquiry. In putting this together, we have tried to focus on the economic drivers relating to the construction of large naval ships in Australia and to comment on some of the analysis that has been done in this important area. I hope the committee finds that a useful contribution.

Mr Lawson—I will make a couple of quick points against each of the terms of reference. On the first term of reference—the capacity of the Australian industrial base—there has been no commercially driven Australian large steel shipbuilding in Australia since the 1970s, but fast aluminium vessel shipbuilding emerged in the late 1980s. In shipbuilding, as in other sectors, the technological and economic drivers are for increasingly globally integrated production systems,

with Australia playing a role where it can create competitive capabilities. In the submission, we look at each of the main shipbuilding domains and make some points about each of them as they are now.

Looking to the future, we make two main points. One is about skills. Availability of skills is an issue that will have to be managed, and there may be risks to the naval shipbuilding projects if all the possible resource projects go ahead. We provide some data in the submission about possibly competing resource projects, to give you a picture of the size of those.

In terms of another point for the future—the capacity to export ships—we draw your attention to a RAND Corporation study of the UK naval shipbuilding which seems relevant to Australia's prospects for exporting naval ships. To quote from that study:

> The naval export market is largely focused on modestly priced frigates, economic exclusion-zone patrol vessels, and small conventionally powered attack submarines. UK warships are, in general, more complex and expensive than potential buyers demand ...

It seems to us that that applies pretty well equally to Australia. Nonetheless, DITR believes that the global supply chain provides opportunities for exporters of components and systems.

I turn now to your second term of reference, 'The comparative economic productivity of the Australian shipbuilding industrial base and associated activity with other shipbuilding nations.' On this question, we refer to three things: (1) market outcomes; (2) industry statistics, and (3) some company benchmarking data.

The comparative economic productivity of shipbuilding industries around the world, which is determined by underlying economic factors and by varying past and current government subsidies around the world, is revealed by market outcomes. Australia is very productive in aluminium fast ferry shipbuilding. Australian companies virtually control the world market for large fast ferries and are thereby revealed to be the most productive in the world in this market segment. 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 30 years. Tenix's decision to purchase the large ship component of New Zealand Project Protector from the Netherlands rather than build it in Australia or New Zealand is a recent example of that.

On the industry productivity data, we provide some industry statistics but note that the available measures of productivity are very imperfect. On the best measure we can find—value added per person—Australia is relatively productive. On firm data, First Marine International is a consultancy firm that does international company benchmarking in the shipbuilding sector. Unfortunately, they have not published information on Australia, but if information on Australia did become available from this source, we would provide some advice on interpretation of that data.

On the third term of reference, we make two points. The first point is that the impact of the location of build on through-life support costs should be identified by the government's Kinnaird procurement processes. The second point is that quantitative estimates of the comparative costs from the Anzac shipbuilding project of the location of build is that those studies were based on specific assumptions that may not apply generally. In particular, it is not correct to assume that

an overseas build means that repairable parts must be sourced overseas. For example, Tenix are sourcing much of the equipment for the larger protector vessel which is being built in the Netherlands from Australia and New Zealand, precisely to ensure that the costs and problems of maintaining overseas-sourced equipment are avoided or minimised. The equipment has been containerised and sent to the Netherlands for installation. The ship will also have its final fit-out in New Zealand.

On the fourth term of reference—the broader economic development and associated benefits—we would like to make a comment on the Tasman Asia-Pacific study, the Anzac ship project and how that may or may not be applied to future projects. Two common methodologies were used in the analysis of the macroeconomic benefits. They are multiplier analysis and the general equilibrium analysis.

Input-output multiplier models assume unlimited unemployed resources. In a relatively fully employed economy with scarce skilled labour and price pressures on raw materials, input-output multipliers do not provide credible results. The general equilibrium analysis is based on an assumed efficiency increase and is a more modern approach to analysing the effects than multiplier analysis. In general equilibrium models, all resources are fully employed and the basic way that the model can generate an increase in economic welfare and GDP is for an increase in efficiency to occur. However, not all policy proposals generate efficiency gains in general equilibrium models and the Anzac ship project is one such instance. In crude terms, the modellers assume a three per cent increase in efficiency and the model cranks out the resulting increase in GDP. The results are derived either from assumptions or from a survey of firms about what the efficiency gains might be and those are then fed into the model and it cranks out a result. Those are some introductory points on the topics. We would be pleased to take questions.

Senator MARK BISHOP—Thank you, gentlemen, for attending today. I have not had time, obviously, to do more than glance at your submission so, depending on the discussion and the thoughts that occur to me later on, we might seek that you return if we have another day's public hearing, if there are matters of relevance we need to discuss.

I was intrigued by your comments at the outset, Mr Lawson. You said that the government's industry policy in this area is one where competition and market orientation are central to government industry policy within the defence framework and that at this stage there is no particular defence industry policy or naval shipbuilding construction policy apart from the framework you outlined. Is that correct?

Mr Pettifer—Senator, they were my comments so I think I should respond to that. What I was saying is that within the department—and, remember, we are the department of industry not defence—we treat defence firms, or defence industry, in the same way we would treat firms in the non-defence sector. So the industry policies that we apply relate equally to both defence and non-defence sectors. We do not discriminate, in our own minds. For example a firm, whether it is in the defence sector or not, is able to apply for the research and development assistance programs and get benefits. We do not give preference to a defence firm just because it is a defence firm.

Senator MARK BISHOP—I understand that. But you also are a portfolio of government and you apply government policy. You do not determine policy; you apply policy as determined, and

government's policy in this area is for nondiscrimination between defence and non-defence firms. That is for market orientation and competition, to give results. And you apply that. Is that a fair comment?

Mr Pettifer—That is the way we think about it within our department. The overlay, if I were in the Department of Defence, would be that there is a strategic requirement in certain cases to have certain capabilities and defence industries, and that is the overlay that they apply. And of course Defence has a heavy influence on the structure of industry through their purchasing practice, through their procurement policies. I am not talking about any of that. That is something that is exercised by Defence. What I am talking about is the way we think about defence industry issues in the department and how we go about our work. What I am saying is that we have a broad industry policy framework and that defence industries are like any other industries operating within the framework. That is not to say that we do not work with the defence industries; we do work with the defence industries, particularly in terms of trying to facilitate their participation in global supply chains, for example—and we can talk about that. So we are working with firms to help them secure new international opportunities, and we do that under that industry competitiveness theme that I mentioned early on in my introductory remarks.

Senator MARK BISHOP—It appears to me then that there is possibly room for conflict. You have just outlined the government's industry policy, your department's role and how you carry out your job. But if I asked you if there was a defence industry policy, you would respond to me that I should ask the Department of Defence if such a policy exists and what it is, wouldn't you?

Mr Pettifer—What I would say is that we work closely with the Department of Defence in working with our defence industries. What I said to you is that that they have some particular policy drivers within that department which affect their decision making and they have particular strategic defence needs which affect their decision making, and that all forms part of the broader government defence industry policy framework. I am talking about how we within the department think about defence industries, if you like. I am from the department and I can only talk about that perspective. I do not think that is in conflict with pursuing those other objectives. I think they work hand in glove.

Senator MARK BISHOP—Is there a whole-of-government defence industry policy that is carried out by different line portfolios—in this case, you, Defence and possibly others relevant to the debate such as Finance or Treasury?

Mr Pettifer—We work closely with Defence. In fact, I can give you examples where we have actually exchanged staff and those sorts of things. We are very clear about what the Defence-Industry policy is. Departments bring different perspectives to the table on these issues but, as far as we and Defence goes, I think we have complementary policy approaches. They are synergistic approaches, as far as I am concerned.

Senator MARK BISHOP—Do you understand what I am driving at?

Mr Pettifer—If you are saying that within government there are conflicts of approach, there are different perspectives on issues, I suppose. Different agencies bring different mind-sets to the table but, as far as DITR and Defence goes, we work very closely together and I think the approaches we follow are complementary.

Senator MARK BISHOP—I have asked a question and you have answered. That is fine. A couple of studies have been publicly released on the minehunter project and the Anzacs project, and they have had a lot of reference in this inquiry and in the press. Basically they have painted a fairly rosy glow of the economic benefits of those two particular large projects. Has the department done any analysis of the merit or otherwise of each of those studies? If you have, can you give us a comment as to your assessment of their veracity.

Mr Lawson—I put some details in the submission that we have made to you.

Senator MARK BISHOP—You did, but where was that?

Mr Lawson—Under sections 3 and 4, on page 13. There are two issues. Let us go to the third of the terms of reference, about comparative economic costs. A number of the people who have quoted the studies to the committee have done it in such a way that they are not taking into account all the aspects of the study itself. On the Anzac ship study, Tasman Asia Pacific calculated a net present value saving of $518 million based on Defence advice that the annual cost of $45 million on repair, maintenance and spares could have been higher by a factor of two if the original source of supply had been overseas. So the figure of $518 million, which has been quoted to you a number of times, comes from discounting a 25-year stream of $45 million per year by 7.12 per cent. That is the arithmetic.

ACTING CHAIR—Can we pause there to look at those figures. I think they are interesting. The Defence advice, from our perspective, is simply plucked from the ether. We do not have any substantiation of that figure. You have a discount rate of 7.12 per cent. I would have thought that was on the high side, thinking about currency fluctuations and a whole host of other variables and looking at interest rates generally around the place. Japan and the United States have had interest rates below two for a very long time. You mentioned 25 years. These vessels are going to be into 30-plus years, I would have thought. On that basis, I would have thought that the figures we are looking at there are very conservative. I put that out for you to argue back.

Mr Lawson—One can argue about discount rates, but I think the main point is that an overseas build does not mean that parts have to be sourced from overseas. Project Protector, which Tenix is operating at the moment for New Zealand, is precisely containerising the parts and sending them to the Netherlands to be installed in the ship and the final fit-out will occur in New Zealand. I have heard a Tenix spokesman saying that half the equipment has been containerised and sent to the Netherlands. That is probably a broad estimate, but the point is that you do not need to build the ships offshore to put in those repairable parts. In the case of Anzac, presumably that was done and therefore the studies appropriately worked that out.

ACTING CHAIR—Do you think Protector is comparable to Anzac?

Mr Lawson—No.

ACTING CHAIR—Good.

Mr Lawson—The point is that, should the Anzac study indicate the preference for parts being sourced in Australia, it is inappropriate to assume that that requires the thing to be built in Australia. We would love the thing to be built in Australia, of course, but I think it is beholden

on us to analyse the reality of the different circumstances that one can work out. The sort of picture that one gets from the industry is that the more complex the ship, the more likely you are to want to produce it in Australia to capture all those systems—gain the domain knowledge of those systems and have the ability to repair and maintain those things through life. Of course, the more complex the ship, the greater the risks of the build. So we see some distinctions there and we provide some very first order assumptions on the relative complexity of the different ship builds. The air warfare destroyer is clearly a much more complex ship than the amphibious ships, for example.

ACTING CHAIR—And Anzacs are clearly much more complicated than Protector, and we do not know where the parts that have been containerised have been sourced in terms of their manufacture. There are a whole host of variables that I am not sure makes the Tenix experience terribly relevant.

Mr Lawson—I think what we are trying to say is that the Tenix experience on Anzac, which came out of a study, has been quoted to you as, 'This applies to all sectors.' So I agree with you in the sense that one needs to consider the details of each particular—

Senator FIERRAVANTI-WELLS—You should go back and look at the evidence that has been given before. It has been used to make a general assertion that there are economic benefits which derive from naval shipbuilding. Might I suggest that you actually go back and look at the evidence very closely before making the sorts of assertions that you are making here today.

Mr Pettifer—We are raising some issues that we think the committee needs to take into consideration. We are not trying to make any particular assertions about this. The simple point that Mr Lawson was trying to make was that you should not assume a domestic build means 100 per cent domestic content and therefore much lower cost through-life support, nor should you assume an overseas build is 100 per cent overseas content. In fact, it is somewhere in between that, and that is a factor that would affect your judgments about whether the analysis that was done for the Anzac ships can be just rolled out and applied more generally. That was the simple point that we were making.

Senator FIERRAVANTI-WELLS—Certainly. But the other side is that I think we will be able to read the Tasman finding for ourselves.

Mr Pettifer—Sure.

Senator FIERRAVANTI-WELLS—Whilst I appreciate your comments that certain people have drawn a general commentary from it, from my perspective, I have actually read the whole study, and I am sure other senators will read it too and I think we can probably draw our own conclusions from it. Whilst I appreciate the general comments, I just wanted to put that on the record.

Mr Pettifer—Yes, well, we have read it too, and I am sure the committee will reach its own view. We are simply introducing into your deliberations this particular issue that needs to be borne in mind. You can think about it and reach your own view about it.

ACTING CHAIR—Another dimension—that is right.

Senator MARK BISHOP—Okay. You have introduced the dimension of the criticism of Project Protector and whether it may or may not be extrapolated to the Anzac project, and you have included some discussion about the discount rate—either seven per cent or 10 per cent. Apart from that particular criticism that you have identified on pages 13 and 14, what other criticisms do you have of the publicly available analysis on the Anzac project?

Mr Lawson—I am not sure that I am trying to criticise the publicly available analysis; I am just trying to talk about how one interprets that analysis.

Mr Pettifer—That is all we are doing.

Mr Lawson—The second issue is the wider economic benefits of construction in Australia. So the analysis used, as everybody does in this world, is multiplier analysis and general equilibrium analysis. The multiplier analysis, as I said, is not really appropriate in a fully employed economy or an economy close to full employment. Obviously in times gone past it has been more appropriate than it might be in a more fully employed economy.

The general equilibrium analysis approach or model attempts to take those factors into account. With general equilibrium analysis of some changes, some economic shocks, the model captures directly the change, and the result of the model reflects that change—for changes in tariffs, prices or things like that. For other changes, as in the Anzac ship, to generate a change you need to pump in an assumption about the efficiency change that drives the result. In the Anzac ship study, some survey results came out with some very large efficiency gains, so a conservative assumption of three per cent was made of the efficiency gain for the supplying industry. But it is an assumption.

In the minehunter study, if I remember correctly, survey questions were asked differently—that was a study that our department also supported financially—and if I remember correctly it got a 2.2 per cent efficiency gain out of the survey results. Those—either an assumption or survey results of efficiency gains—are put into the model and the model then generates a number. The point I am trying to make here is that the general equilibrium model is not generating the welfare gain or the economic gain. It is the survey results or the—

Senator MARK BISHOP—It is the input data.

Mr Lawson—Yes, it is the input.

Senator MARK BISHOP—That is a standard or generalised comment you would make on a whole range of surveys done by reputable economic think tanks?

Mr Lawson—That is right.

Senator MARK BISHOP—Because they are in principle academic criticisms that do exist.

Mr Lawson—Yes.

Senator MARK BISHOP—I understand that. Thank you. Let me ask the question a different way. Do you have any reason to be critical of the methodologies used in the two reports that are

publicly available? Does the methodology suggest to you, as a senior economist, that the reports are so flawed as not to be worthy of reliance on in a public discussion like this?

Mr Lawson—Certainly not. We are trying to bring our perspective. I had seen the previous evidence to this committee. There were clearly some questions from the committee as to how people interpret this sort of evidence. What I am trying to indicate is how policy advisers interpret this evidence. They say, 'The analysis has been done appropriately, but let's understand where the results come from,' and work that out. In different circumstances of the macro economy, of specific projects and of specific companies that are involved, you may get different results.

Senator MARK BISHOP—All you are saying is that different inputs, different variables, may have different results. I accept that response. My question is very particular. If you as a policy adviser or a senior adviser were advising your minister or the government, would you say to him or her that these two publicly available reports that a lot of industry people are relying on are flawed or so flawed as to their methodology that you should not rely upon them in a general discussion? That is my question.

Mr Lawson—Those reports were analysis of the Anzac and the minehunter studies. The question in a current policy sense goes to how we can use the results of those reports in looking at future projects. Would the results be necessarily the same? And the answer is to be very careful about those results to understand exactly where the conclusions came from—so they are not magic out of a model but survey based data or a conservative assumption—and for us to think about what the appropriate assumptions or bases on which to generate a result are in the current circumstances. That is how we would—

Senator MARK BISHOP—Again you are telling me that, in the future, different variables in different projects will have different results and the relevant government committee or minister needs to be aware of that. Thank you for that. That is not quite my question. My question is: were the methodologies used in those two prior projects—understanding that they are now some years old—sufficiently stringent, accurate, correct and rigorous that you cannot offer me grounds for saying that they are flawed?

Mr Pettifer—They are standard methodologies.

Senator MARK BISHOP—Yes, and you are not criticising—

Mr Pettifer—They are standard methodologies. I think we have raised some issues in the submission that need to be taken into account if you were to apply them more generally, like on the input output tables.

Senator MARK BISHOP—But they are standard methodologies and they were applied in a standard way.

Mr Pettifer—Yes, that is right, but whether a policy decision would turn on the results of those models is entirely another question.

Senator MARK BISHOP—I accept that.

Senator HOGG—You are saying that you cannot use them for projection, but the analyses that were arrived at in those particular cases are reasonable analyses. Is that correct?

Mr Pettifer—They are standard methodologies.

Senator HOGG—That is right. So you have the outcome that you would expect.

Mr Pettifer—Our submission raises concern about using an input output model in a fully employed economy when you have scarce resources, so that is an issue that you might want to take into account.

Senator HOGG—But given the circumstances in which that was undertaken, you got the outcome that you would expect. Is that fair enough?

Mr Pettifer—Yes, they are standard methodologies. You pump something in, you get something out. In terms of the general equilibrium analysis, the outcome depends on the size of the shock that you put in. You put in a three per cent productivity shock, run the model and get the result. Is it three per cent, six per cent or half a per cent? Who knows? What is really relevant here is looking at the specific project and seeing whether it would deliver what it is likely to deliver in terms of efficiency and productivity to the economy around the specific project. Once you have got your head around that, that might start to influence your thinking a little. Does the project actually deliver some new technologies and new efficiency gains to the economy—because that is what drives the overall general equilibrium outcomes and gains at the end of the day—or doesn't it? We are trying to say that you need to look at the specifics of something rather than rely on a methodological approach that you can roll out and replicate all over the place. I do not think it has much value.

Senator HOGG—It is horses for courses. That is what you are saying.

Senator MARK BISHOP—You have offered criticisms, which we will study and come to understand. I asked in part 2 of the question whether there were other flaws and you said no. That is fine.

Senator FIERRAVANTI-WELLS—So you are not actually denying that there are benefits; you are just arguing the degrees. You are not saying that there are no benefits. You are not saying to us, 'Building in Australia is not going to result in some economic benefit to the economy.' You are just really arguing at the margins.

Mr Pettifer—Yes, and we try to summarise this in the last paragraph or so of our submission.

Senator FIERRAVANTI-WELLS—When we have had the benefit of reading that, in time I am sure that we will—

Mr Lawson—I think we are trying to say that the critique of the quantitative estimates of broader economic benefits is not intended to suggest that no such benefits exist but to point out that it is difficult to estimate their value.

Senator MARK BISHOP—Turning to the labour market supply and demand issue between the years of 2009 and, say, 2013 and 2014, you have some references in your submission to essentially a crowding out effect by a range of possible resource and other projects coming on line and increasing the demand for labour. We had evidence from the South Australian government and the Western Australian government that they were aware of this concern. They had allocated extra funding to it through their TAFEs and university sectors. They were planning to overcome particular shortages. They did not regard problems five or six years hence as being either major or insurmountable—that is, they said: 'Yes, there is an issue. We have identified it, and we are taking the appropriate forward remedial action.' Western Australia also made the point that it is not simply a crowding out effect but that the ongoing demand for metals and technical and project skills in mining industries adds to the pool of labour, which supplements heavy engineering type naval construction activity. So there is a dispute as to the effect of labour market demand. Has your department done any study or can it refer us to any studies that will add light to those arguments that have been put by the respective governments and, indeed, the Department of Defence? Have you done any actual studies that can give us some empirical evidence that we can look at?

Mr Lawson—I think here we have tried to provide some data on those resource projects which are possibly the closest substitutes for shipbuilding labour—they are the offshore LNG and petroleum projects—and we have provided a chart and some quantitative numbers. I think it is important to recognise that those are not forecasts of crowding out. They are not forecasts of all of those specific projects going ahead according to that schedule. We already know—and you can read of them in the newspapers—of various resource projects being delayed through skill shortages or cost increases. We are trying to identify that there is a risk. That needs to be managed. How will that risk be managed? Precisely by the sorts of proactive things that you have talked about—state governments, with support from Defence in some circumstances, putting extra resources into providing training capabilities. I think it is also worth noting that the tender process, the contracting process, is a way that the government allocates those risks. To the extent that it is a fixed price contract—

Senator MARK BISHOP—It transfers the risk.

Mr Lawson—Yes, the risk is taken by the company. To the extent that there are escape clauses in the tender documents that may take into account wage indices or whether adjustments can be made because of the difficulty of actually finding labour, then the Commonwealth takes on the risk. So it is a matter that the defence department will be looking at in great detail in the submissions and, as you asked earlier about the whole-of-government approach, when they go to cabinet, cabinet processes with other departments will look through their conclusions about how substantial those risks are and where those risks lie. That is the sort of approach that we have tried to take.

Senator MARK BISHOP—Have you done or are you doing any such work on labour market demand and supply arising out of sourcing the amphibious ships project in Australia?

Mr Lawson —The defence department has provided advice and quite precise details on the labour demand that they expect, so we have relied on their analysis and quite precise details as to the sorts of skills that they believe they will need. I think the evidence is showing that looking forward is difficult, because the projects will adjust. I am quite confident that all the projects that

we have listed at the back of the document will not go ahead exactly as they are now projected to do. Over the six or nine months that we have been looking at it, those projects have changed from the advice we had previously as to what the demand would be. Those things continue to change through time.

Senator MARK BISHOP—This is apart from the discussion that we are having. I refer to the sourcing of the amphibious ships project in Australia and the consequent demand for labour in the peak years from 2009 through to 2103. Is that demand going to be so significant that it is going to have a harmful effect on the overall demand for labour in those areas in particular states or will it be only marginal at best?

Mr Lawson—At the aggregate level it will be marginal in terms of the national economy. The shipbuilders group had a large study done, which I think you have all seen, and at an aggregate level it is certainly marginal. The question will be whether there are specific effects in specific locations. You have had advice from a couple of the aluminium shipbuilders anxious about the supply of labour. If these things are managed with appropriate resources being put into training then that will reduce the extent of those problems.

Senator MARK BISHOP—I take it that your department is part of an IDC with Treasury and Defence which is overseeing this project?

Mr Lawson—No. The procurement decisions go to the National Security Committee of cabinet. Our minister gets seconded on to that committee for major defence procurement processes, so it is through that.

Senator MARK BISHOP—So there is a departmental subcommittee of the National Security Committee of cabinet?

Mr Lawson—No. These things, procurement decisions, go to the National Security Committee.

Senator MARK BISHOP—Where do they come from?

Mr Lawson—The relevant minister makes a submission and the normal coordination of comment processes apply.

Senator MARK BISHOP—So that is where you would have input. Do you intend to have an input?

Mr Lawson—Yes.

Senator MARK BISHOP—Have you done any study on cost comparisons with those overseas yards and contractors who would be likely competitors for this project?

Mr Lawson—The sort of information that is available can be the market outcomes of who is actually producing these things which have been sold in world markets. That tends not to apply to naval shipbuilding, so you cannot find analysis from market outcomes. In terms of industry level statistics, we provided some statistics for various countries on the relative productivity of

Australia versus other countries. We also point out the difficulty as to those numbers. They are imperfect numbers in various ways. The output measures are problematic and the input measures are problematic.

In terms of specific firm or company level data, we have not been able to find publicly available data that enables us to compare Australia with other countries. People have made reference to the First Marine International study which was done for the US Department of Defense, and I understand they visited some of the Australian companies. But that material on Australian companies has not yet been published.

It is really the nature of the beast of government procurement, defence procurement and commercial in confidence that that sort of data at a company level is not going to be available. The government procurement process involves the Kinnaird two-pass process, which says, 'Look at a military off-the-shelf option and compare it with other options.' In this case, military off-the-shelf, by its nature, will be produced offshore; compare that with a domestic build. Kinnaird also asks that the government looks not just at the prime or procurement costs but also the whole-of-life costs, the through-life support costs. The Kinnaird two-pass process should provide an answer to that question through the tendering processes, and then the results of the tender will be available when it is decided.

Senator MARK BISHOP—A range of witnesses, some in writing, some in evidence—indeed, an earlier witness today—alleged that there was a 30 per cent premium for cost of naval construction if you do it domestically as opposed to it being sourced from a more competitive bidder overseas. The source of that 30 per cent figure, to my knowledge, comes from DMO publications, but I have been unable to track down any empirical material or evidence that says that 30 per cent is correct, in the ball park or wrong. We have had conflicting evidence. Are you aware of that figure and are you aware of any empirical evidence that either supports it or contradicts it?

Mr Lawson—I am aware of the figure. The figure comes from newspaper media coverage alleging that Defence said it was a 30 per cent premium. If I can provide some background, that might help. For the amphibious ship project, there was a request for quote process that Defence went through with the shipbuilders. They put in quotes. In conversations with some of those shipbuilder companies after that media report, their view was that, at the request for quote process, they had said they had sufficient information to provide a proper quote but, through the process, discovered that they did not have enough information and that therefore they made risk averse quotes and so they had come in expensive. I do not wish to comment on whether the quoted figure was accurate or not because that reflects the processes that have gone through the National Security Committee and then a request for quote process. I could not comment on those specific numbers. The next phase, which is currently in operation, is a request for tender. They are discussing with the shipbuilding companies whether the process is going to give them an ability to compete because they had enough information about what they were going to build. That is the test. If they have got sufficient information, which hopefully they will have this time, they will sharpen their pencils and make their quote. The tender process will identify the result.

Senator MARK BISHOP—Yes, it will. That is fine. I understand the tender process, particularly as we get to stage 2, is going to identify the actual cost and premium, if any, of domestic construction. My question is more specific: is the department aware of any studies or

empirical evidence that upholds or dismisses that newspaper figure of around 30 per cent premiums for domestic construction? I think your answer is no.

Mr Lawson—There is no publicly available information on that. The only information that we are aware of is the information that came through the request for quote process and that is confidential.

Senator MARK BISHOP—That is understood.

Senator PAYNE—Thank you very much for your submission and your presentation this afternoon. I think it will take more time than we have had available so far to digest the content of the submission, although I note a reference to Wordsworth in an industry department submission, which is intriguing, to say the very least. I want to ask you a question which in fact flows from the evidence in the Australian Association for Maritime Affairs submission and their presentation today. They made reference to an initiative of your department called the Marine Industry Action Agenda. Are you familiar with that? I see that you are not only familiar but that you have copies in colour.

Mr Lawson—I have copies for the committee, should you wish to have them.

Senator PAYNE—You can presume that I wish to have one. That would be the case. The suggestion that the association made in their submission was to support, apparently, a recommendation of the Marine Industry Action Agenda for the establishment of a CRC for marine technology that may encompass in its work aspects of naval shipbuilding, amongst other things. Could the department make a comment on that?

Mr Lawson—Yes. The Marine Industry Action Agenda, like a number of others, is about government working with industry to overcome the barriers to growth and to try and work with the industry. This action agenda covers a very wide range of marine industries: shipbuilders, recreational boat builders, fishing boat builders and mariners—those sorts of things. The process that you go through with an action agenda includes a committee that puts together a report, and then another committee pulls together the implementation. I have to say that the work thus far on the implementation of this particular aspect of a CRC for marine technologies suggests that we are not going to get far on it. When push comes to shove, the competitive tensions between the firms are such that a CRC is a very unlikely outcome, so we now tend to pursue a notion of having some innovation workshops and things like that, especially for the smaller end of the field—the boat builders—

Senator PAYNE—When you say ‘competitive tensions’, do you mean that is limited to naval shipbuilding companies or is it more broadly across the marine technology field?

Mr Lawson—More broadly within the shipbuilding sector. A CRC requires large company involvement to get the sort of dollar values that a CRC incorporates. The naval shipbuilders are competing in a defence market, with a single Australian customer, and Incat are direct competitors. We have come to a similar conclusion on the Aerospace Industry Action Agenda where there is a desire to get a CRC for aerospace industry technologies. The structures of the industries are such that those competitive tensions can be managed in order to find a group that is prepared to work it.

Senator PAYNE—You could take the evidence of Raytheon earlier today, through Mr Fisher, where he explained to us that they are all very friendly. After the ball game is over and things are moving off the park, they are all very friendly. Perhaps that is the phase to grab them at.

Mr Lawson—Yes. Raytheon were involved. In the Aerospace Industry Action Agenda, we had all the primes there. I think it was recognisable. We have them working in the CRC for advanced composites, which covers off mainly aerospace, but one has aspirations that it may cover off some parts of the marine industry, as was intended at various stages. They have been able to get a few companies and their supplying industry and groups of companies that are not in direct competition with each other to work together.

Senator PAYNE—The point that the Australian Association for Maritime Affairs was making this morning was about skills building and linkages with players in the industry. Perhaps you might make some comment—and it may be in your submission; maybe I have not reached it yet—about the department's role, if any, and engagement in the skills building area. I saw early in the submission some comments about skills availability challenges but not—as far as I could tell on that brief reading—anything about the department's efforts in skills building.

Mr Lawson—The implementation group of the Marine Industry Action Agenda is working on skills development through the Department of Education, Science and Training, which has the policy responsibility and the policy levers at the Commonwealth level of dealing with skills. We are doing some work there, but it is more focused on the small boat building sector, the Australian Marine Industry Federation level of work. We engage with Defence in the broader naval shipbuilding activities. They have a large program on skills development that you have heard about previously. We work with them through those sorts of things, but no huge program has been developed out of the Marine Industry Action Agenda to address skills. It is attempting to get this relevant part of the industry better connected into the available programs and overcoming any barriers to those programs working for the industry.

Senator PAYNE—What level of engagement does your department have with the Skilling Australia's Defence Industry initiative?

Mr Lawson—We were briefed on its inception—

Senator PAYNE—Do you have any input to it?

Mr Lawson—Yes. We were advised on its development when Defence were working out that they needed that program and asked to think through the way it would operate.

Senator PAYNE—To go back to Senator Bishop's point: that does not strike me as a very broad whole-of-government approach to something that is recognised as a national issue.

Mr Lawson—When the SADI initiative was being developed, we were engaged and our advice was provided. We felt that Defence developed the thing on a whole-of-government basis and engaged with relevant departments. It is not our program to run on a day-by-day basis.

Senator PAYNE—No; I appreciate that. Finally, I would like a better idea of what industry does in some aspects of this. Mr Lawson, your branch is the Aerospace Defence and Australian

Industry Participation Branch. What is its operational role in the Department of Industry, Tourism and Resources and more broadly?

Mr Lawson—We run a couple of action agendas—the Marine Industry Action Agenda and the Aerospace Industry Action Agenda. We provide advice to government through the minister on the industry aspects of major defence procurement decisions.

Senator PAYNE—'Industry aspects' meaning what?

Mr Lawson—Industry development aspects. Perhaps I can best explain with an example—the Joint Strike Fighter project. You may know that the government has a project to maximise Australian industry involvement in that project. Half the people on that team are from Defence and half are from my branch, and somebody from Defence is located in our place and somebody from our place is located in Defence.

We work on the practical exercises of using Defence procurement leverage to try and get Australian industry into global supply chains. At Pacific 2006, the February naval show, Defence and us organised a global maritime business forum where we had the minister invite the global primes to come and give presentations on what they would be looking for from Australian industry if they were seeking to bid into the air warfare destroyer program or the amphibious ship program. They gave a series of presentations. We had a day and a half conference on that. We had gone out to Australian industry and asked them to give us capability information which we could provide to the committee which we got beforehand. We sent it to the global primes and asked them to look at this information and organise one-on-one meetings between Australian companies and the overseas suppliers.

There was a lot of activity in trying to integrate Australian industry into global supply chains. The Australian industry participation part of the title reflects the industry capability network—the Commonwealth's involvement with the state based industry capability networks. In the shipbuilding sector, we have a supplier access to the major project grant of a little less than $200,000 to state ICNs to develop a capability directory for the air warfare destroyer project and we expect to have similar for the amphibious ship project. There is policy advice on procurement, how that matters from a whole-of-government perspective and a whole bunch of practical activities in trying to integrate Australian industry with global markets.

Mr Pettifer—So it is a facilitation role. It is trying to break down the barriers between the opportunity and the capability that Australian industry has and make it easier for the primes to identify Australian companies who may be able to supply into those projects. What we find is that there are quite a few barriers to that happening. It is easy to understand in some ways, I suppose, in that some of the primes are not very close to Australian industry. So providing some facilitation opportunities like we have done has actually worked quite well.

Senator PAYNE—In regard to the Marine Industry Action Agenda and the list of participating groups, is the key group the strategic industry leaders group? Someone behind you is nodding, Mr Lawson. So I take it as a yes.

Mr Lawson—That is the key group for the drafting of the report. Some of those people plus some other people are the implementation group.

Senator PAYNE—On the strategic industry leaders group members, do you regard any of those as having a particular defence or naval perspective?

Mr Lawson—I think Liz Hay's Australian Ship Repairers Group includes all the Australian shipbuilders such as Tenix and ADI and those sorts. The current committee is slightly different. It has some other people who have some involvement in some of the naval projects.

Senator PAYNE—Perhaps with regard to those you could provide the current committee details and an explanation of those with defence and naval shipbuilding connections.

Mr Lawson—Yes.

Senator TROOD—Like other members of the committee, I look forward to reading your submission at greater length. In the meantime, I am interested in the early propositions in the submission regarding the economic and strategic drivers, which you argue are changing. Could you clarify and amplify some of the points. I have read it several times, but I am not actually sure I understand precisely the argument you are making. You seem to be saying there are globally integrated production systems—I think I understand that idea—but you also talk about self-reliance objectives and other matters which seem to create tensions in another direction. Have I understood that correctly? Perhaps you could explain that.

Mr Lawson—I think you have understood it correctly. Virtually all the sectors of the economy that we deal with are going through the globalisation and consolidation process and global supply chains.

Senator TROOD—That part I understand.

Mr Lawson—Defence is different, because there is a strategic requirement to have some defence capabilities. Traditionally, there have been offsets in Australian industry policy that rely, in essence, on an import-replacement model that says, 'Instead of importing this stuff, let's build it in Australia.' In some sectors, that is impossible. The Joint Strike Fighter is a classic example. It is impossible to build the whole thing in Australia. Defence admits to having paid an 18 per cent premium to build the FA18 in Australia, with little net benefit down the track. It would cost a lot more for the Joint Strike Fighter. The economics of each project are different. An approach that says we need to build it in Australia separately—import replacement—is becoming more and more expensive as these global supply chains develop. So there may be a tendency more towards the Joint Strike Fighter model in which we focus on having operational sovereignty, so that we are able to run the capabilities in the country, and not produce the whole thing here.

It is for Defence to judge what the requirements are, but it becomes an economic decision: do you make the thing in Australia or do you buy the capability? As Mr Pettifer said earlier, if we look at it from an industry/economic perspective, there are tensions between global integration and the requirement for operational sovereignty. Aircraft are a clear example of moving from an import-replacement concept of self-reliance to an operational-sovereignty concept of self-reliance. That is the point we are trying to make.

Senator TROOD—I understand the idea of globally integrated production systems. It is true in relation to aeroplanes. Large commercial airliners are a good example in that the parts are

built all over the world and then put together somewhere. But, if we take your proposition about national sovereignty and strategic imperatives as a case in point, shipbuilding—in particular, naval shipbuilding—seems to be an area of the national economy where globally integrated production systems are not working as effectively as they do elsewhere. Is that not the case? Your argument is that a large number of countries want to build their own warships for strategic reasons.

Mr Lawson—For the expensive electronic systems that they put in those things, such as the Aegis system for the AWDs, a single one of those has been produced by the Americans and it has been sold to Australia, Japan, Korea and Spain. Because this is a very complex vessel and you want the knowledge to maintain it and control it, you build the metal fabrication, which is very complex, but the combat system is a globally imported product. We have spoken to and worked with Lockheed Martin to try and get Australian industry globally integrated into their supply chain for Aegis and other systems. So I think global integration in the shipbuilding sector will occur in expensive components.

Senator TROOD—In the ships' systems, whether they be for propulsion, weapons or things of that kind, but not necessarily the whole ship.

Mr Lawson—The fabrication, I think, tends to be done in—

Senator TROOD—I see. There seems to be another factor that you are alluding to here, which is the change in the nature of threat and the strategic objectives that states have. What I take from paragraph 4 is that you are arguing that the reason for which states need warships has changed and therefore there is not as much imperative to have the capacity to be able to maintain warships—to be able to maintain the parts and provide long-term support for them—as they are much more off the shelf and much more readily displaceable by other things.

Mr Lawson—I do not think I want you to say quite as much as that. I think what we were trying to do was state that in the Second World War, a long-term war of attrition, you needed a capability to produce aircraft and ships. We are not national security advisers and I do not want to go too far down this path, but that is not the environment today; it is about operational sovereignty. Defence will set up a strategic scenario that says, 'We need the capability to run these many sorties at this intensity over this amount of time. What is the best and most economic way of achieving that?' In the current threat environment, you can make that sort of choice rather than say we need an industrial capacity that is self-reliant.

Senator TROOD—So your speculation—as you do not want to be a national security adviser—is that the missions and tasks are changing, that they are not necessarily of a long-term nature and that they are by their nature a shorter kind of task for which the operational requirement is not as long term?

Mr Lawson—Rather, it is that the scenario of the threat has changed, not necessarily that of the mission. If Australia were going to be cut off from the rest of the world for a long period of time, then you would need the capability—an industrial structure that enabled you to survive that, as in 1939-45. That is not the environment here. There is a different sort of decision-making process.

Senator TROOD—I will read your evidence in conjunction with your submission and I am sure I will have a clear insight into the points that you are making. I have some questions about export matters as well. They go to page 5. You cited the RAND study—approvingly—and its observations regarding UK warships, as I understand it. Is the thrust of the proposition that you are putting to us there that both the UK and us are building a distinctive kind of warship for which there is no obvious international demand and therefore we are marginalising ourselves in the international market? Is that putting it too strongly?

Mr Lawson—I think that is perhaps putting it too strongly and slightly tangentially. The RAND inquiry was saying that advanced countries like the UK—and, we would say, Australia—are wanting very advanced warships. Those tend not to be the sorts of ships that are traded. The German ships that are exported around the world tend to be of a lower capability and less complex ships. It is not a matter of whether we are quoting this approvingly or not approvingly. This was the RAND Corporation analysis done for the UK Ministry of Defence.

Should we be focusing our defence policy on building a shipbuilding capacity and on going out to export markets to get the economies of scale required by going into exports? Their advice was: 'You want complex ships. They tend not to be exported, so it is unlikely.' But we tried to draw a distinction and say, 'We can actually get into the export markets for ship systems, components and things like that, so that global supply chain isn't cut off.' But we are not experts in the market for defence ships; the Department of Defence would be better than that. But that was publicly available information that we discovered in researching your terms of reference, and it seemed to us to be applicable.

Senator TROOD—I took the point you have just made about components and systems, where you think we have export potential—and also, obviously, in relation to fast aluminium ferries, where we clearly have a competitive technological edge from your remarks and your evidence. But it is in the wider manufacture of warships as a whole that you have some reservations.

Mr Lawson—Yes. People have done very well on patrol boats, the economic exclusion zone patrol boats, and some of that technology is based on the aluminium capacity. There are export markets there. But it seems to us that it is unlikely that we will be able to export our warfare destroyers.

Senator TROOD—Is that on the basis of the kind of observation that RAND is making?

Mr Lawson—Yes. That is the sort of RAND high-level—

Senator TROOD—High levels of complexity and things like that.

Mr Lawson—If it is a complex ship, people want to build their own. We are building the Aegis system in the air warfare destroyer. We are building them ourselves, the Japanese want to build their own, the Koreans are building their own and the Spanish built their own. That high-capability system, the American Aegis system, is going into it, but each country is tending to build their own capabilities. With the Blohm and Voss MEKO design, which underpinned the Anzac ships, some countries chose to build their own and some countries took German exports to some extent. For example, the South Africans imported a less complex ship than our one. Our

more complex one was built here. The question arises as to whether there really is an export market at the more complex end of those ships, because people want to build their own.

Senator TROOD—But, if they want to build their own, you seem to be saying we have some potential to put components or systems into those warships, even though they are at the high end of complexity.

Mr Lawson—We are certainly not saying we should not build the AWD or anything.

Senator TROOD—I understand that. Thanks.

ACTING CHAIR—Thank you, Mr Pettifer and Mr Lawson, for your submission and your attendance today.

[3.52 pm]

IRONFIELD, Ms Denise, Executive Director, ACIL Tasman Pty Ltd

ACTING CHAIR—Welcome. You have seen a copy of today's opening statement. Do you have any questions regarding any of the matters raised therein?

Ms Ironfield—None.

ACTING CHAIR—I invite you to make an opening statement, whereupon senators will ask questions.

Ms Ironfield—Thank you very much for inviting me to attend. I have not made a submission. I am very much aware of the fact that the two reports that I was the principal author of have been quoted in numerous submissions. I will give a bit of background to the ACIL Tasman consulting business I now work for as compared to the two Tasman businesses. Tasman and ACIL Consulting merged in early 2002 I think. I was from the Tasman side and also the principal author of the two reports, the minehunter and Anzac frigates reports. They were two reports that were commissioned by the Australian Industry Group but had support from a number of other organisations, including the Department of Defence, and I think the department of industry as well. I am happy to answer as many questions as I can. As I just said to the chair, it is some time since I wrote these reports so please accept my apologies if I cannot remember every detail.

Senator MARK BISHOP—Welcome. I might start off where you finished. You said the reports were commissioned some time ago by the Australian Industry Group but supported by, you thought, the Department of Defence and the department of industry. Can you outline what you mean by the support of those two government departments?

Ms Ironfield—The sponsors are actually on the bottom of the reports, and I will give you a hard copy of these before I leave. I understand the support was financial. I am not aware exactly of the amounts that each of the various supporters provided but essentially everyone who provided support, either money or in kind, has their name there. I think it was the industrial supplies office that supplied the in-kind support.

Senator MARK BISHOP—Were you the principal author?

Ms Ironfield—Yes, I was the principal consultant and author.

Senator MARK BISHOP—Did you have access to a range of private government and industry data?

Ms Ironfield—Unfortunately, I had no government data. I was given very comprehensive information by Tenix and ADI, which were the respective primes. They gave me very detailed information on the cost structures of building the ships. We chose a year that we modelled and included in our general equilibrium modelling. Essentially, we created an input-output model of the Australian economy that included a separate industry, which was the Anzac frigates industry

or the minehunter industry, and that industry was then incorporated into the general equilibrium modelling.

Senator MARK BISHOP—When you came up with close to one of your first drafts, you had had the data, you had devised the model and you had done your work. Did you at any stage have any consultation with the relevant portfolio departments of government?

Ms Ironfield—I did speak to the Department of Defence because I was trying to get some information from them on through-life support issues. Both reports were very interested in the through-life support aspects of Australian industry involvement. However, in both instances it was extremely difficult to get very much information from the Department of Defence on the implications of the Australian build on through-life support.

Senator MARK BISHOP—Sometimes it is the practice to put out a final draft to be the subject of comment by interested parties or observers so as to improve the author's thinking, writing or whatever. Did you do that with either—

Ms Ironfield—I submitted the report to the Australian Industry Group, and they were responsible for circulating it. I am not aware of whom they circulated it to, but I am reasonably certain that everyone who was a sponsor would have received a copy of the report for comment.

Senator MARK BISHOP—Did you receive any commentary from any of the sponsors before you did a final report?

Ms Ironfield—To be very truthful, I cannot remember precisely. I would be surprised if I received no comment. Come to think of it, the Australian Industry Group may have coordinated the comments.

Senator MARK BISHOP—I am driving at whether DIST or Defence provided any critical commentary to one of your drafts before you put out a final report.

Ms Ironfield—Not that I can recall. I spoke to the Department of Defence, but it was more in the context of the through-life support issues. There was a Department of Defence person involved in monitoring the work, but I cannot remember too many specific comments on the entire report coming from the department. However, I am pretty sure that someone in the department would have seen a copy.

Senator MARK BISHOP—But they did not provide you with any critical commentary?

Ms Ironfield—Not that I can remember, but it may be that my memory evades me.

Senator MARK BISHOP—You might just check your files and, if there is, advise us to the contrary.

Ms Ironfield—I can try that, but with the merger of the two companies' files, including emails, which are probably how it would have been done, it could have gone astray. But I will see what I can find. If there is anything, I will certainly let you know.

Senator MARK BISHOP—Thank you. One of the themes of discussion in this inquiry is that Australian industry does have the expertise and the capacity to engage in the construction of large naval vehicles on an indigenous basis. That goes firstly to the framework—the hull construction—and then more significantly to the internal electronics for all the different functions, for want of a better description. That argument is equally contested for different reasons by the Department of Defence and by the previous department that was here. They offered different critiques of that general theme. Are you aware of any suggestions within industry that now contradict your primary findings in both of those commissioned reports?

Ms Ironfield—Any industry comment?

Senator MARK BISHOP—Any industry comment, criticism or alternate research that contradicts your primary set of findings in both matters.

Ms Ironfield—Not that I am aware of. I am aware that some people think that some of the assumptions in our reports were inappropriate. However, I am not aware of any industry concerns. I must say that I have not done very much more Defence work since these two studies were completed.

Senator MARK BISHOP—Which assumptions have been the subject of some discussion or contention?

Ms Ironfield—Some people consider that it would have been more appropriate if the money were given back to taxpayers rather than spent on ships, for example. But it seems to me that, given that Defence needed a ship with this capability, that was an inappropriate complaint about our modelling.

ACTING CHAIR—That was more a complaint in the broad as to the overall project, not as to your methodology.

Ms Ironfield—Yes.

Senator MARK BISHOP—I am talking about the methodology and content of your report.

Ms Ironfield—No, I have not heard any complaints about the method, except that some people think that I was trying to say that the defence industry is better than other industries. That is certainly not what these reports were trying to highlight at all. I would agree that many other industries are likely to provide similar productivity benefits for subcontractors. For example, new subcontractors in the aviation sector would equally need to bring on board best practices, such as quality assurance et cetera, which can improve their productivity and have positive spin-offs for the rest of their work.

ACTING CHAIR—So there was a healthy sort of scepticism across GDP producers as to whether this was in fact a really good GDP producer.

Ms Ironfield—Some very dry economists would say that a dollar of GDP from one area is no better than a dollar of GDP from anywhere else. I guess to some extent I would subscribe to that view. Mind you, when we did the Anzac frigates report, we did not know the answer we would

find. The survey was undertaken and we found out that a number of firms did say that their productivity had been improved as a result of their involvement in defence projects. It may have been that if I had surveyed the automotive industry or the aerospace industry we could have had the same finding.

Senator MARK BISHOP—Have any of the government departments—Treasury, Finance, Defence or DIST—offered any criticisms of your methodologies or findings post publication of the reports?

Ms Ironfield—No, definitely not. No department has contacted me that I am aware of. I certainly cannot recall any, and I think I would.

Senator MARK BISHOP—Treasury advised Defence that the construction of major naval ships in Australia may have multiplier effects through the rest of the economy. I think that is common ground. However, Treasury advised that such second order effects are difficult to quantify in terms of both employment and income effects. Of course, Treasury has not sought to quantify them, noting that the effects depend on the circumstances at the particular time when you are spending the money. Do you concur with that statement by Treasury?

Ms Ironfield—Certainly defence spending as well as any other spending has multiplier effects through the economy. Whether defence spending, like other spending where high levels of quality assurance et cetera are required, has spin-offs that other sectors may not have is an empirical question that I have not tested. However, I think we can say fairly confidently, from the analysis that has been undertaken, that there are some productivity benefits from projects of this type for, in particular, businesses that have not been involved in defence work before. It seems fairly self-evident from the findings of our survey that those firms that were first-time defence subcontractors showed that they had a higher propensity to take up these programs and practices that can improve productivity and hence had a higher propensity to have a productivity improvement. In other words, some of the subcontractors that were involved in the Anzac ship project and the minehunters were less likely to indicate a productivity improvement arising from the minehunters because they had already got it.

Senator MARK BISHOP—They had already had it, yes. They were already at a higher stage.

Ms Ironfield—They were already at that higher level.

Senator MARK BISHOP—Based on Treasury advice, Defence also went on to say that it was possible for some of the second-order effects to be negative—that is, it was possible for some of the multiplier effects on productivity, growth, employment or income transfers to be negative—essentially on the argument that labour and capital are displaced from more productive to less productive sectors. As a consequence, lowered national income in the aggregate can be expected. Would you care to comment on that?

Ms Ironfield—I am sure it is possible.

Senator MARK BISHOP—As a matter of logic, I think it is possible—but in the real world?

Ms Ironfield—If we have an economy that has fully employed capital and labour and that capital and labour is directed to the highest value uses in the economy and then some new project is imposed on the economy—say, by the Department of Defence—which has a lower return to value added, which is the building block of gross domestic product, then we might see a negative impact. However, I have not seen too many Defence projects that are not high-tech, high value added projects, so it would have to be a particular case. I cannot think of anything. It would have to be ordering a lot of garbage bags or something! I do not know—something that is not high tech and, hence, generally having fairly low value added.

Senator MARK BISHOP—If there is a significant transfer of resources to essentially low-value or commodity-producing sectors, you might have a negative multiplier effect. But in the normal run of the mill of Defence contracts—even in a full-employment economy, or an economy that is working at an optimal level—additional outlays, in your mind, are unlikely to result in a negative multiplier effect.

Ms Ironfield—Yes. I would say that the sorts of work that we would be talking about would have fairly high returns to gross domestic product. There was some work done by a colleague of mine from ACIL Tasman who has now left the company that looked at the implications of the amphibious ships on demand for labour. I do not know whether you are aware of that report.

Senator MARK BISHOP—No, we are not.

Ms Ironfield—I think it was commissioned by the Department of Defence and some shipbuilders. My understanding of that work, which I was not involved in, is that they used Monash modelling, and there they assumed that all resources in the economy were fully employed. Then they looked at what would happen with the big Defence shipbuilding projects that are about to happen, and essentially GDP was very much unchanged from the modelling that they did. In other words, because of the modelling assumptions, which were probably appropriate, given that we have an economy that is very close to full employment, the Defence ships crowded out some other activities, and hence GDP—

ACTING CHAIR—What model was that?

Ms Ironfield—It was the Monash model.

ACTING CHAIR—That is not what you used, though.

Ms Ironfield—No. The model I used was of a colleague of mine from Economic Insights—unfortunately, that company does not exist anymore—and it was called the State model. It was a general equilibrium model along the lines of ORANI, which is also along the lines of the Monash model.

Senator MARK BISHOP—A full-employment economy is not necessarily an optimal efficiency economy, is it?

Ms Ironfield—We do not have very many barriers to resources flowing around the economy, so I would think that we have probably got an economy that is fairly efficient.

Senator MARK BISHOP—At the moment?

Ms Ironfield—Yes. There are not too many barriers to labour or capital moving around our economy, so I would imagine that at this point in time we have an economy that is fairly efficient—well, we know it is pretty efficient. Productivity Commission estimates show that our productivity has been increasing steadily. We do not have many barriers to trade et cetera.

Senator MARK BISHOP—I find it difficult to understand why, when we have a full-employment economy and reasonably close to optimal levels of efficiency—and there is a major project on the scale of the amphibs, which is essentially going to be tasked in one or two cities and the work subcontracted about—the multiplier effect is going to be minimal or, on Defence's arguments, perhaps negative. That seems to ignore the ongoing and new efficiency and dynamic changes that result in growth in the economy.

Ms Ironfield—And that is essentially what we modelled in the Anzac ship project. The previous gentlemen were talking about how we modelled, using GE, a fully employed mobile economy. There were two lots of GE modelling done in the Anzac ship project. The first one had a closure in which we assumed full employment and, in the second closure, we allowed for some stickiness in labour prices, which is a typical way of modelling some unemployment in the economy. The results of the two analyses were slightly different, reflecting the fact that, when you have a fully employed economy, you are going to crowd something out. That is on page 47 of this report, by the way. At the time we did this modelling, we came to the view that allowing some stickiness in labour markets was most appropriate, because there was a lot of unemployment around at the time.

Senator MARK BISHOP—Yes, it was a different time from now.

Ms Ironfield—Yes, it was a different time from now. So the results for the Anzac frigate project would be more likely today to look something like the full-employment modelling we did, rather than the sticky labour market modelling.

Senator MARK BISHOP—I would like your professional assessment of this little gem that has come in: 'Defence also noted that, where the need for skilled labour is satisfied by temporary migrants'—that is, where we bring people in for a particular task—'any multiplier or second tier order effects may be limited by the extent to which they seek to repatriate their wages to the home economy.' Can you comment on that?

Ms Ironfield—I think that is probably true, but it is the same for multinational companies that work here as well. They, at some time, repatriate profits. That is just the way the world works. But there will certainly be some multiplier effect associated with labour that comes in, because it adds to our labour supply and hence allows us to do more.

Senator MARK BISHOP—That is why we bring them in.

Ms Ironfield—That is right.

Senator MARK BISHOP—Another angle of this inquiry is about trying to get some assessment of the competitiveness and productivity levels of competitor international yards,

primarily in Great Britain, North America and Europe. Have you done any work that demonstrates the difficulties of conducting such an analysis, and are you aware of any such competitive analysis?

Ms Ironfield—Recently, the South Australian government commissioned ACIL Tasman to do some background research for them as part of their submission to this inquiry. In doing that background work, we tried our best to find analyses of naval shipbuilding productivity comparisons around the world—and we came up with very little. I understand that the ACIL Tasman report we did for the South Australian government was appended to their submission.

Senator MARK BISHOP—So you are not aware of any study that has been conducted that would provide a benchmark against which Australian yards could be compared.

Ms Ironfield—No, I am not aware of any. I would imagine that the international benchmarking of naval shipyards would be rather difficult, given that generally governments choose to purpose-build their ships, so we are not looking at like with like and that makes it very difficult.

Senator MARK BISHOP—We have been having some discussion today on necessary premiums to be paid for domestic construction. A figure of between 10 and 30 per cent seems to be bandied about, the latter without any empirical support. Based on your work, are you aware of any going rate for premiums that have to be paid to get the work in this country?

Ms Ironfield—When I was doing the two studies, I was particularly interested in that because it seemed to me to be something that we had to factor into our analyses. I contacted the Department of Defence person that was my contact for this study and they could not provide me with any information. I also spoke to Tenix, in the case of the Anzac frigates, and ADI, in the case of the minehunters, and Tenix were of the view that there was a premium paid and it was in the order of 3½ per cent. In the case of the minehunters, I was advised by ADI—again, nothing forthcoming from Defence—that they believed there was no premium paid. That is what we did in this modelling, but wider than that I am not aware of whether or not premiums have been paid, although there is a view out there that premiums have been paid.

ACTING CHAIR—Before we go to Senator Payne for questions, would you tell the committee, firstly, who requested the Tasman inquiries? Who was the requisitioning party?

Ms Ironfield—The Australian Industry Group contacted us on both occasions.

ACTING CHAIR—And paid for them?

Ms Ironfield—The contracts that we had to do the work were with the Australian Industry Group. However, as I mentioned before, there were a number of sponsors for those. As I understand it, the Australian Industry Group does not have a lot of money, so they had to go to sponsors to get the money to do the work.

ACTING CHAIR—Who is Tasman Asia Pacific?

Ms Ironfield—Tasman Asia Pacific was the economics consultancy that I joined back in 1997. It was headed by Dr Michael Porter. That company merged with London Economics Australia some time later and became known as Tasman Economics, hence the different names on the two reports. Then Tasman Economics merged with ACIL Consulting some time ago to form ACIL Tasman, whom I now work for.

ACTING CHAIR—Tell us a bit about yourself. What are your qualifications and what is your background?

Ms Ironfield—I am an economist. I got my honours degree in the eighties from Newcastle University. I joined the then Industries Assistance Commission as a cadet. I worked in the Industries Assistance Commission and then the Industry Commission for many years before leaving in the nineties to join the Bureau of Industry Economics. We then formed the Productivity Commission, and I decided I had had enough time in government so I joined Tasman Asia Pacific as a consultant.

ACTING CHAIR—Thank you for that.

Senator PAYNE—I have one point to make; it is not really a question. Ms Ironfield, you would have heard, in the previous evidence from the department of industry witnesses, some comments in relation to their submission and observations that they made of the studies that we have been discussing this afternoon. I wonder if on notice you might have a look at that submission, which was only provided to the committee this afternoon as well. There may be some issues that they have raised to which you might like to respond.

Ms Ironfield—Certainly.

Senator PAYNE—Thank you.

Senator FIERRAVANTI-WELLS—I refer, Ms Ironfield, to the report that you were referring to in relation to the amphibious ships. Is the report on skilled shortages and the amphibious ships project of April 2005 the one you were referring to?

Ms Ironfield—That certainly sounds like it.

Senator FIERRAVANTI-WELLS—Was that prepared by a guy called Greg Cutbush?

Ms Ironfield—Yes.

Senator FIERRAVANTI-WELLS—Chair, I have a copy of it but I am wondering whether formally through ACIL we might get a copy of that. I am happy to make that available to this committee.

Ms Ironfield—I am not aware of the status of that report. I would have to look into for you. As I mentioned, Mr Cutbush has left us. I am sure it can be provided to you.

ACTING CHAIR—Defence has given it to us as a confidential document. Until they release it, I think we have a problem.

Ms Ironfield—I had a quick look at that report today, given that I knew I was coming to speak to you and that you probably knew about that report. The modelling—and I think appropriately—was based on full employment in the economy; hence, there was very little impact on GDP from the shipbuilding project, and I think that is because it has crowded out other activity in the economy. Of course, that report did not look into issues like what I call 'dynamic impacts', which have productivity benefits flowing on to the rest of the economy. That was not factored in at all. I would say to you that the author probably does not believe it either.

Senator MARK BISHOP—What happens if you crowd out lower value work?

Ms Ironfield—That could be quite good, I would imagine.

Senator MARK BISHOP—How do we know the work that is being crowded out is of either equal value or higher value?

Ms Ironfield—In a general equilibrium model, the price of labour rises as demand for it rises, and then the industries that can afford it, which have higher value, will take it—

Senator MARK BISHOP—Will meet the higher price.

Ms Ironfield—and lower value industries will lose out.

Senator MARK BISHOP—If there were a major project of this order, with the economy at full employment and close to optimal efficiency, a crowding-out effect in the labour market and some sorts of multiplier effects, how would we know that this was not of a positive nature, pushing up the value scale as opposed to pushing down the value scale? Why would labour, for example, choose to transfer into lower reward work?

Ms Ironfield—That is absolutely correct. Labour will try and transfer into higher reward work, as long as it has the capability to do so. That is why I think it is important that we encourage training and labour mobility. I think the amphibious ships report found that there is likely to be some areas that win and some areas that lose.

Senator MARK BISHOP—Similarly, firms, both within industries and across industries, are going to try and shift to higher yield areas and higher reward areas, aren't they?

Ms Ironfield—Yes.

Senator MARK BISHOP—I am trying to grapple with this point where the multiplier effect is negative. Why would companies want to shift into making, as you say, 10 trillion garbage bags when the return to labour and capital is going to be absolutely minimal?

Ms Ironfield—The resources will move to the highest value use. When we have a new LNG plant constructed in WA, we do not argue about whether or not it should be built here. We congratulate ourselves for doing it.

ACTING CHAIR—The department mentions that your report calculated a net present value of $518 million.

Ms Ironfield—I am not quite sure about the number of $518 million. Is this the Anzac frigate?

ACTING CHAIR—Let me just work my way through the quote. I am not familiar enough with your bottom line in the report on the Anzac ship project to be critical of it. This is what they said to us, which was based on Defence advice. They footnote that by saying:

The Defence advice is not attributed to a published document, but appears to have been provided for the study.

I pause to say that, obviously, if the $518 million is your figure, how do we verify the Defence quotient of that to get to the net present value?

Ms Ironfield—When the 7.5 came up, I was sitting up the back and I thought, 'Golly, I can't remember that.' I have tried to look for it in this document, and I cannot find it. As I said, this was written a rather long time ago. I may have discussed with Defence what might be the appropriate discount rate, but I cannot recall it.

ACTING CHAIR—The expression, which is also footnoted, states:

For the ANZAC ship project, consultancy firm Tasman Asia Pacific—

and footnote 5 states:

A case study of the ANZAC ship project. Final Report February 2000. See p38-39, pp49-50—

The paragraph continues:

... calculated a net present value saving of $5 18 million. This was based on Defence advice that annual costs of $45 million on repairs, maintenance and spares could be higher by a factor of two if the original source of supply had been overseas". The $518 million figure comes from discounting a 25 year stream of $45 million per year by 7.12 per cent, the then long term (risk-less) bond rate.

Can we discuss that paragraph? Would you like to see a copy of it?

Ms Ironfield—Yes, that would be good.

ACTING CHAIR—It is at the bottom of page 13.

Ms Ironfield—This is in respect of through-life support, by the sound of it, rather than the general equilibrium modelling.

ACTING CHAIR—Yes. It is a project value. It is a net present value based on a 25-year life of project. We were given to understand that that is your figure.

Ms Ironfield—I am searching through here, but at this point I cannot see it. But that is not to say that I—

ACTING CHAIR—The pages they quote are 38 to 39 and 49 to 50.

Senator PAYNE—Given that the Department of Industry, Tourism and Resources only gave this to us this afternoon and that Ms Ironfield really has not had a chance to look at it in context, perhaps it is something she could provide on notice.

ACTING CHAIR—I know. I am interested to see whether there is any light we can shed on these matters, without putting too much pressure on Ms Ironfield.

Ms Ironfield—I have found the $518 million. This was indicative. As I mentioned to you before, we tried to get some reasonably good information on through-life support costs but they were not forthcoming.

ACTING CHAIR—Why not?

Ms Ironfield—Because they just could not help us. They did not seem to know themselves.

ACTING CHAIR—Right. I think that is rather more the point.

Ms Ironfield—They are absolutely correct. There is a footnote that says that 'net present value estimate is an interest rate of 7.12 per cent', which was equal to the long-term bond rate in December 1999. I recall that this was done right at the last minute in this report. We say:

As outlined in Chapter 6, Defence estimates that the annual costs for repairs, maintenance and spares for the eight Australian frigates will be in the order of $45 million. A substantial proportion of this work will be undertaken in Australia and will provide further opportunities for businesses to improve their defence capability and productivity.

Defence also advises that experience with other major defence projects constructed in Australia is that sourcing locally, rather than overseas, achieves substantial savings in repair turn around times and spare stock savings for a comparable operational availability. These savings can flow through to cost and productivity savings for Defence which in turn translates into improved welfare for the economy as a whole. Given the ANZAC ships have a twenty five to thirty year service life the savings of sourcing repairs, maintenance ... would be substantial. For example, assuming overseas sourcing doubled annual costs for repairs, and maintenance, and spare holdings for the ANZAC ships, the saving to the Australian economy—

would be the one quoted—that is, the $515 million.

ACTING CHAIR—What page of your report is that on?

Ms Ironfield—It is on pages 49 and 50.

ACTING CHAIR—Thank you very much for that.

Ms Ironfield—May I also say that in this minehunter report we have a bit more information from Defence on through-life support, which you might wish to consider.

ACTING CHAIR—Is there a comparable calculation to the one we have just been discussing?

Ms Ironfield—Not that I can recall.

ACTING CHAIR—Ms Ironfield, thank you very much for your attendance today and thank you for all your good work in your reports. We appreciate it.

Ms Ironfield—That is quite all right.

ACTING CHAIR—It is very nice to meet the author of such a famous and well-referenced report. Thank you for coming along.

[4.30 pm]

ROURKE, Rear Admiral William John (Retired), Private capacity

ACTING CHAIR—Welcome. You have seen a copy of today's opening statement. Do you have any questions regarding that document?

Rear Adm. Rourke—I have no questions.

ACTING CHAIR—Your submission, made in a private capacity, has been numbered 1 by the committee. Do you wish to make any amendments to that submission?

Rear Adm. Rourke—No. I would like an opportunity to perhaps add a few things.

ACTING CHAIR—Certainly. I invite you to make a brief opening statement, including an opportunity for you to add to the submission, after which senators will ask you some questions.

Rear Adm. Rourke—I am here in a personal capacity as someone who maintains an interest in naval shipbuilding. I appreciate the opportunity to provide some views on the scope of and opportunity for naval shipbuilding in Australia. I do so as someone with a fairly long experience in naval shipbuilding in the United Kingdom, the United States and Australia.

Your committee is inquiring into shipbuilding's economic productivity, economic costs and economic development. I spent some years in economic studies and I believe I am well qualified in the economics of shipbuilding. I spent over six years as Chief of Naval Materiel and I was involved in the planning of the local build of FFGs, Anzac frigates—with the 10th boat, *Perth*, just completed—and Collins class submarines.

I say in my paper that I think we should build a wider range of naval ships, including corvettes, and that we should develop and maintain our own design capabilities. We should keep in touch with new design in other countries, particularly Europe and the United States, and I think we need to train more of our naval officers in naval technology. I would like to provide a few more thoughts.

I think it is good that the Anzac program has gone so well, with the last ship, *Perth*, only 75 per cent of the lead ship cost and with the ships about a year apart. I feel that there would be a need for substantial changes, though, between the first boat and the 10th because of the spread of time. I am concerned that today we have no new shipbuilding program up and running. My paper, which you have had since December, said we should maintain work for at least five years ahead and perhaps for five more years with regard to probable orders.

I have always felt, too, that there is a need to have an increased gap between the lead ship of a class and its successor. The lead ship needs to be evaluated and given the all clear before the successor is completed. I have been unable to find out why the Collins class submarine flow programs were not identified before the design was accepted. I have been trying to find out the reason for that. It is something that the model should really have shown.

My paper also emphasises the need for corvettes and Antarctic vessels. I sometimes feel that the Navy steers clear of lower cost vessels, as their availability might reduce the need for larger ships. I believe one or two corvettes should be built every decade. I would also like to emphasise the need for local design staff and the need to have suitable designs in the draw ready. When Russia invaded Afghanistan, Malcolm Fraser had me come to see him and he asked me what ships we could build in Australia. I said that we did not have any designs for that and that we would have to go to America, which is what we did.

A few months ago I visited Austal Ships in Western Australia and was most impressed by their new lightweight ship design. I am aware that Defence Science is involved in working with them, but I also hope some Defence naval architects can be involved. Finally, I believe there is a need to get more engineers into the Navy and to provide cadets with a BTech degree which can be converted to master's degree at some later date. The US Navy's scheme at Annapolis, which runs that way, is worthy of emulation. Thank you very much for giving me the chance to present those views.

ACTING CHAIR—Thank you.

Senator PAYNE—Thank you very much for your submission and for your presence here this afternoon. I am interested in the issues that you finished on—that is, training and skills development in the Navy in parallel with our consideration of this naval shipbuilding inquiry. You refer in your submission, particularly at point 19, to training officers who can participate constructively in the Navy's technological future and make high-quality contributions to DMO. You also talk about the need to introduce and encourage technology degrees at the Australian Defence College. You used the BTech then as an example. Why do you think we have perhaps fallen down in this regard, and is it possibly something that can be fast-tracked or is it going to take some time to re-engage?

Rear Adm. Rourke—I am not too sure why we have fallen down, excepting that an engineering degree takes four years and therefore, when you have a lot of young people wanting to do things with the Navy, an engineering degree keeps them away from the Navy for a fourth year. In discussions with the rector and the head of the academy, I have said that probably the best pathway is to have a three-year technical degree and then people could come back later and go on to a higher degree if it were something they wished to do. That in fact would be an exact copy of what has been happening at Annapolis for about the last 100 years. There everybody does a three-year Bachelor of Technology degree. Some of them come back and specialise in various parts of it.

Senator PAYNE—If some of the observations which have been made about naval shipbuilding were to eventuate—that is to say there is no real strategic compulsion to have a naval shipbuilding industry in Australia and we can go overseas and do other things—would it be your view that that would exacerbate the problems that you are talking about in terms of the engagement of serving members in these important technical areas?

Rear Adm. Rourke—I think it would exacerbate the problem. I spent many years of my naval career trying to get us back into the design of the ships we were going to run. I eventually succeeded. It always felt inappropriate to me to be adding another US ship when we could have been ready to start building them here. I also want to go further and make sure that we can

design our ships here if we wish to do so and then go ahead and build them here. So I think there is an opportunity for a substantial amount of involvement of designers and constructors. We can keep up with and, from our point of view, probably improve on the cost of ships from the United States, the United Kingdom or Germany.

Senator PAYNE—Thank you for that. We also had some interesting discussions in Hobart with the Australian Maritime College about some aspects of the issues that you have raised. It is quite an interesting challenge.

Rear Adm. Rourke—Was that in Hobart or on the other side of Tasmania?

Senator PAYNE—We were in Hobart. They came to see us.

Rear Adm. Rourke—Right.

Senator PAYNE—They pursued some of the issues you have raised as well. It is a matter of interest to the committee.

Senator TROOD—I want to ask you about the point you made about corvettes. I think you may have been here earlier in the day when Mr James made some observations about them. What is the argument for undertaking that kind of activity? Is it a strategic argument or is it an argument largely related to maintaining the integrity of a naval shipbuilding industry?

Rear Adm. Rourke—It just seems to me that the safe passage of cargo ships to and from Australia in time of war or close to a war is something that needs support to allow that traffic to still go to and from this country. The wars we have been in so far have usually required us to turn out ships which we would call corvettes—smaller vessels. I have coupled with that, though it is a slightly different thing, the need for ships to go down to Antarctica, where Australia has a very substantial coastline to look after and very substantial fisheries to look after. We have not got any ships that are now particularly suited to the Antarctic waters. It seems to me there are some ships of that nature that you would need to build every 10 years, perhaps, to make sure they are up to date with the current technology. They are not expensive ships to build, and they are good training ships for people to look after.

Perhaps this is off the subject a little, but my son is a commander in the Navy and he was captain of *Manoora*. *Manoora* had to go out and work around Christmas Island for a long time to see what was happening in the flow of ships between there and Australia. It seems to me that that sort of patrolling is the sort of thing that a corvette would normally do. Our patrol boats are too small and a corvette with a helicopter on it could be a good ship to have. You do not need a destroyer or something like that. You could do it more cheaply. So every now and again, I think, we should try and build some of those ships. We can say that we can use them. And if we need to, we could build a lot more at fairly high speed.

ACTING CHAIR—Are you talking about a vessel equivalent to a Victory class corvette such as the Singapore Navy use?

Rear Adm. Rourke—Yes, I suppose something of that style, though perhaps something with even fewer capabilities in some ways.

ACTING CHAIR—Don't you envisage sea-state problems with respect to that sort of vessel? It gets pretty wild and woolly in some of these areas.

Rear Adm. Rourke—Yes, perhaps, it does need to be bigger. Certainly, the Antarctic ships need additional size and capability.

Senator TROOD—It is capability that we could build here. You have no doubt that this is the kind of ship for which we have capacity?

Rear Adm. Rourke—Yes, we could easily make a good job of building them here.

Senator FIERRAVANTI-WELLS—In your submission you state:

It is to be expected that the costs of maintaining, repairing and refitting ships that have been constructed in Australia will be significantly less than the costs of maintaining ships constructed overseas.

Admiral, you have obviously had many, many years in the Navy. Can you give us some concrete examples of this?

Rear Adm. Rourke—From the past?

Senator FIERRAVANTI-WELLS—No, the grounds on which you base this statement. Perhaps you might, in giving us an answer, give us some examples.

Rear Adm. Rourke—I am going on the recent statement made with regard to the Anzac ships, where all those have been regarded as competitive and where the 10th ship was 75 per cent of the cost of the first one, so there is even more of an advantage there. After I left the Navy, I was quite involved with Blohm and Voss Australia, who were looking to provide destroyer type ships. It can be said that their costs were bound to be higher than what it turned out we could do here. So it seems to me that we have a capacity to build ships of a high quality at a lower cost than the shipbuilders in the United States and Europe.

Senator FIERRAVANTI-WELLS—We have heard evidence about the savings on repair and maintenance through the life of a vessel and the relative benefits and cost savings that that can bring. In considering whether we should build ships in Australia, do you think that that should outweigh any short-term cost savings that may accrue to us in the purchase price of an overseas built, for example? Whilst it may be cheaper to purchase a ship overseas, do you think that that should be outweighed by the long-term benefits that the repair and maintenance savings give to us?

Rear Adm. Rourke—I have strongly upheld the advantages of building ships here. I was employed, when I was a commodore—or maybe it was when I was still a captain—with regard to the ship that was being designed and built for Australia. It was decided that the ship was getting so much like some of the American ships, and we had so many worries about some of the aspects of the design of the ship here, that we pushed to go to American ships instead. That was when we went to build the three DDGs in America.

After that, I believed we should be turning back to build the ships here in this country. A lot had to be done. The first thing that had to be done was that Williamstown dockyard, which had been run as a naval dockyard with a fair degree of inefficiency, needed to have a civilian management who could get some improvement in the way they could do business, and that was done. It still took quite a while before that could all be done. But the shipbuilding was taken over and did prove to be very efficient, so I think that the story of what happened there can go on in the other building that we have coming forward. I find it a pity now, though, that we have had some substantial period with no new shipbuilding going on. I think that it has to be asked why it is taking so long to decide what is going to be done with the air warfare destroyers and the other ships that we might be building.

Senator PAYNE—I wanted to ask you one question about an issue which has been raised with the committee in other submissions and by other witnesses, and that is the diminution in the merchant navy in Australia and corresponding shipbuilding in that regard. I wondered, given your experience, if you might like to make a comment on that and how you think that is affecting present circumstances with regard to the matters the committee is inquiring into.

Rear Adm. Rourke—I think the first thing is that simple cargo ships are going to be able to be built much more cheaply in China than we are ever going to be able to build them. I made a visit with a number of shipbuilders and designers to Japan, I think some 15 years ago. Japan were thinking of putting all their cargo ship needs into China because they had the capacity there—and of course the wages of the Chinese, even though they were going up fairly steadily, are still only about $2,500 a year for a skilled tradesman. It is very hard to compete with that for a simple ship. The ships that would best carry cargo between Australia and China are likely to be those that are built in China or some other country. Korea too has some fairly low-cost shipbuilding. Does that answer your question?

Senator PAYNE—Yes, it does. It is an interesting observation. It was raised in passing today by Neil James, I think, from the Australia Defence Association; it has been raised with me by some former serving members, who may well have been naval contemporaries of yours; and it is a matter of some interest in the community. Thank you very much.

ACTING CHAIR—Before we finish, I want to put on the record that you have a Master of Economics and that for six years you were Chief of Navy Materiel, until July 1985. In that capacity, tell us if you can about your assessment and evaluation of our current ability to produce, in terms of shipyard infrastructure, 20,000- to 30,000-tonne ships.

Rear Adm. Rourke—Despite my long involvement in naval shipbuilding, I have not had any 20,000-tonners in my sites or in my experience. What I do feel about the larger vessels is that we can probably make the best compromise by considering having the shell and main structure of some of these fairly straightforward ships built overseas. But we would still want to have some of the final fitting out and the controls from the bridge and that type of thing done here in Australia. I think there is the opportunity for bringing the two forces and the two capabilities together for things like the submarines and for the air warfare destroyers. There we want to bring the whole of it here together, and it is appropriate. I think we can compete at that level, but with the larger vessel we probably cannot compete, and we have already seen the Navy taking over an oil carrier, haven't we? Now we are working on changing that.

ACTING CHAIR—*Delos*, converted to *Sirius*.

Rear Adm. Rourke—Yes, to meet the needs. I think that is a sensible thing to be doing.

ACTING CHAIR—Yes. Was there much modularisation of ship construction with respect to, say, the two FFGs that we built? Do you recall what methodology was used in those quite significant projects for the time, back in the seventies and eighties—and nineties, I think it was, too—in Newcastle?

Rear Adm. Rourke—I think there we had the advantage of the ships that had been built in the United States and looking at the way they went about it. We had that with the change in emphasis in the shipbuilders yard, where people were no longer sticking to a very narrow aspect of their work and they were ready to take all the things together that are needed to build part of the ship.

ACTING CHAIR—Multiple skilling?

Rear Adm. Rourke—Yes, multiple skilling was very much required and very successful. I found that I did have one unsuccessful argument over there. We were building a fourth FFG in America and I was asked by the American navy if I could have any shipyard in America. I said I was interested in Bath Iron Works and they said, 'You can't have Bath.' I have to confess that I then rang up the manager of Bath and said, 'Wouldn't you like to be building a ship for us in Australia?' He said, 'I sure would,' and I told him that I was told he was not available. So at the meeting I had with the US Navy the next day they said, 'Bath is now available.' I am afraid that when I got back here to Australia I could not persuade the Navy and Defence that we should switch builders, but I see right at the very end now that is what is happening.

ACTING CHAIR—Exactly.

Rear Adm. Rourke—We are getting Bath to come out and look at the further ships we are going to build. So it is important to have a good master, somebody who has done the job and done it well. But at the same time I think we have to increase our efforts in design, and it is design for construction that you are doing initially and later it is design for operations. Hopefully we can combine a good set of naval architects and people here with some of the best of the overseas people and gain the advantage of doing both those things.

ACTING CHAIR—Thank you, Admiral, for your submission and for your attendance today. We very much appreciate it.

Rear Adm. Rourke—Thank you very much for listening to me. It has been very nice to talk about it.

Committee adjourned at 4.59 pm