



COMMONWEALTH OF AUSTRALIA

Official Committee Hansard

SENATE

FOREIGN AFFAIRS, DEFENCE AND TRADE REFERENCES
COMMITTEE

Reference: Naval shipbuilding in Australia

MONDAY, 4 SEPTEMBER 2006

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SENATE

FOREIGN AFFAIRS, DEFENCE AND TRADE REFERENCES COMMITTEE

Monday, 4 September 2006

Members: Senator Hutchins (*Chair*), Senator Johnston (*Deputy Chair*), Senators 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, Stott Despoja, Trood, Watson, Webber and Wortley

Senators in attendance: Senators Bishop, George Campbell, Fierravanti-Wells, Hogg, Hutchins, Johnston 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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Committee met at 5.29 pm**EDWARDS, Mr Martin Peter, General Manager, ASC Shipbuilding, ASC Pty Ltd****GALLACHER, Mr John Robert Ross, Chief Executive Officer, ASC Shipbuilding, ASC Pty Ltd****TUNNY, Mr Gregory Roy, Managing Director and Chief Executive Officer, ASC Pty Ltd***Evidence was taken via teleconference—*

CHAIR (Senator Hutchins)—I welcome via teleconference Mr Edwards, Mr Gallacher and Mr Tunny. Today the Senate Foreign Affairs and Trade References Committee will conduct its 10th 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. I now invite you to make a brief opening statement, which will be followed by questions from the committee. Over to you, gentlemen.

Mr Tunny—I do not have an additional opening statement. This is the second time that ASC has presented itself before the committee, so we are happy simply to continue with questions.

Senator MARK BISHOP—Thank you, gentlemen, for taking the trouble to appear late or getting late in the evening Adelaide time. I have a few questions on some general defence related issues that have arisen out of the evidence. Professor Dibb, in a recent article published by CEDA, made reference to the need of the industry to recognise that, if it is to get better access to defence business, it needs to acquiesce in open book accounting, agreed profit margins and transparency in overhead rates. That suggests a particular way of quoting for contracts and getting the job in due course. Does ASC have a view on that or would you rather have a purely open competition model where you retain your own in-house confidences?

Mr Tunny—Like many things, it can work either way and different circumstances make each one more appropriate. ASC is very comfortable with what Professor Dibb was saying, given that the Collins class through-life support contract essentially works in a model that includes those elements. However, other projects within the defence arena worked very well on a fixed price, competitive tendering basis. I think on many occasions it depends on the complexity and uncertainty of what you are bidding for. If I am bidding for the supply of a black box and several competitors make equivalent black boxes and I have made a lot of black boxes before, then obviously a fixed price tender is the way to go. If I am bidding on something that has never been

done before and it is a very complex program then many countries around the world lean towards the type of model that Professor Dibb was espousing.

Senator MARK BISHOP—So the type of funding model depends on the complexity of the particular project. The more complex, the more detailed and the more open-ended the project, the more you go to—

Mr Tunny—That is correct. If you go to look at developmental programs in the US, they are usually—I will call it ‘generically’—an incentivised, cost-plus contract. Then, as they get past that initial design, they get over the hurdles and the large contingencies involved in bringing the first of class, whether it is an aircraft, a ship or whatever, into production, and certainty comes about. Then they often move towards a fixed price run for a production run.

Senator MARK BISHOP—The fixed price is more appropriate where you have a set production run. It is almost a post-development form of pricing, isn’t it? Once you have done your developmental costs, you know exactly what you have to manufacture and produce in the time lines, and then fixed cost comes in.

Mr Tunny—That is correct.

Senator MARK BISHOP—Going back to the air warfare destroyer program: Mr Gillis, Deputy CEO of DMO and program manager for the amphibious ship project, was critical of the air warfare destroyer program and the information provided by a range of the companies who contracted for that particular project. He said the DMO and, in turn, the government, based a lot of their data on what Australian industry, specifically shipbuilders, told them about the efficiency and what their costs were going to be. He then made the bold conclusion:

The problem is that they significantly underestimated those costs.

Seeing that you are involved in long-term submarine maintenance and the destroyer project, do you have a comment on Mr Gillis’s criticisms?

Mr Tunny—He has access to the original study and he has access to the consequent real information that came forward in tenders.

Senator MARK BISHOP—Sorry; I cannot hear you.

Mr Tunny—Mr Gillis has access to the original study and what it said. I do not have access to that study. Mr Gillis also knows what was in the bids from the competitors for AWD, so I guess he can compare the two. I do note that ASC did not participate in the particular study that he is referring to. In fact, it was before my time, but I understand ASC declined to participate in that study.

Senator MARK BISHOP—So you cannot offer any comments on his particular criticism?

Mr Tunny—No, but I am sure he is reflecting facts that are in front of him. I might say, though, in some defence of the elements of industry that put that study together, that they may well have been reflecting reality from the perspective of a different AWD. I do not know. It

would be very difficult to actually align what was said could be done for exactly what ship of what complexity and what size back in the early part of the decade versus the reality that we have today. Basically, I do not know. I have not seen the study.

Senator MARK BISHOP—Thank you. Can I switch the conversation now. We have heard a lot about the economies of scale that come from large production runs. We have now got two major projects: the destroyers and the amphibs—two and three respectively, I think. So you are not going to get the economies of scale from repeated production. One particular project has a lot of developmental costs, the amphib not as much. How much of an issue is the small ship run with regard to the productivity and, hence, the costs of Australian shipbuilders in bringing those two projects to a conclusion?

Mr Tunny—The impact can be of some significance; again it depends on a lot of issues. Starting with the simplest layer first, a first ship is always going to be the most difficult. You typically then have a learning curve which an organisation will follow. As you work on progressive ships, you may improve three per cent, four per cent or five per cent per ship—or whatever the learning curve for your operation is. We also see this on the Collins through-life support, where we can see our learning curve effect. On the last ship, you do not get the benefit of the learning curve effect. I think history shows, in many yards around the world, that you actually get a kick up again as all the ramp-down and close-down impacts kick in. So when you have a run of three, you have the challenges of a first ship, the challenges of a last ship, and only one ship in between. So you can have an impact.

The impact is experienced again by the newness and the complexity of the ship. If it is a true first-of-class original design, you will have a larger challenge before you. If it is a build-to-print exercise—if it has been built a number of times before, somewhere else, and if you have a partner who is able to help you learn a lot of those lessons—then that first ship premium can be significantly reduced. Like so many of the answers, it depends.

Senator MARK BISHOP—Is the net of your answer that the small size of the production run in both of these projects necessarily involves a higher cost, because you cannot spread it out over a larger number of units—and hence that has to be factored into your thinking?

Mr Tunny—Absolutely. The amortisation of your investment in facilities and your investment in training employees would be spread across more ships if you could have a larger production run. If you are asking the simple question, ‘Would it be more cost efficient if you had larger production runs?’ the answer is yes.

Senator MARK BISHOP—That is a simple answer to a simple question. If the government is going to go down the path of small-scale production of fairly innovative large ship projects, that is necessarily going to mean high unit costs. Are there other factors that can be taken into account to offset that high developmental cost? Or is it just a problem?

Mr Tunny—I think it is a problem, but perhaps we should not think about an air warfare destroyer as something like a Commodore coming off the line at Elizabeth. You have got the commercial craft that the Japanese, the Chinese and the Koreans push out at a rapid rate, which are your commodity car type products. The sorts of warships that we are talking about are more like putting together a Le Mans racer. While you will get some advantage from putting a number

of them together, you do not really necessarily, in many countries, expect to produce them in large volumes. In fact, probably only in the Western world, in the US, do you produce such craft in large volumes.

Senator MARK BISHOP—Apart from the US, this issue of small-scale production runs of high-value units is going to be a problem in nearly every other country in the world, isn't it?

Mr Tunny—It is a challenge for many countries, and many countries have varying forms of support—and some would use the word 'subsidy'—for their naval shipbuilding industries.

Senator MARK BISHOP—Yes, they do. In the Sydney hearing, we had some criticism from the Australian Industry Group Defence Council and their representative, Mr John O'Callaghan. He said that Defence needs to be 'a bit more mature' about putting on the table some of the lessons from experiences such as the problems with the modernisation of the FFGs and the Collins class submarine. In his view, such an approach might help industry to avoid the problems that have arisen through those projects and post those projects. Can you explain Defence's reluctance to either conduct performance reviews into major acquisition projects or make public the result of such reviews? What is your experience?

Mr Tunny—There are two issues. One is conducting the reviews and the second is making them public. The FFG is still an ongoing program, and it is not an ASC program so on both of those grounds I do not think that (a) I would know and (b) that it would be appropriate to discuss it anyway. But with the original Collins build there was a lot put on the public record about what went wrong. I guess the Prescott-Macintosh report would be the definitive document, but only recently a much more easily read document—the ASPI analysis, which was written by Patrick Walter, I think—overviewed the lessons learnt. I do not know that Defence has been that defensive. It may believe that commercial issues preclude the early release of lessons learnt, and that is a wholly appropriate attitude. But Defence has tried very hard to learn the lessons, as has ASC. We and they are trying to incorporate all the lessons learnt in the TLS contract and in other work.

Senator MARK BISHOP—Okay. Thank you.

CHAIR—Our Liberal colleagues did not get pairs like we did, so they have had to go and vote. I have some questions. In answer to a question on notice, Defence stated:

There are limits to which Defence could or should go in influencing industry structure, conduct and performance. Innovation and efficiency in the production of defence goods and services rests ultimately with companies. Defence's primary role is one of providing companies with adequate information on its needs, specifying clearly its technical requirements and establishing and maintaining contractual relationships which recognise and balance the needs of all parties.

They answered that on notice earlier this year. Would you like to respond to that statement about the limits to which a government should influence industry structure, conduct and performance?

Mr Tunny—That is a difficult one, because I am not sure that it is for ASC to suggest how the government should conduct itself. What we know is that Defence rightly likes the concept of being able to conduct competitive tenders for projects wherever possible. But, as Dr Gumley has

pointed out in several public forums, a significant percentage of Defence contracting is sole source because of intellectual property issues and the complexity of the equipment that is being dealt with, which makes it essentially impracticable for another entrant. What are the issues in that environment? I guess the main issue ultimately surrounds industry consolidation into a single activity which has a monopoly. Other than that, I think Defence and the government have largely stayed out of the issue of the structure of industry.

Senator MARK BISHOP—Do you think they have or do you think they should?

Mr Tunny—I think they have.

Senator MARK BISHOP—More subjectively, do you think that is an appropriate way for government to be conducting itself—simply providing advice to industry on its needs and its specifications and allowing industry to develop—or do you think there should be a more coherent and directed role for government?

Mr Tunny—I think different parties within government may have different philosophies. I do not really want to buy into that one.

CHAIR—What about your observations in the past? Do you feel that in the past in projects Defence has provided you with adequate information or that you have not been given what you required—not you personally, but the industry—and there have been some of these kerfuffles?

Mr Tunny—I think if you look back over enough programs you will always find a little bit of evidence for every problem you want to find. But in the main I think Defence has tried its best to provide the necessary information and guidance, and it is only sensible that it would in that industry is trying to deliver a capability or a service to Defence that it wants for the conduct of its defence of Australia. People may have made mistakes and programs may have had glitches but I think overall Defence tries.

ASC had experience in recent times with the replacement combat system, for example, which is a very interesting program which has gone well, and we are nearing the start of the end of the program. For the replacement combat system, Defence itself has essentially primed that program with the combat system SPO leading the system integration, finding the information from overseas, taking delivery of the FMS provided software and working with ASC, Raytheon, Atlas Electronics and Thales Underwater Systems to bring it all together. They have not had all the answers from day one but they have been very diligent in seeking them out and pulling it together. I think that is a demonstration of Defence being able to not only work very closely with industry but take the lead on a program which had a lot of difficulties and a lot of challenges. In fact, I think they won an Australian project management industry award about a week ago for that program and their leadership of it.

Senator MARK BISHOP—Could I ask you a question on a slightly different aspect. How significant is the issue of intellectual property, firstly in terms of systems or integration that you might develop and secondly in terms of systems integration and equipment you might purchase for use in your platforms? Getting access to a range of that property has been a bit of a sleeper in this inquiry. How big an issue for your company and your operations is intellectual property, the ownership of the property and those things I mentioned?

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

I believe intellectual property is a critical issue, and that wherever the Commonwealth can gain the fullest open access to the intellectual property it should. Also I think you should connect with that thought about intellectual property the other dimension of the problem which can make it quite challenging—that is, ITARs type restrictions. These are the International Trafficking in Arms Regulations, which is the US intellectual property restriction framework. This can impose a lot of challenges for a program, particularly in terms of nationality of people working. It can require you to have only Australian or US citizens for example. That can complicate life for dual nationals and seriously complicate life if you have people who are not yet Australian citizens.

Senator MARK BISHOP—So is access to IP, use of IP and sharing or delegating of IP to clients or subcontractors up there, in terms of being critical, with strategic relations and national security considerations?

Mr Tunny—It is absolutely up there.

Senator MARK BISHOP—Is it more than just a commercial issue of having to pay X amount of dollars for someone else's property?

Mr Tunny—I believe in certain circumstances it is. Some countries may well sell you any IP they have for a price. Other countries will only sell it to their best friends.

Senator MARK BISHOP—So in terms of high-end, cutting edge technology—high-end missile systems or high-end integration issues where the issue of intellectual property is critical—does our to-date apparent preference for relying on a very close relationship with the United States and access to some of their principal firms in those areas have a downside anywhere with respect to non-US citizen firms in other countries?

Mr Tunny—I think it probably has some degree of downside if we are talking about a non-Australian and/or non-US firm because the ITAR legislation could impose imposts which it is not up to the US company to make a decision about—it is actually US Department of State driven. If you are an Australian company then no, I do not believe it is an issue really at all in that if the US government has determined that, because of its relationship with Australia, it is willing to authorise the transfer of that intellectual property then there is nothing stopping it coming to you as an Australian company as opposed to an offshoot of a US company. In fact in some respects it can be easier in that if you are dealing with a consolidation of intellectual property from a number of parties, as the neutral Australian authorised recipient you can play quite an important integrating role. I think ASC's role as an integrator there has a high value.

Senator MARK BISHOP—In terms of getting preferred access to critical US IP in technology areas, emissions areas and integration areas—and as a consequence having, for want of a better description, state-of-the-art platforms like your submarines and the like—is there a

consequence in terms of us becoming dependent upon the US and not being able to gain access to European suppliers or the like in comparable areas? Is there a downside in that respect?

Mr Tunny—There is a consequence in almost everything we do. The answer is yes, there are consequences. However, I do not believe that one needs to think of this in black-and-white terms. ASC, for example, is the custodian of certain intellectual property. We work with the US and we deal with quite a lot of ITAR's designated intellectual property, but we continue to build relationships with European companies—some, in fact, that some in the US would not want to deal with directly. We provide the integrating, consolidating vehicle to do that in Australia's interests.

Senator MARK BISHOP—Am I reading you right in saying that whilst there are always complexities and difficulties and there is a balancing equation—sometimes you win; sometimes you lose—we have a close relationship with the United States and they are prepared to share with us quite complex and difficult intellectual property in advanced areas? Is your professional assessment that that is a net advantage or a net disadvantage to the way we source a lot of our technology in advanced platforms?

Mr Tunny—I think that at the most sophisticated end of the market it is an advantage. This is in the context that at the more sophisticated, more complex end of the market, where you start to link into the entire network-centric warfare environment, the US is the biggest guy around. He has the most data, which he also shares, but that takes us into operational issues. It is not just an industry issue; it is not just an IT issue. It goes way outside my area of professional expertise into the areas of what data and what operational benefit it brings as well. Sticking to what I know—in the Collins platform, in AWDs—it has certainly been beneficial.

Senator MARK BISHOP—I have one final question on that issue. In terms of getting access to that high-end IP—particularly in the Collins class and in the future in the AWDs, particularly in the mission systems, the missile systems, the systems integration and all that very advanced software material—is there an extra effect in terms of our ability to project force, to get more bang for our defence dollar, by having access to this highly classified US IP?

Mr Tunny—I think I lost you slightly there but I will attempt to answer what I think is the question.

Senator MARK BISHOP—I will try and make it a bit simpler. With the Americans being prepared to share their high-end IP with Australia in terms of platforms like the Collins or the AWDs, is there a beneficial effect in terms of our force projection and our capability as well as in operational matters? Are the ships more effective in their ability to carry out the task for which they are designed?

Mr Tunny—Yes. Let us go back to the RCS and heavyweight torpedo upgrade. The US is providing Australia with the heavyweight torpedo, and ASC is changing the weapons handling system and integrating that into the vessel. It is also integrating that into the upgraded replacement combat system which is being provided via a foreign military sale direct to Defence. All of that capability will significantly enhance the Collins and it probably would not have been affordable by another route.

Senator MARK BISHOP—So there was a significant cost advantage as well as a force capability advantage in getting access to that IP?

Mr Tunny—Yes. The critical thing is the willingness of the US to provide it to Australia. Once you have that government-to-government willingness, the interplay between the corporations can make it happen. It is difficult if it is a European company. We have seen that in a number of circumstances. ASC has seen that, as an Australian company, once the decision is made that the US technology is coming, there is no real impediment.

Senator FIERRAVANTI-WELLS—Mr Tunny and colleagues, thank you for coming back. You may recall that, on the last occasion, I was asking some questions in relation to capability and capacity. Certainly evidence received from Defence is that they are very much concerned about capability and capacity in relation to AWD. I would like to tackle this on a couple of fronts, bearing in mind that we are looking at shipbuilding in Australia and the two contracts—the AWD and the amphibs—are wound up together.

My first question is on skills and skills shortages. Some of the evidence that has emerged goes to the mobility of workforces. Given the concentration in South Australia and the mobility of workforce into South Australia from other parts of Australia, how are you going in terms of establishing the workforce for the AWD project? Are you having difficulty in recruiting appropriate skills, given that you are also meeting your other requirements as far as the submarines are concerned?

Mr Tunny—ASC has met its recruitment targets for AWD to date and is fulfilling its objectives on that program. Perhaps it is of even more interest that, during the last several months, we have actually recruited more than twice as many people onto submarines. We have a lot of submarine work going on at the moment with the work to keep to schedule on the full-cycle docking of *Waller* and the beginning of the full-cycle docking of *Dechaineux*. There is an overlap period between each of the full-cycle dockings. We have recruited about 150 people in the last three and a bit or four months. There has been no trouble. We have got them all and we are keeping those programs to schedule and we are delivering what we need to on AWD. I have noted from your proceedings some people in foreign states exercising what I think is wishful thinking, but they are the facts. We are recruiting those people and we are delivering.

Senator FIERRAVANTI-WELLS—Are you recruiting, though, at levels where you have been required to pay perhaps incentives or higher wages? If that is the situation, how will that impact generally on the workforce down there? Assuming you are having to augment current salary levels with higher levels, what impact will that have on your cost assessments as far as meeting your AWD requirements and staying under the \$6 billion cost for that project?

Mr Tunny—The issue of salaries is quite interesting. Again, that would be a lengthy discussion but I will answer it in two parts. Firstly, ASC recently completed the negotiation of a workplace agreement with its three unions, the AMWU, the AWU and the CEPU—it was one of the early workplace agreements to be negotiated. We negotiated a deal which I actually do not want to give the numbers on in an open forum but I will say this: the numbers were less than the numbers in the previous EBA three years beforehand. I think that puts paid to a notion that we are ramping up salaries or wages on that front.

Senator MARK BISHOP—Were you talking about aggregate figures then?

Mr Tunny—Yes, the aggregate percentage increase per year on a three-year basis. It was an agreed number or different numbers for three years, and I am saying that the total of those three years was less than the total from the previous period.

Senator MARK BISHOP—You have a growing labour force as well?

Mr Tunny—We have a growing labour force as well. The second part of my answer, on the white-collar front, is we benchmark extensively against local and interstate industries and at the same time we have made increases to our white-collar staff. I assure you if there was a huge disparity in the relative increase between the blues and whites we would have a problem. We are also very carefully managing the transfer of people, the seeding of people, from submarines to ships. Of course it could not be in ASC's own interest to offer a disproportionate increase to a small number of people to move across to seed ships. That would cause all sorts of havoc so it is just not happening.

Senator FIERRAVANTI-WELLS—In other words, any assertions or otherwise in the press that your potential wages figure, if I can put it that way as far as AWD is concerned, is going to be more than what you assessed are unfounded?

Mr Tunny—That is correct. As you would know, the press has said a lot of things.

Senator FIERRAVANTI-WELLS—Yes, well I do read the press but you are giving me the assurances that I need, Mr Tunny, that you will stay on time and on budget, which is what I am interested in because we are dealing with taxpayers' money.

Mr Tunny—What I can tell you, Senator, is what we have agreed for the next three-year period.

Senator FIERRAVANTI-WELLS—When we were in South Australia and we came to visit I think we had a discussion in relation to the work and where the work for the building of the modules may occur. In fact we had some discussions prior to that and you indicated to me, and I think this is generally known, that not all the module work will be done around Australia.

Mr Tunny—That is correct.

Senator FIERRAVANTI-WELLS—I asked you if you had had discussions with potential builders of that module around Australia and whether that had been factored in to your assessment of the cost price?

Mr Tunny—That is correct.

Senator FIERRAVANTI-WELLS—When I asked you if there was a circumstance where you went over budget your indication to me was that you would simply go back for more money. Do you envisage that you will go over the \$6 billion and, if you do, will you be making an application to extend and to get more money, like you have in the past with Collins where there were overruns?

Mr Tunny—There are a number of things. I do not recall that that was my answer to what would happen. I think what we said was we had toured around industry to assess its capability. As we were not in a position nor required to obtain quotes at that time there was not a number to actually run over. What we have done in more recent times is an alliance team, not only ASE but other members of the alliance, has toured Australian industry again.

Senator FIERRAVANTI-WELLS—Is the gist of your answer that you deny saying to me that you would just go back and get more money? Is that what you are saying?

Mr Tunny—Yes, I am.

Senator FIERRAVANTI-WELLS—I recall the conversation. I then repeated that conversation to Senator Johnston. Do you not recall that or do you deny saying that to me?

Mr Tunny—I think you have misinterpreted the discussion.

Senator FIERRAVANTI-WELLS—I think my hearing is very good, Mr Tunny. Do you not recall that or do you just deny making that comment to me?

Mr Tunny—I am not questioning your hearing, simply your ability to interpret.

Senator FIERRAVANTI-WELLS—Thank you. Are you giving me the assurance that you will stay within the \$6 billion?

Mr Tunny—There is not even a total cost estimate yet.

Senator FIERRAVANTI-WELLS—My recollection is that this contract is for \$6 billion. That is what I have read; that is what the government understands.

Mr Tunny—I think you should talk to the project officer about that. We will deliver a total cost estimate at the end of this year.

Senator FIERRAVANTI-WELLS—Are you saying that \$6 billion is not the cost of the project?

Mr Tunny—No, I am saying that we have not delivered a total cost estimate.

Senator FIERRAVANTI-WELLS—So you are saying that the assessment in the budget papers is not your understanding of what you have contracted for?

Mr Tunny—We have not contracted for a number yet.

Senator FIERRAVANTI-WELLS—Are you saying it is not a \$6 billion contract but a figure to be determined?

Mr Tunny—No, I am saying that the alliance will put forward a total cost estimate for two ships in December this year.

Mr Edwards—For two options.

Mr Tunny—For two options—the existing and the evolved—and the government will decide which one it selects.

Senator FIERRAVANTI-WELLS—Thank you, I take your point. So you are saying that the figure of \$6 billion that was the subject of the announcement is not your understanding of what this contract may cost the federal government? A simple yes or no will do.

Mr Tunny—A simple yes or no does not always work. What I am saying is that we have not put together a total cost estimate.

Senator FIERRAVANTI-WELLS—In other words, a \$6 billion contract is not really a \$6 billion contract.

CHAIR—Senator, this is a hearing, not a grilling.

Senator FIERRAVANTI-WELLS—There have been reports of difficulties within the alliance. Is that the situation? Is it all working out or are there problems there?

Mr Tunny—The alliance is working very well and progressing towards meeting its targets.

Senator JOHNSTON—In December this year the second pass of this project will be approached and we will have two cost structures on the board: one for the F100 and the other for the evolved F100. Is that what we are talking about? Please excuse my ignorance.

Mr Tunny—The minister said, when he opened the systems centre on 3 August, that the second pass would occur in July and that the second pass of the AWD and the LHD would occur concurrently—the decision on both ships would be made at the same time. In December this year we will put forward a total cost estimate—not just that, but a schedule and a plan—for the existing ship, which is an F100, and also for the evolved design, which was launched publicly at that systems centre opening. There is then a period of final iteration before a final TCE for these two options goes forward towards the end of February. DMO and capability development will then take those two options forward to government, as directed by government, for a decision at second pass.

Senator JOHNSTON—Given that you are charged with the responsibility of bringing forward the project to that point in an alliance, if the build was to be offshore, what problems would government face with respect to the evolution of the designs?

Mr Tunny—I do not believe there is any discussion of any work of the AWD being done offshore.

Senator JOHNSTON—I am not suggesting that. I am asking about the process that you are involved in. I am not asking about if the ship is to be built offshore. What I am asking is: if there was to be an offshore build, even of a different type of vessel, is it feasible that the sort of process that you are involved in now could be conducted with an offshore constructor of the hull, for example?

Mr Tunny—The answer within the limits would be yes. The US has built air warfare destroyers before. You could do the work with a US shipyard and build a ship.

Senator JOHNSTON—Yes, but we are talking about integrating a whole lot of different equipment in South Australia. For instance, I believe there is a secondary phased array radar system. When you talk about the evolved design, this is an evolved design fit for purpose in our dimensions. It is interesting that you say, ‘Yes, the Americans can build a ship, and they did with an FFG’, but what I am interested in is that the evolved design requires a particular type of modification, fit for our particular needs. Is the process that you are working through a process that lends itself to us talking to someone to manufacture the bashing of the metal, so to speak?

Mr Tunny—It is not nearly so easy to do it at distance. I answered the question of whether it was possible, and the answer is: it is possible. Would it be efficient or cost effective? I think the answer is: doubtful.

Senator JOHNSTON—Tell me why you say that. I am interested in your thought process and what considerations come into play.

Mr Tunny—I think there is a close interaction between the customer iteratively defining its requirements and the alliance iteratively refining potential solutions. Attempts to do that sort of work at great distance lead to mistakes, misunderstanding and inefficiencies. I make the point again that the notion that building the ship is metal bashing is a fundamental mistake of what the process of building a large, modern warship is.

Senator JOHNSTON—Please expand.

Mr Tunny—Let us jump back to the Collins for a moment. Aboard the Collins, we have 108 systems integrated into a pressure hull, one of which we are required to safety certify. It is a safety-critical piece of equipment. That alone makes it an engineering and technical challenge. The shipbuilder, or the submarine builder, in that case, is responsible for integrating those systems into the vessel. The combat system constitutes a system and there are the communications system and other systems. Even by the time we are done with everything that can be construed as a related part of the combat and C3I system, we still have 100 systems that are integrated which work to keep the platform in motion, keep the crew safe at deep-dive depth and a lot of other things.

It is very convenient for some parties pushing a certain barrow to refer in a derogatory way to shipbuilders as metal bashers. I am sure that ASC and other players like Tenix would join with me in saying that this is a patent misrepresentation of the challenge before a shipbuilder building a large warship.

Senator JOHNSTON—I am pleased to hear you say that. When you talk of submarines, I take it that the installation of various systems inside a contemporary warship has a similar complexity and suffers similar problems.

Mr Tunny—Certainly something of the complexity of an AWD, yes.

CHAIR—Thank you very much for making yourselves available this afternoon.

Mr Tunny—Thank you for the opportunity.

[6.27 pm]

BARKER, Mr Geoffrey, Private capacity

WOOLNER, Mr Derek Noel, Private capacity

WYLIE, Mr Robert Charles, Private capacity

CHAIR—Welcome. A copy of today's opening statement has been sent to you. Do you have any questions regarding that document?

Mr Barker—No.

CHAIR—Today the committee is interested in the papers you each wrote for the recent publication by the Committee for Economic Development of Australia titled *Growth 57: the business of defence—sustaining capability*. I invite you to make a brief opening statement, which will be followed by questions from the committee.

Mr Woolner—The basic thesis of my article is that, although a great deal of attention is focused on the contracting and management of major defence procurement projects, most of the important decisions that affect the outcome of those projects have in fact been made at some period before contracts are signed, and so looking at questions that have to do with the future of an Australian shipbuilding industry means that you also have to look at the processes that lead to the generation of contracts for that industry.

Mr Wylie—I would like to make a couple of points. Firstly, let me just commend the committee and its secretariat on the discussion paper that it put out. I think it is a most commendable contribution to an informed public debate. That discussion paper of course came out long after we had produced our respective contributions to the CEDA publication. With that in mind, I would like to pick up a point made in that discussion paper and indeed alluded to in the discussion you have just had with Mr Tunny—that is, the notion floated on page 15 of the discussion paper that there ought to be fuller and franker discussion about projects with a view to informing defence industry and helping Defence be more accountable. I think that is a very important point. It just sits there as a little sleeper in your discussion paper. I think it could be taken in a different direction and explored quite fruitfully. The direction I am suggesting that you might want to look is the kind of developments in defence governance arrangements, both external and internal, that have to do with Defence performance, particularly those that have been instituted since 1997, and the whole accountability framework of the accountability for funds appropriated by parliament to Defence and other government departments.

The point I would like to leap to is that defence industry's performance is absolutely critical to Defence's ability to achieve its performance, as mentioned in the portfolio budget statements. Also, similarly, internally within Defence is a raft of accountability processes that flow down from the minister's directive and, again, go through things like materiel acquisition agreements, materiel sustainment agreements between a prescribed agency and the Defence Materiel Organisation. Industry, again, is critical to the achievement of those arrangements. I think

defence industry policy would be reinvigorated if it were linked more carefully and closely to these evolving defence governance changes, both internal and external. I would be happy to expand on that in more detail in questions.

Mr Barker—My paper focused on the politics of defence acquisition and perhaps what I have to say is not nearly as constructive and positive as the comments of my colleagues here. My article, essentially, sought to argue that politicians making ultimate decisions on defence acquisition find themselves in the same position as Saint Augustine of Hippo. He prayed for ‘chastity and continence, but not yet’. Politicians set up acquisition processes to guide them towards chastity and continence processes that seek rationally and objectively the best value for taxpayers’ dollars. But just as the temptations of lust enter Saint Augustine’s heart, the temptations of politics enter the hearts of politicians. These include many things, such as the need to win marginal seats, the desire to have good relations with alliance partners and to maximise prices for properties being privatised. I do not think there is anything wrong with any of that. This is a political society and governments are accountable for decisions they take, but there are two problems, I would argue. Firstly, because defence contracts are such long-running things, those who make the decisions are rarely around to take the credit or the blame for successes or failures. Secondly, we are rarely given the details of the costs and capability of foregone alternatives, so it is really not possible to critically analyse announced decisions.

I just conclude that the so-called rational, economic and political considerations, in fact, in the real world interact to produce acquisition decisions, and the relative importance of the political and the economic probably vary case by case. But I think it is naive—and I argue this in the paper—to think that contracts are awarded solely on the basis of objective best value for money. In fact, best value often seems to me to be a sort of after-the-fact justification for acquisition decisions that are taken. That is the essence of the paper I wrote.

Senator MARK BISHOP—Thank you, gentlemen, for your contributions this evening. Mr Barker, I will start off where you concluded. Implicitly you suggested that the process of acquisition could be significantly improved and is subject to a fair degree of political involvement. In fact, you made a reference in your paper to that, where you said: ‘Some Defence acquisition decisions at least seem the result of almost Byzantine court politics, played out behind a rhetorical smokescreen of unfalsifiable claims about the economic and technological irresistibility of the decisions made.’ That was what you were talking about in your introductory comments.

We do live in a political world. Marginal seats are critical to the government and they are critical to us. Placement of government contracts for multi billions of dollars of work over 10 or 15 years are critical to the development of entire cities and regions. We all know that. What, particularly, do you suggest could be improved to make the process more transparent and accountable, and not appear to be almost totally the result of ‘Byzantine court politics’?

Mr Barker—One thing, which I have already mentioned, would be to be much more upfront about the cost of foregone alternatives. We will be presented with decisions about the two big shipbuilding projects but we will not have full access to the bids that were not successful and to the reasoning behind the government’s decisions. That will be announced as commercial-in-confidence. So I think that is difficult.

I do not know how you do this, politically. It is the tension between what I half-lightly call ‘virtue’ and ‘advantage’, that is always there. For example, when the minister opened the Air Warfare Destroyer Systems Centre in Adelaide he said, ‘It’s not about job creation; it’s about getting best value, et cetera.’ But he also wanted to say to the defence industry conference that putting bread on the tables of everyday households was as important as defence capabilities. He also wanted to say that the AWD project was a nation-building one that would mean employment for several thousand Australians. And these are all admirable things to say and ambitions to have, but it leaves a tension between, if you like, economic virtue and political advantage. I suppose I am asking politicians to do the impossible and come clean about what they are really doing!

Senator MARK BISHOP—It appears you are suggesting that we should be the only persons who follow the virtues preached by St Augustine! Following your line, we understand your problem and we understand your plea; how do you make the decisions more transparent and accountable?

Mr Barker—As I said, No.1: when the decision is made, say, ‘Here’s the decision; here’s the reasoning we left behind.’ The problem with all governments is that they can never be wrong and they can never be challenged, it seems, and they get very uncomfortable when they are. So, first of all, taking a much more relaxed attitude to what is commercial-in-confidence after a decision has been made would be pretty helpful, I would have thought.

CHAIR—Mr Barker, could I just come in there with Mr Woolner’s paper. You commence your paper by saying—and I will paraphrase it—‘It seems to me on the crucial decisions that mistakes are made almost before anything is actually built.’

Mr Woolner—Yes.

CHAIR—How do politicians or governments try to overcome that particular problem where they know, for instance, that a project that is supposed to cost \$6 billion will end up costing \$11 billion or \$12 billion, or there are no suitable tiles available for this class of submarine which should have been foreseen? How might each of you respond to an inquiry like that? I know what you are saying, Mr Barker: that it is the nature of political life, and probably so it should be. But Mr Woolner is saying that the decisions—that are possibly mistakes, for want of a better word—are being made very early in the piece, and it is just like a ship that is out of control. How would you respond Mr Barker, Mr Woolner, or you, Mr Wylie?

Mr Woolner—When I was working as Director of the Foreign Affairs, Defence and Trade group, I wrote two papers on the Collins class submarine. In the larger of those, I traced what I thought had been the processes of arriving at some of the shortcomings of that vessel. I have been researching in Defence for several months now, on files on the Collins class submarine, as part of the process of writing a book on the history of that submarine, and I have seen nothing that changes my opinion that the basic decisions on that vessel were made very early. There was a lot of fighting, almost a bureaucratic civil war in the department, about what the outcome of that would be, but once it had been decided that the Navy’s concept of operations—in other words, the way that ship was going to be used—had been agreed to, then the outcome of that project was going to give you a submarine that did not exist at that time. The Navy wanted to use those vessels in a particular way that exploited the ability of submarines to disrupt an opponent’s

preparations for naval warfare by being able to attack them near their bases. Given Australia's geographical position, and particularly the position of its naval ports, that meant a submarine with long range, high endurance and very great weapons carrying and systems capacity.

Once that was decided, they were down the path that led to what evolved in the Collins class submarine as its shortcomings and its very considerable strengths. Given the nature of the economic circumstances in the country at the time, the politicians saw a virtue in developing what they could out of the already fixed nature of that project, which was the fact that, given that this vessel was going to be of a type that did not exist, and given that it was going to involve capacities in Australian industry that were developing but did not have a particularly strong or guaranteed market, it enabled them to market that project—both the Fraser government and the Hawke government pursued this line—as a way of revitalising Australian industry. Indeed, there is a lot of evidence that that project had a significant role in doing some of that and that in many areas it proved that capacities existed that could be better developed through their employment in providing Defence equipment.

There is something of that in the air warfare destroyer project. The concept of operations has already been agreed, the basis of the prime system has already been determined, and indeed the government has taken delivery of that system and paid \$1.33 billion for it. There are some tensions in that concept of operations that will dictate the way the vessel operates and the way that costs develop in that project. It is seen as being able to operate in conjunction with US task force groups. With the Aegis system, the US navy insists that those operating with it have the system certified. That will mean that this particular ship will be more like an aircraft than a ship in terms of the way it is handled. Instead of going through major midlife refits that generate workload in a period of 10-to-12-year cycles, the software for those vessels will have to be continually updated so that they remain in sync with US naval standards, so that those vessels can be certified by the US navy as capable of operating in what they call a 'network warfare mode'—without the Americans worrying about any technological data system glitches.

At the same time, there is a component in the concept of operations that calls for those vessels to operate as what they call private ships. In other words, it accepts the fact that the Australian Navy, unlike the US navy, is not often going to operate in large task force groups and that we will be looking at those vessels to operate not always in US naval groups but independently for Australian national interests. That requires a somewhat more capable fit than those vessels and that there be a more thorough investigation of what they are under. That might cause conflicts between some of the equipment that is mounted on US vessels, which is supplied by some of the people who are currently major members in the alliance contract organisation, and choosing other equipment, some of which is made by local companies. Some equipment in particular is made by CEA Technologies here in Canberra.

So there are those conflicts or challenges in the concept of operations, which already lays down quite a lot of the future of what that vessel is going to look like. Politicians looking at that could pick what they see as strong national benefits. In particular, the requirement for sustained, ongoing IT development and integration work would be one that would have a nice pork-barrel effect, if you like, albeit that there are good reasons for having it in Adelaide, with DSTO's systems operation in Adelaide. Also, there is the possibility of developing genuine national objectives that can swing from that. Already you can see that there are some aspects of this

program that are, if not fixed in concrete, at least slowing the ship down. As you know, the larger the vessel, the longer it takes to turn it around.

CHAIR—Would any of you other gentlemen like to respond in that particular area?

Mr Barker—I think the earlier exchange between Senator Fierravanti-Wells and Mr Tunny was constructive in this question. The senator was trying to nail down the price in the interests of economic virtue, if you like, and Mr Tunny was trying to leave the cost open for the moment because the final design is not chosen, the estimates are not worked out and the government still has to make a decision about it. But it is certainly true that the \$6 billion figure was named pretty early on as a sort of ballpark figure and perhaps as some sort of hint to discipline contractors and people who were bidding for contracts. You do not have to be around this business long to start hearing from people who talk to you informally that it is going to cost a lot more than \$6 billion. Governments and the defence department want to have something to announce and they want to attach a figure to it. The press, and politicians too, have to be much more careful and put many more qualifiers around these early estimates and early claims about capability, because things often do not work out that way. It is not surprising that they do not, for the reasons Mr Tunny outlined.

CHAIR—Mr Wylie, would you like to respond before I let my colleagues lose?

Mr Wylie—I would like to make two points. Firstly, there is in the nature of defence business a competition for military advantage and that will forever drive these sorts of systems to the very limit of technology. If we do not contemplate those limits then I think in many instances we will see our armed forces at a relative disadvantage. At least, that is a finite risk. So I would suggest that it is not just political adventurism that has these limits pursued and indeed proposed by a defence acquisition process. I think it does have an element of rationality in the tasks that they are being asked to perform in a quite demanding and fluid environment. We should not forget that particular keel to the process.

The second thing that I suggest is that there is an awful lot of business that is a lot less demanding than a Collins class submarine or some of the other leading edge platforms. But our political process, it seems to me, tends to be radically intolerant of experimentation and radically intolerant of the kind of experimentation that is required for mastery of those leading edge technologies. If you look back over the record of the Collins class submarine and also the record of innovations like the over-the-horizon radar system, you can see the politicisation of experiment at the cost of reputation and treasure.

Senator TROOD—Mr Woolner, it is good to see you again. I want to pull up this point you were making about concept of operations. I am not clear whether you were making an argument to say that one should not have a concept of operations, given what you say to be the consequences of it, or that concepts of operations are essentially unavoidable but one should do them in a different kind of way so that they do not have the kind of imperative built into them about which you have some concerns. Could you clarify that please.

Mr Woolner—It is an essential part of any competent military developing their future force capability to decide the way in which that capability will be used. That is why they developed concepts of operations. The concepts of operations exist at different levels but there is a concept

of operations developed for any new equipment program. Some of it is done in the capability development branch in Defence. They work on it and then it iterates down into generating equipment options and specifications and eventually to selection of a vessel.

What I am saying is that the concept of operations really should be thought about a lot more significantly and probably in public. I have no doubt that the Defence system thinks this through in a logical way, but I do not think, in terms of what Mr Barker was saying, that there is any public visibility of what that means until it comes into the public domain as a first-pass submission to cabinet that we, the Defence Force, want this type of equipment.

You can take the Defence Force capability development manual that is on the Department of Defence website offline and have a look at it. If you do, you will see that by the time they come down to the first-pass cabinet stage of an equipment procurement program a lot of things are already set in concrete, including the CONOPS, the concept of operations, and what the armed force think they are going to do. That sometimes changes, and what Bob Wylie was saying about demand for performance in equipment was interesting. As he said, that concept is not often applied with strong judgement to other systems.

I have been working in Russell 2 for the last couple of months. That building is full of models. It has models of all the latest equipment that they are buying. In the last few weeks a new model has appeared. It is a model of HMAS *Sirius*, which is the new fleet oiler. Attached to that is a little screen about what it represents. It lauds that program as a new and innovative way of thinking in supplying defence capability, where, by careful analysis of what Navy really wanted, they were able to produce a vessel that provided 80 per cent of the capability Navy wanted but at 40 per cent of the cost it was originally contemplating and in a third of the time.

So there are areas where Navy, Army or Air Force are prepared to alter their concept of operations when it is shown that pursuing that path will lead to a solution. In this case, the funding got in the way of a number of other projects and had to be modified so that a broader overall naval capability could be accepted. The argument there was that Navy with an operational underway replenishment ship working together with its fleet units is a much better force than Navy with a highly developed fleet replenishment ship and not being able to afford any ships to replenish any major surface competence.

They are the sorts of judgments that have to be made. In terms of what Geoffrey Barker was saying, there is a stage at which parliament could be brought into this process. I am not quite sure that cabinet itself realises that the stage at which they are coming into it is in fact probably later than it ought to be.

A lot of good process came out of the controversy over the Collins class submarine from '98 through to 2001, where we are told—off the public record, from people like Hugh White who were involved in briefing cabinet at that stage—that cabinet asked a lot of fundamental questions such as, 'Why are we getting this sort of submarine? Why does it have to be developed this way? Why is it costing so much?' That actually went back to quite fundamental decisions that led to that submarine, which were that, basically, if Australia wanted to operate submarines in an effective strategic way to provide us with a deterrent that would be effective against countries that might be contemplating naval activity against us, but even in peacetime if we wanted to operate them in a way where they generated very useful strategic intelligence—which the

Oberon class submarines had been doing for many years before that—then they had to be this sort of configuration. Very few countries built conventional submarines, ergo the whole process.

That was something that led the cabinet to conclude that they needed this first-pass and second-pass process so that they were not, as they felt they had been in the past, confronted with a situation where Defence went and said, ‘We’ve had our contest. We’ve evaluated the tenderers, and the answer is that this is the one and, sorry, it’s going to cost you a lot.’ In my period here, when I was director of the defence group, I can remember an almost fixed process where originally the government would provide permission for Defence to go ahead and put a procurement program out to tender, whether it was the F18s or the Seahawks or something like that, and when it came to announcing the project it was anywhere from 50 to 100 per cent more expensive. During that period when the Collins submarine was such a controversial issue, cabinet decided that, no, they did not want to be put in this position. They actually wanted to get a much earlier view of what the project looked like. That is how they introduced this two-pass process.

As I said, if you or your staff go and have a look at that capability development manual, you will see that even by the stage it goes to cabinet in the first pass it is fairly well developed. It has got beyond the stage, for instance, of alternative approaches to things. So cabinet is not told, ‘We have a problem of supporting long-range deployments of land forces that we wish to put ashore on some overseas country. The range of options to do that is’—which might have been extended air-to-air refuelling for extending the range of FA18s, the F35 or whatever, or improved onboard systems for the vessels that we send troops overseas with.

By the time it got to cabinet it was a vessel that was capable of providing area air defence. In other words, it could defend an area against aerial attack—that is, it was able to support those vessels that were carrying troops against air attack. That is a traditional and probably a very good solution, but what I am saying is that cabinet did not have that choice about which way the armed forces might attack the problem. It got a first pass that said, ‘We’re looking at a surface competent with area air defence capability, and there are a number of options that we could go with.’ They took a number of decisions, some very early in the piece; some of which were like the decision to select the Aegis system, which was a decision both to limit the future risk in that project but also to extend the military utility of the project in the sense that Aegis was also a system being operated by the USN, and one of the obvious roles for our ships was operating in concert with that.

What I am saying is that concepts of operations are necessary. They are going to produce these solutions. I think it is possible for cabinet and members of a committee like this to be briefed on those sorts of things and to ask questions about whether in all cases we should look at something like the *Sirius* solution, where a reordering of priorities produced an outcome that Defence is now lauding as being a model outcome that it should study more in the future.

Senator TROOD—That is helpful. I must say my immediate reaction is that it would not have a lot to recommend it either to the Department of Defence or indeed to the executive part of government. However, it is an interesting idea. To clarify—are you suggesting that that process might take place in relation to a service capability so that there would be a wider examination from time to time, for example, of the Navy’s broad requirements, or are you making an

observation about this being necessary for every project, whether it be an Army, Navy or Air Force project?

Mr Woolner—Every project goes through this process as part of the capability development process in Defence, so they are doing that. I suppose my main point would be that some projects are going to be more crucial than others. The one we are talking about, the air warfare destroyer project, is obviously going to be one of those, and therefore both the executive and the representative arms of government probably have an interest in paying more attention to those projects. To my mind it would help not only the governmental process but also Defence in a way to make it clear what the basis for the selection of this project is. I am not suggesting that anyone would even want to read the concept of operations, because in some cases they can be long and detailed documents. But in terms of the public understanding of why a particular route is being chosen I think there is much to recommend it to the defence forces. In fact, what you often see in the argument in favour of a particular procurement is drawn from the concept of operations. This committee is in a position to seek briefings for itself, and that process can help both the Defence Force and the parliament understand why a particular path is being pursued with those procurement projects.

Senator TROOD—So Mr Wylie's concern about an intolerance of innovation—I think that was the phrase—

Mr Wylie—Not innovation—experimentation.

Senator TROOD—I beg your pardon; I just cannot read my writing. His concern about an intolerance of experimentation could perhaps be accommodated at an early phase of project development. Is that correct?

Mr Woolner—Yes, exactly. Had people understood that the Collins submarine project was a developmental project and that there had been a change from the earlier stated project objective, which was to buy a proven submarine in service or about to enter service with an overseas navy, there would have been a greater understanding of how the project would work out, perhaps some expectation that there would be problems that would need to be fixed and a clearer basis on which to draw the contract.

One of the problems that I mention in my paper was that the contract was drawn up as a fixed cost document and when it got to the end of the process people were not in a position to work through the problems that emerged. A lot of the heat that was generated was around an argument between Navy as the buyer and the Australian Submarine Corporation as the builder about whether there was a problem and, if there was, whose responsibility it was to fix it. A lot of those things had a genuine basis.

Out of some areas of the submarine that provided superior performance to what anyone expected there were opportunities that Navy wanted to exploit. Because of the argument in the development about who was responsible for many other faults there was unwillingness on the part of the contractor to undertake some modifications that could have allowed those things to happen. In the end what had to happen was that we went through the process of the submarine rectification program and a whole lot of angst that did eventually produce those things that were required, but it could have been done a lot better and with a lot less angst.

Senator TROOD—Mr Barker, you have made some reflections on politics. Are you making a point? You seem to be making an argument that there is a need for greater transparency about these other issues or other imperatives that often drive contracts and that at some stage they need to be put on the table, as it were, in relation to projects.

Mr Barker—Yes.

Senator TROOD—Is that correct?

Mr Barker—Yes. It is inevitable in one way that defence contractors work in an atmosphere of uncertainty. We put out a defence capability plan, which is a very interesting document. It includes now Australian industry involvement sections. When you open it, the first line you read says:

Potential industry partners should note that proposals can undergo substantial changes over time. ... the detailed project-level plan set out in the DCP is not immutable ...

If you are a defence business, you have to ask yourself: 'Will I make long-term capital investment in the hope that there will be Australian industry involvement in the project going this way?' You would have to say, on reading that, that you are not getting much assurance that your punt is going to pay off. There is that uncertainty. So there is that need for, I think, greater transparency to the extent that one can have it. It is very difficult, I acknowledge, to give businesspeople a greater sense of certainty about the plan. But we need to do more than just saying: 'Here's your plan, but it could all change—or a fair bit of it could change—and you'll carry the investment risk if you buy in too early in the hope that you are going to be able to do this.' I would like to pick up Bob Wylie's point, and the point that Derek was making too, about this hostility to experimentation. That is a problem particularly when you are starting with new things. The submarine was a first-of-class ship. The air warfare destroyer, if the so-called 'baby Burke' is chosen, will be a first-of-class thing. Anybody sitting in this room who thinks that that is just going to go along smoothly without problems and difficulties as it is brought to life is not living in reality, given our experience.

Senator JOHNSTON—You would be worried if it went smoothly, wouldn't you?

Mr Barker—I suppose one would worry if it went smoothly.

Senator JOHNSTON—It would be a problem if it went smoothly because we would not be chasing the experimentation, the technology and the cutting edge.

Mr Barker—That is true, but of course you will be equally worried if it goes too roughly too—as it did on the submarine project for a long time.

Senator TROOD—I can see the argument about the problems of experimentation, but it seems to me that perhaps some of the problems we have had with acquisition projects—Seasprites and things—down the track have been that we have gone beyond the technological edge which was available. We wanted something which needed to be conceived and which was far more expensive than was predicted at the time. In fact there has been not so much an intolerance but an overweening ambition to try to get technology involved in the situation. That

has been very costly to the Australian taxpayer in terms of the cost of projects, but it has also been very costly in terms of the time it has taken for some of these projects to come on line. Is that not a danger in relation to this?

Mr Wylie—It clearly is a danger. I guess that is inherent in these sorts of projects and programs, particularly the developmental ones. There are a raft of them that are less developmental; we are talking about a broad spectrum of development and experimentation in this context. I think we need to think about where there is potentially—and, again, it is a classic commercial call—a high return for a high-risk investment. Those sorts of calls need to be made with exquisite discipline, and I think we can have a long discussion about whether or not the systems—both the procurement process and our political process—are able to handle that kind of discipline either in this country or in any other. I think to be totally risk averse is to condemn the ADF to mediocrity in a number of very important areas; particularly, as Greg Tunny was saying, given that we do enjoy privileged access to a superpower's technology—but it is not total access. It invites consideration of a range of issues as to what we should do ourselves and what we can afford to import from the sources of innovation in a global marketplace.

Senator TROOD—Are there places on the planet where the model you are articulating has been shown to be successful that might serve as an example that could be followed?

Mr Woolner—I think only in smaller defence establishments. Theoretically you might get that sort of advantage in the United States, but unfortunately the development of equipment in the US is a much more highly political occupation—much more than here. It seems that sort of thing works best in some of the smaller European countries, such as the Scandinavian countries, where the relationship between the suppliers and the procurement arm of the military is a lot closer. The one I have been looking at recently, obviously, is the one between the FMV, which is the Swedish procurement arm, and the Swedish defence industry. They had the situation of a long period of support for those industries by the government and going through processes where they even generated generations of military equipment that they did not actually need in order to keep the process working. It is one of the reasons why Kockums has built generations of submarines for the Royal Swedish Navy in a regular seven to nine-year cycle.

I think the problem is one of getting visibility on these projects early enough for people to be able to make significant inputs into them. I do not know that anyone has yet fully realised the import of this. As I say in my paper, it is a problem with all major engineering projects—the major decisions are made in that very early stage. Whether you are a government or a board of management you have got to come to grips with those significant problems if you are going to ensure that the project runs as smoothly as it can.

Senator MARK BISHOP—Mr Wylie, you talk about a robust defence industry broadening the military options available to the Australian government in managing strategic uncertainty. Does government in turn have a duty to this industry; if so, what does that duty entail?

Mr Wylie—Perhaps three things, Senator. It seems to me that the defence industry we have in Australia is overwhelmingly a product of government decision. I think it is a fact that the defence department is a monopsonist. The classic argument then follows that what business it does and how it does that business has a direct and immediate effect on the nature and scale of the industry capabilities that we have in this country. Similarly, the choice between what

Defence and the armed forces do in house and what they do in industry has a similar direct effect. The choice between what we import and what we decide to do ourselves, by whatever criteria, has far-reaching implications. So it follows that I would like to talk less about a duty and far more about what is the national security interest that we are trying to protect and advance here, and what role domestic sources of supply and support have in that spectrum and portfolio of investments. I think that the area where fruitful discussion lies is less about duty and more about interest.

Senator MARK BISHOP—In that context, you alluded to the importance of intellectual property and how loss of this in the construction of the Collins class submarines led to a loss of value. Earlier we had a discussion with Mr Tunny from ASC about what he regarded as the critical value of IP. How important is IP in the AWD project? Has the government taken adequate measures to protect our strategic interests in having continuing access to IP as we need it as those ships come online?

Mr Wylie—Let me say at the outset that I am not—and I repeat, not—an expert on the air warfare destroyer program. I want to put that very clearly on the record. Having made that point, we need to, I think, cut into the problem of what IP we are talking about. There is likely to be a very broad spectrum of intellectual property that is at issue, ranging from hull and machinery design through to the area that I think Greg Tunny was alluding to, which is the systems and systems integration.

Senator MARK BISHOP—I am talking about the missiles, the mission system and systems integration—the software development capability aspect.

Mr Wylie—I think that area is where, classically, the highest risk and highest return comes from getting it right and getting it wrong. You asked: has the government taken adequate steps to protect our access to the intellectual property involved? That I do not know in any direct sense. But, if you look at the record of things like, for example, the airborne early warning and control aircraft, I suspect that there is much that the government can propose in this sort of area. But, at the end of the day, it is the US administration and the US congress that poses Australia's access to much of that technology.

I think what we are talking about here is the political economy of strategic level procurements. They are not a matter of contract and fiat; they are a matter of an exquisite balance of national interest in this sort of area. Is the government taking adequate steps? I do not know, but I think it would be fair to say that, if you look back over the record, it can be seen that the government and its advisers have had ample opportunity to give very careful thought to the nature and scale of Australia's access to the leading edge technology that it thinks it needs to perform its defence tasks.

Senator MARK BISHOP—Thank you, Mr Wylie. Mr Barker, you might care to comment on that, because you have written from time to time about the apparent practice now of the Australian government to have resort to US purchase for high technology, high value, and high-end platforms and equipment. How does this discussion about IP fit in with that desire on the part of the current government to have, I think, a preference for that high-end US equipment?

Mr Barker—Part of the preference is driven by the simple fact that, at that high end, the American stuff was probably the best. People do not dispute that much. Another part of it was driven by the fact that, because of our alliance relationship, the government is anxious to be as maximally interoperable with the American forces as they can be. The evidence seems to me to be that, when it comes to the high-end, high-tech sort of stuff you are talking about—whether it be an Aegis system for the air warfare destroyer or the systems for the AWACS—we do tend, for fairly good reasons, to try to maximise what we can get from the Americans. But, of course, in lots of other things that is not so important. We do buy European helicopters and I think we have bought European in-air refuelers.

At that very sophisticated end, there are very good reasons for any government to try to maximise what they get from the Americans under ITAR, although there are difficulties—and Bob and Derek have alluded to them. There are difficulties because, as any American military man will tell you, there are always crown jewels that we do not share with anybody else.

Senator MARK BISHOP—Following on from Mr Wylie's point—that access to the IP in that high-end area was more a consequence of relationships as opposed to matters of contract or what is in black and white—Mr Barker, do you have any comments on the government's protection of our strategic interests in getting access to IP via relationship as opposed to via contract?

Mr Barker—The thing that makes me a bit uneasy about the alliance is that, when it becomes very much the province of two leaders, whomever they might be, who get on very well, you might go through a period where—

Senator MARK BISHOP—Everything is rosy.

Mr Barker—we get an easy ride. One has to think about the relationship between President Bush and Mr Howard. These are two men who are obviously very similar in many ways, and they get on well. For the moment the alliance is, in a significant measure, their personal relationship—and while it is like that we can be reasonably assured that there are not going to be too many roadblocks put up that we cannot in one way or another get around, diplomatically and politically. But you do have to worry at times. There is always the issue of access to the computer source codes—which I do not understand much about. If you do not have access to the codes, you cannot necessarily make things work well for your own conditions, as I understand it. When these two people pass from the scene, how will the alliance look then? How good will access be to the really top things that we want and get an advantage from? I do not know the answer to that, and that gives me some concern at times.

Senator MARK BISHOP—Mr Woolner, you have written extensively on process in procurement as opposed to some of the other takes on how government and politicians get involved. What is your observation on access to critical IP? Is there a role in process, or does it have to be a matter of relationships, personal or otherwise, between us and superpowers?

Mr Woolner—Primarily, it should be a case of process under the various agreements that we have for technological exchange. But there will always be cases where the IP is in private ownership and the US government itself will not be in a position to divulge that. We can to a degree pressure the people who own that IP. It will take careful management. To my mind, it is

not at all clear that the relationship between Lockheed, as supplier of the Aegis system, and Raytheon, as the systems integrator for the entire vessel, is necessarily going to be a smooth one. As I say in my paper, in this system Lockheed is only represented by default. We have actually bought the equipment from the US Navy, so we are going to rely on the US Navy to iterate backwards to Lockheed to supply those systems—and how that will work is one of the major questions for the destroyer and how it succeeds.

Looking at the Collins class submarine, which came through periods of different shades of relationship with the United States, one of the things that happened in the project was that it emphasised the importance of our own Defence Science and Technology Organisation within Defence. I think that will continue to have a crucial role because it was that organisation that took a number of the commercial IT solutions that were not working and did the basic research that made them work. In a lot of cases the United States had not been willing to put Australia into that technology loop, but seeing the work that the DSTO did convinced the Americans that it was better for them to cooperate with the Australians in a two-way IT exchange in that particular area than to have Australia developing its technology outside the tent, as it were, and there were areas with the submarine that involved that.

The Americans were involved with the submarine from an early stage because they valued the intelligence that the Oberons gathered and they were keen to see that the Royal Australian Navy sustained a capability that would allow them to continue to do that into the future. But despite that, in some areas they refused to let Australia have access to certain technology. You probably know the story about the anechoic tiles, which is one example of where Australia developed its own technology that works as well or better than the overseas technology. Having done that, of course the Americans wanted to talk to us.

There are similar areas in communications and electronic warfare where this has happened. It was through the leverage that Australia was able to exert through the work done by the DSTO that gained access to that technology. I think that that is going to remain important. The work that the systems division in Salisbury can do working together with the—

Senator MARK BISHOP—So you are saying that the creation of maintenance of indigenous capacity in terms of the IT and the IP associated with it is critical as a lever to assist in the relationship aspect—

Mr Woolner—I suppose the final conclusion is that we do not think of Australian industry and the development of its intellectual capacity as solely the process of Australian industry. It will get a lot of value added by the work it does, and has, and I hope it will continue to by working with the Defence Science and Technology Organisation to develop critical areas. And, I suppose, from your point of view, the spin-off to that is that often that allows us leverage against overseas government and overseas companies to put up the quid pro quo that gives us access to stuff that they would not normally give us.

Senator GEORGE CAMPBELL—I apologise that I did not hear your opening statements but, coming back to what all of you have said, it seems to me that part of the problem has been that our industry, our industrial base in terms of defence, has only ever been half pregnant. If you look at the history of it, there have been periods of build-up of capability and then—I do not know whether the security blanket slips off or what it is—we go back to seeking off-the-shelf

solutions. For example, the Navy built the Type 12 frigates in the 1960s. Then they went back to the American FFGs in the early 1970s. Then we got back to build-up of capability again and now we are faced with this drop-off of capability. How do you get a model operating where the capability is sustainable in the longer term, given that you never know more than 10 or 15 years ahead at the most what your likely procurement is going to be? How do you actually get that model in place?

The Western Australian government argued—and I think that there is some merit in the argument but I do not know how you put it into practice—that we should not go back to dedicated naval shipbuilding facilities, that we should look at integrating the capability for building naval vessels into broader maritime complexes. That is the basis of the complex they have set up in Cockburn Sound.

That seemed to me to have a bit of merit, but it still requires government or Defence to maintain a capability, or maintain the order book at a certain level if you are going to maintain that capability. As a consequence of maintaining the capability, you reduce the premium you have to pay when you do use facilities in this country—whether for submarines or the AWDs or what have you—because there is a premium you pay and people have to gear up to a level to be able to perform at their maximum productivity to be able to produce those things.

Not one of you, I think, has really addressed that issue. And I apologise; I did not hear your opening statement and you may have commented on it then. It seems to me that that is the critical aspect of what we are trying to achieve here: how we put together a model that can be sustainable and can sustain that capability in the longer term.

Mr Wylie—I think we need to be very careful about where we attempt to put that model in place. I suspect, for an economy like Australia's, to try and do it across the full spectrum of military platforms and systems invites disaster. What is particularly interesting about the Western Australian example that you referred to are the potential synergies. Indeed, it is mentioned in the committee's discussion paper—although not pursued, I think.

The Western Australians are arguing the notion that there is a fair bit of synergy—certainly in terms of the construction of the hulls of ships and of the jackets and platforms that go into oil and gas extraction. I think if you were to talk to the kinds of companies that are involved over there, they would be in enthusiastic agreement. But I think we need to be very careful about saying that that gives us a capability to build warships. It gives us the capability, arguably, to discuss modules for warships. It seems to me that that common user facility is a very interesting business model—for attending to a degree of market failure, I would suggest. But one should be careful, I think, in extrapolating that to full-blown systems development, let alone systems of systems integration.

So I think this is where there are important areas of choice as to how far down that spectrum we go. But I agree, Senator. It seems to me that, if we are looking at a five-ship build for the next cycle, I agree with the Western Australian proposition. Gee, if you compare the forthcoming cycle with the previous one, which we are just starting to finish now as we speak, then it seems to me that past practice will need some kind of modification if we are going to have anything like a sustainable capability to build ships, even if it is not a full-blown naval shipbuilding industry as such.

Mr Woolner—It seems to me that we cannot sustain naval shipbuilding if we have traditional shipbuilders. As you say, we do not have the production runs that would enable that to happen. To my mind, for the four major displacement vessels in Australia at the moment, we have, I would estimate, one and two half shipbuilders.

Tenix has been building a program but it has finished, and we have yet to see how it will survive that. That is why there is a doubt over that. Incat in Tasmania has had some success on the international market but it has had a drop in demand for the sort of fast ferries it makes. Only Austal in Western Australia seems to me to be able to survive as a fully integrated major shipbuilder, building a range of products and able to diversify its products over sufficient range to actually survive as a major shipbuilder. Indeed, it has had success with its technologies in getting contracts from the US Navy and so on.

I think the Western Australian example probably is at least the beginning of a model for the way ahead. Like the submarine project, basically the final yard has to look at itself as an assembler rather than as a builder and to see that its job is the management of a project to ensure that components that come to it are able to be integrated and assembled with no problems, as indeed was done with the submarine. That means the strength of that is that you can draw from across Australian industry in a whole range of tasks and call on latent capacities that can then be switched back into performing other roles.

To my mind, it was quite amazing to see the range of companies that got involved in the submarine project that were able, with a project for Defence encouraging them, to make the expenditure and upgrade from being simple manufacturers to being able to perform to the highest levels of Australian quality standards. The anechoic tiles for the submarine were made by a company in Mordialloc that was close to the Maribyrnong materials research laboratory that did the research work. They got contracts to provide rubber components that we use to isolate the decks within the modules of the submarine. Not only did they do that but, once they got going, they redesigned those components and made them more effective. A similar thing happened with the building of the hull modules that were done around the country—some in Newcastle and some elsewhere.

I think that has to be the model, particularly as we move towards the value of integrated systems being the most expensive component and the most critical component to the success of a project. We have to be able to draw on those areas and avoid the pitfalls that we went into with the submarine project that got a lot of that working but, for instance, had components in the contract that did not allow the Royal Australian Navy to draw on the expertise in diesel engines that existed in the Western Australian mining industry. That could have helped considerably in overcoming the well-known problem with the diesel generators in those submarines. If you are looking for a driver policy, that is the area where I would look. We should look at the capacity to use naval shipbuilding contracts to foster industries that do not look as though they are maritime. In other words, we should get a policy that focuses on the range of Australian industry capabilities rather than specifically looking at the water and saying, ‘That is where we are going.’

Mr Barker—Senator, I think you can get some good conceptual guidance about that question you asked from two papers other than ours in this excellent CEDA publication. Paul Dibb argues pretty cogently that we need to align industry capability much more with our defence strategy.

Mark Thomson makes the argument that what we really have to do is to decide what capability we need and want to keep in this country for strategic reasons and what can be left to others: to the open market or to overseas. Dibb and Thomson would disagree about whether we should go into a strategic partnership model as proposed by, I think, Peter Reith at one stage. Thomson is much more about open market competition.

Conceptually, when you are thinking about how we make the defence industry more sustainable and less lumpy in terms of the contracts, it does come down to long-term strategic decisions about how you align industry capability with your strategy and making decisions about what you want to keep and what you think you can safely let go. I cannot be as detailed or specific as Derek on this but I think one needs to have that sort of conceptual framework in looking at that problem.

Senator GEORGE CAMPBELL—The reverse is also the case, isn't it? If you are going to achieve that outcome then you will not get companies or enterprises in this country to invest in upgrading their technology or their capabilities unless they are assured of some long-term involvement in the process. I was in Europe in 2004 and we spoke to the then head of NATO, who was lamenting the fact that there was not a greater integration of weapons systems, in particular, in developed countries. He was specifically talking about NATO countries. A lot of this was borne out of the experience in Bosnia and a bit out of that in Afghanistan. He was saying that there were more and more theatres of activity occurring where there was an integration of troops underneath the banner of the UN from a range of European countries, America and Australia but there was no integration of the weapons systems. That made it very difficult for commanders in the field to function at the level that they should be able to function at.

Is there discussion about that conceptual issue going on in the defence industry? To what extent is that occurring? How far is that likely to go in driving the agenda for the future? It seems to me that, if there is that pressure building, to get ourselves too integrated with the Americans solely may in fact be heading down the wrong road.

Mr Wylie—There is within the defence policy community—I include ministers in the government in that process—a compelling realisation of the importance of being able to operate at the tactical and theatre level with allies. That is a direct consequence of a realisation that there are not many military activities that you will conduct absolutely unilaterally in this world, particularly if you are a small or medium power like Australia. But it does pose some interesting policy challenges, because the greater the level of interoperability, as often as not, if one is not careful, it follows as night follows day that there is a loss of sovereignty in the use of those forces. There is a dilemma. It is a set of divergent interests that needs to be managed and reconciled. Where the game will be increasingly played out, I think, will be in the command-control and communication of forces rather than in what actual weapons they fire and the detailed configuration of the product of military capability. It will be played out in the area of intelligence exchange, in electronic warfare. It will be in that area of information capabilities where the question of interoperability and the hard choices get to be made between what is sovereign and required for the protection of sovereignty, and the balance to be pursued with interoperability in that area will be found.

I suspect you will see a quest for joint programs: for example, the sea-skimming missiles program, a multinational program of which the US is a part, as are a number of European countries and Australia. There will be cost-sharing, risk-sharing type incentives. But I think you will find the main game will be in debates about how, given that the superpower will want to quarantine and protect its crown jewels—and most of those crown jewels will rely on command-control communication, intelligence exchange. How does it protect its crown jewels while being able to interoperate with other allies on a case by case basis? It will be a significant challenge for the policy community, for the scientists and for industry. The bottom line is: is it a consideration? It is a major preoccupation with policy planners and procurement people.

Mr Woolner—The buzzword at the moment about where Defence thinks it is going in the overall development of the ADF, to which each of these procurement programs that we are talking about is supposed to be a contributing component, is NCW—network capable warfare. The big question there, as Bob said, is integrating all the streams of command-control communications, intelligence and so on to ensure that all of these pieces of equipment embedded in military organisations actually work together. You can get your staff to have a look on the departmental website at the official lessons of our involvement in the Iraq campaign in 2003. You will see that one of the simple things that complicated that involvement was lack of satellite bandwidth. Australia could not buy enough communications space to actually be able to talk as much as it wanted—for headquarters here to talk as much as it wanted to with the deployed Australian forces in the Middle East area. I think one of the crucial questions—and it is going to affect the air warfare destroyer—is the extent to which we are able to develop that sort of system to effectively integrate all of these pieces of equipment, because we do run the risk, if that does not work, that we are going to have lots of expensive bits of kit that are not going to operate as well as they could, and in some cases may be placed in danger because this concept of network capable warfare does not operate. So your question about where we should go includes a large component of Australia-centric development to make sure our systems operate, to make sure we build the capacity to do that and then an extension of that to make sure that that can then communicate with our allies and partners in operational deployments.

Senator JOHNSTON—Thank you very much for your paper and for coming along tonight. It has been very instructive and I am sure all of us appreciate your time. I wanted to take up the issue of a vessel like the *Delos* and the new ship *Sirius* and our more recent history with, I think, two FFGs, 10 Anzacs—two being from New Zealand—our six submarines and the movement into air warfare destroyers and amphibious ships. I think you can hive off—I want to argue this with you—the oiler as being a fairly known dimensional product that is a classic off-the-shelf purchase, with modifications: we have put a helicopter platform on it and we have put the RAS system on it et cetera. I also want to argue that the reason we can even contemplate building air warfare destroyers, submarines and amphibious ships onshore is that we have been down the path of FFGs, Anzacs and submarines and that has given us the capacity to say, ‘We can if we really want to do it and are prepared to pay the premium.’ We could have bought German submarines, we could have bought American vessels and not had any industry content and we could be a totally foreign-manufactured and designed surface and submarine Navy. I would like you to comment on that, because I think the intangible that no-one talks about is that we have acquired skills. We have got capabilities. As a country of our dimension, it is legitimate for us to contemplate constructing large discrete surface vessels, bearing in mind that our Anzac frigate is performing quite fantastically in the shallow waters at the top of the Gulf, because they are our waters. Our submarine is unique. It is layer-bound in shallow water and all that sort of stuff.

I think that the taxpayer, in coming to terms with these things—not that the taxpayer really does, but we all want to see the taxpayer have value for money—is saying, ‘What is the benefit of these things?’ I think if you look and drill down, the benefits are so overwhelming in terms of intangibles—the innovation, the potential to have future capability construction onshore, the leveraging into other industries such as mining oil and gas. These are things that strike me as being things that no-one ever really contemplates, and we are not learning the lesson of where we have been to understand where we need to go. Can you comment on that?

Mr Woolner—Yes. I think there is a lot in that. I think there is a strategic argument that says that you should at least do sufficient work to understand enough of how these systems operate to be able to change them in the way you want in times of crisis or even through the period of the normal life of these vessels. They are going to last for something like 30 years. There will be a series of developments that will make us want them to work in a slightly different way. I think the FFG is a good example. In American service, they were a comparatively light, general purpose and not particularly capable vessel. I know a little about them because I was working for Lance Barnard at the time they were selected. One of the arguments was that they were not capable enough. Our Navy had been talking to the Americans as a fallback position in case the then proposed vessel that they were looking at did not go ahead. That, in my view, was as much to do with the incapacity in Australian industry at the time through them not having had a construction program for some time. We talked to the Americans about that. The FFGs the Americans got were considerably better vessels. America had been planning for a vessel that had only a single helicopter. We talked them into the benefits of having a vessel with two helicopters. From memory—I would have to check this out—I think we have developed them from a vessel that originally was designed at around 3,200 tonnes to something that is now just over 4,000 tonnes.

The point I want to focus on is that by, first of all, having our own people involved in the development of the project, we got in early enough on that American project to have an influence. Secondly, bringing the vessels here, getting them built here and going through the problems that that involved—because they actually came from different design yards from the ones we had bought in the States—enabled us to understand how they were put together and to understand enough about them to be able to modify them to suit the way we wanted to operate.

There are things in the way we operate that are different—for instance, our geography. I was talking earlier about the submarine and the need for long range. Just to put that into perspective, Perth is further away from Sydney than Wellington is, and Wellington is as far from Sydney as Moscow is from London. Traditionally, the Europeans have designed equipment to look at something like a campaign from London to Moscow as being horrendously large. We have to contemplate distances greater than that in simply moving our equipment around in our areas of strategic interest and getting them to apply the various military capabilities in ways that suit the national interest. That for a start demands different sets of design parameters.

It is a question not only of putting enough fuel in to get them there, but also of how you sustain the crew. You have to keep them efficient, keep them operating. You have to put them in an area with a big enough load of weapons and ordnance and so on to make them effective. You have to develop communication systems that enable you to transmit intelligence or whatever other information you are gathering back to headquarters, and enable you to operate them with allies that want to operate further afield than you would normally plan, with the same sort ability

for your deployed units to operate under Australian command. That does impose significant challenges and, for a start, I think it is the basis of where we want to start going.

As I said earlier, network capable warfare is going to be the touchstone of how effectively forces can operate. We have seen it applied at the level of major warfare by the Americans. It is obviously something that any country that is going to be a serious military contender is going to have to take on. Therefore we are going to find that systems and systems integration, and having that capacity in industry, are going to be touchstones of national security, because that is simply a cornerstone of future military capability. And, as Bob said, we are going to have to make some fairly wise, balanced decisions on how far you go down that track. If you pursue it too far, you can get yourself caught up.

Some of the people I interviewed on the Collins class submarine said that there was a tendency to try and make the combat system that did not work perform too hard—that we have lost sight of what we wanted the combat system for. What did we want it to do? What formed the basis of acceptable military operations? One of the things they spent a lot of time trying to do was make the education component of that system operate. They planned for it to be able to play back data from real operations while the submarine was on deployment, so that they could train the crew aboard. That was one of the things that kept breaking down. People have made the point to me that that could have been dispensed with if they had focused a lot more on what the system was designed to do, which was to locate and help the submarine sink enemy vessels in time of war, or to gather intelligence in time of peace.

So we need to make those decisions in a very informed and judicious framework. But we do need to know enough about that. As Geoff has said, source codes are an important element in it, in the way all weapons systems work. You can be certain that one of the reasons the Iraqis were rolled so easily in 2003 is that they were actually fighting the system. As an even more apt example, take 1991—the first Gulf War. They were actually fighting the people who built the systems. The people who build the systems know how they operate and if they want to they can turn them off, which is what they did.

So we need to know enough about those systems so that we can understand how they work, modify them if necessary and find any places where we want to improve on them. For instance, we have done that with algorithmic tests for seeing how well the F18A radars work in terms of the radar upgrade for those aircraft. That was a significant breakthrough in us getting hold of IP from the United States. I gave the example earlier of the DSTO doing work on developing an Australian system so that that could work. I think there are strong reasons for that. They are not tangible. I think a lot of work has to be done to make people understand that because even systems producers, if they are advertising a product, will show you the hardware. They will show you a ship or an Orion maritime reconnaissance aircraft when what they are really talking about is a system of electronic components that are put together in such a way that makes those things do what they are supposed to do. So there is quite a way to go in getting people to understand how they operate and understand what the benefits are. I think that is the basis that we have to work on. That is where I suppose, to take up Bob's point, if you are going to develop policy on the area then you have to put in a series of tangible tests that determine where you are going to spend your money and what you are going to look for in tangible outcomes for that expenditure. Going that way I think is essential for the reasons I have mentioned.

Mr Wylie—I would like to raise an additional point. You mentioned intangibles and the kinds of things that we get from those sorts of programs. One thing that I think we need to look out for is the kind of ability you get to harvest the learning that takes place in the building process. It is a pity that Senator George Campbell has just gone, but I am particularly mindful of the process by which skills and so on have migrated across from Williamstown in Victoria and Port Adelaide in South Australia to Fleet Base West to support the ships and submarines home ported there. I am fascinated to see this process, and it was laid out fairly carefully in the Western Australian submission. These are tacit skills. This stuff—as Greg was saying—is not documented. It is not in books or in documents; it sits in people’s heads. By collocating them in those SPOs, those integrated facilities in the west, you harvest the advantages and the learning that took place in the construction of those vessels; you harvest the learning that takes place by the operators using those complex systems; and you set up a little institution by which you harvest that learning and plough it back into the ongoing development of a complex system, which is a war ship or a submarine. Again, I think there is no way that you would duplicate that sort of learning process and that kind of system if you were having that stuff done overseas. It is one of the benefits—and it is not without cost—that you get through those sorts of processes. The trouble is that it is fragile and that particular system is easily ignored, compartmentalised and then the bits just die. It needs careful management attention. As I was saying in my earlier opening statement, it goes back to the need for a very clear link between what capability outcomes you are trying to achieve and your industry objectives. That is not the same as an industry plan.

Mr Barker—I would just say very briefly that I agree with the general view that you have. You raised the issue of premiums. That brings me back to where I started, which is that economic chastity has to be very widely conceived when you are dealing with the sorts of intangibles that Bob has mentioned and the complexities that Derek has mentioned. I still think that is a decision that government has to face. It is going to be a particularly acute decision on the LHDs, I think—what is the premium to be?—because there are a lot of cost pressures there are. I think as you look ahead that project might tell an important part of that story.

Senator MARK BISHOP—Mr Barker, what is the pure economic argument for building the LHDs in Australia? Is there one?

Mr Barker—‘Pure economic argument’—I do not know quite what you mean by that.

Senator MARK BISHOP—Not the strategic considerations, not the industry policy arguments, not the employment arguments; the economic argument. Is there one? If you read the terms of reference, this is supposed to be an economic inquiry. Is there an argument on economic grounds for LHDs?

Mr Barker—A pure economic argument, I do not know. I honestly do not know. There are all the other arguments you mentioned, and the further one is, I suspect, national prestige, because it will be by far the biggest ship in the fleet.

Mr Woolner—I think the economic argument will have to depend on what the deconstruction of costs turns out to be. If there is in fact a production method that allows them to be built without a large premium—going back to my experience with the Collins, that was a lot of the debate and one of the reasons people started looking at the designs they started looking at was that these designers came up with a method of construction that reduced those premiums

considerably. So you are going to have to look at whether that is the case, what the economic development benefit from building them is and whether there is an operational argument for building them.

One of the things that dominates small navies is the major capital ships and major displacement ships. Bob might know the answer—I cannot remember it now—but maintaining HMAS *Melbourne* took a huge hunk of the Navy's budget, and you can be certain that maintaining three air warfare destroyers and two very large amphibious landing ships is going to take a similarly large part of the Navy's budget. So, if the analysis of the way those ships will operate in the fleet—and Navy will be doing this as part of the capability development process—and those cost-life profiles and through-life costs indicate that there are significant savings to be made from understanding the way those vessels are put together and any special systems that are required—and there will be some complex command and control systems going on board these vessels—and from understanding how, given the nature of the ships, there are likely to be unique propulsion systems operating, those could swing the case and provide tangible economic benefit. You do not just think in terms of what it costs you to build them; you think in terms of what it costs you to build and maintain them through a 30-year life. That is what you would have to look at to see whether there is an economic argument for them.

Senator FIERRAVANTI-WELLS—One of the comments that has been made is that both Defence and industry need to be a little bit more mature about putting on the table some of the lessons from past experiences and learning from past failures. Mr Barker, I think you said things do not always work out as they would seem right at the beginning—I think that has been the history, to some extent, of shipbuilding in Australia. Do you think, as a general observation, that we have learnt to deal with our failures and gain from those experiences or are we just making the same mistakes?

Mr Barker—One hopes that we learn, but we do keep seeing projects go pear-shaped in one way or another. Some things work very well; some things do not. This is purely a prejudice on my part, but I suspect there is a culture in Defence of 'we can't get it wrong; we're always right' so that if something goes wrong—

Senator FIERRAVANTI-WELLS—It is someone else's fault.

Mr Barker—Yes.

Senator HOGG—Yes, and 'that's clearly before my time'.

Senator FIERRAVANTI-WELLS—Yes, or 'I wasn't in that post at the time'.

Mr Barker—It is the problem of the legacy program, which every minister will default to when he has no answer other than patriotism. One hopes we are getting better. We should be getting better. I think things like having a defence capability plan and the system of acquisition set in place by Kinnaird should improve things, but we are now at a stage where we are really waiting to see how well they deliver the goods. Maybe I am a bit generous about this, but I think we have to suspend judgement until we see how these two big shipbuilding projects start to play out and work out, because we do have a new system in place for both ships and other things. Maybe it is too early to make a judgement as to whether we are getting better.

Senator FIERRAVANTI-WELLS—You made a comment about the Byzantine court politics. Given the long-term nature of these sorts of projects and given that often they go over the life of a number of governments—and some comments were made about a much more transparent and perhaps much more vigorous debate in the public domain about acquisition—do you see scope for a more public acquisition process? Otherwise, Mr Woolner, is that perhaps a bit utopian given the comments that you made before? Given that defence projects often go across governments, do you see scope for some sort of process whereby acquisition becomes much more public, therefore reducing this sort of inevitability and providing a much more realistic approach as to things going wrong, the prospect of much greater public scrutiny when things do go wrong and a much more transparent process of turning back? Somebody made a comment before about turning the ship around when there are major problems.

Mr Woolner—I think there would be a lot of advantage in heading towards something a little more utopian. I do not think it is impossible that Defence could inform the parliament to a greater degree—and the public to a lesser degree than that—as to the background of all of these decisions and what is crucial. That could make everybody's job easier. For instance, although it is slightly out of this field, there is an awful lot of debate going on at the moment about whether or not the next aircraft for the RAAF, the F35, is the right choice and the alternatives in terms of the different sorts of aircraft that have been put forward. In fact, that is the wrong argument, because the latest generation of fighter aircraft are not designed to operate singly as self-contained units. They are designed to operate in the network that I have described. So the big question that people, including you, should be asking is: how is the network going? There are still a number of crucial questions—how that is progressing, what it is going to look like and how it will work—because, if it does not work, it does not matter how good that aircraft is as it is not going to perform its function. The same is going to be true of ships, vessels, and so on.

Going back to your earlier question as to whether we have learnt, I would say, to some extent, yes, as the Kinnaird structure has put in place a process for developing projects and it is a lot more detailed and a lot more structured. I was quite surprised, when I was looking at stuff that I am going to have to write about on the Collins class submarine project, by the extent to which internal skirmishes went on and prevented a clear understanding developing of what that project was on about. To some extent, that went on through all stages of the process.

I think we are getting better than that but I think we have to be a bit more ruthless. For instance, the Kaman helicopter project could have been chopped without loss to anybody. There are a number of reasons for that, which I will not go into now. But it would have taken a very brave defence minister to say, 'It's not working and it does not meet any operational requirement; therefore we won't pursue it.'

Senator MARK BISHOP—And it is a legacy project.

Mr Woolner—Yes. It was actually designed for a vessel that the Australian Navy decided not to buy. So there is an example where we were not ruthless enough. We can be more ruthless. I do not know the problems that are currently facing the airborne early warning and control aircraft, but there may be an element in there where we could be ruthless. Some decisions in that project were taken early in the piece, where the operators wanted to integrate the aircraft and the avionics system. In other words, the avionics that fly the aircraft and the avionics that allow it to do its job to detect other aircraft are separate. There was an early proposal to integrate those. And

wiser heads—probably taking Bob’s choice—said: ‘No way. We’re not going to be in a situation where a fault in one makes the other one not operate.’ In fact, in the Collins class submarine, one of the people we interviewed mentioned a proposal early in the Collins program to integrate the ship’s system and the combat system. If that had happened, we would not even have submarines at sea.

So there have been some wise decisions taken. We do seem to be getting better. Are we far enough down the path? No. One of the things everyone is going to have to realise is that more money needs to be allocated at the end of a project so that governments have to talk to people in terms of what the project entails and what the ‘making fit for service life’ entails. It is like if you are building a house. You build your house, you look at it, and there are always one or two things that are wrong. If your contract with the builder is a standard contract he will put them together and make it right.

In terms of defence equipment, I have been looking at these things, working in the parliament and working for ministers and so on—I am not going to tell you for how long, but for quite a few decades—and the thing that strikes me is that the only thing that makes them work in the end is making them work. There are a number of projects that come along okay, but to get them to do what the services want people in the service operating depots have to work on them. The history of the Seahawk helicopter is one example. People do not know much about it but the system did not work very well. The Navy put together a facility in Nowra that worked on that and made it work.

You could look at the money that was spent at the end of the Collins class submarine process as something that should have been envisaged in the project and put together and worked there. You can be sure that when the air warfare destroyer starts going on sea trials it is going to reveal faults and work is going to have to be done to rectify those. And the contract, hopefully, this time—if the alliance system works well—will identify people who are responsible for doing it and who will pay.

It is a difficult thing, because you do not want to reward people for doing a crappy job. If they have not performed in the job and there are tangible reasons for that and they can be identified, then they should be expected to rectify that at no expense to the Commonwealth. If it is a function of part of the design and of working through that and seeing how it really works in real life, then there is an argument that the Commonwealth and the contractor should share the costs. So that is going to be part of it. I do not think the answer to avoiding that is to buy off the shelf or to buy overseas because we have had some successful off-the-shelf overseas procurement, and operational experience always seems to suggest that there is additional work that needs to be done.

Take the example of the ASLAVs—the Australian light armoured vehicles that have now been deployed in Iraq. They were bought off the shelf initially as a trial unit. There was a lot of doubt expressed about whether vehicles with wheels would go better in the north of Australia than vehicles with tracks et cetera. They proved to be good. It proved to be worth buying an additional lot. They proved to be good enough to modify and make more effective in combat. In the end, the feed-in of that service experience now means that we have vehicles in Iraq that do not expose the gunner. Even the United States has problems with early model Abrams tanks that

have the gunner exposed. I forget the figures now, but they have lost a number of gunners who were at the top of the turret and were killed by snipers.

The Australian Army does not have that problem. It has a vehicle with internal armour protecting it that has saved the life of its crew in two bombing attacks. The vehicle also has a number of other features, such as the bar that has been attached to it. All those were added to an off-the-shelf program as a result of service experience wanting to expand the capability of it.

I think the more people realise that nothing makes equipment work better than working at making it work, the sooner we will come to a mature understanding of it. I think parliament needs to know the likelihoods of that and some scope of the estimates—we will not know exactly. To go back to your point about structures, which I tend to like to look at, do we have in place structures, particularly in your case of the air warfare destroyers, to actually enable that to happen or will we rerun the Collins construction program where we end up—with something that should have been soluble and produced a really good outcome—in a bun fight simply because we did not foresee the need for that sort of flexibility?

Senator JOHNSTON—Do you have any predictions?

Mr Woolner—I predict something will go wrong.

Senator JOHNSTON—But will we be able to deal with it better than we did with respect to Collins?

Mr Woolner—We may well be able to. Bob might know more about this. I have seen in the Defence press, and I have not been able to follow this up, some suggestions that DMO has already foreseen the need to have some overriding supervision in the way I suggest at the end of my paper. The problem with an alliance contract is that it is an alliance without a leader. In a project you need somebody who has the wherewithal to be able to assess the overall progress of the project. You can be in a situation where each of the contractors can be going great guns but it is just not all coming together. You need someone with that overall viewpoint. I have seen suggestions that DMO are looking at an outcome. It may be worth pursuing them for the sort of outcome they envisage. Will they have the capacity to draw together the various other components of that alliance contract and, in a sense, either get amicable agreement, knock heads together or whatever is required to have good work done at the end of the project?

Senator HOGG—I realise the lateness of the evening so I am not going to drag this on. The point that I have been listening to throughout this seems to go to the very issue of transparency and accountability throughout the whole of the process and not after the process has gathered a head of steam, if I can say that. It seems to me that there are a number of ways that accountability can be achieved. The first is through committees of this parliament, whether it be through estimates or whether it be through a specific reference of this parliament to look at those issues. The second seems to me to be through the Australian National Audit Office and the third to be through the media—journalists and the like. There may well be more but they seem to be the major three to me.

Where would you see, therefore, the scrutiny of this process being best rested and best applied to ensure that we, for example, as politicians do not go down the path of time lag where we read

an ANAO report 10 years after the project has commenced? The ANAO then try to piece together the jigsaw that made the problem in the first place. Even with the Kinnaird process I still think that this is a vulnerability of the process. Where do we see intervention in the procurement process to ensure that there is proper accountability, scrutiny and transparency of the process, and who should do it?

Mr Wylie—Perhaps if I could respond to that in the first instance. I think there is another strand that parliament can take advantage of, and this is an opportunity for me to develop a point that I was making in my opening statement. I think there is a thread in your discussion paper that is particularly valuable. Without getting too bureaucratic about it, the Defence portfolio budget statements now lay out some quite clear and increasingly refined defence capability outcomes, and, more particularly and more relevant to this purpose, defence capability outputs. For example, outcome 2 is a capability for Navy operations but output 2.1 is a capability for surface combatant operations, or whatever the figures are.

It seems to me that those external accountabilities for Defence have now evolved, since about 1997, to a relative degree of maturity. It is now time to start to think about linking defence industry policy and defence industry capability outcomes to those military capability outcomes so that what we would have is a situation that starts to say: ‘Here are the seven or eight Navy capacity outputs for the existing force—and therefore a discussion of our preparedness—and also for future acquisitions and the development of future capability. Where does industry stream in among a number of other inputs into that capability; where does industry feed into that process?’

In the same way that Defence and other portfolios are required to set performance targets for the expenditure of moneys appropriated by parliament, which is a very important fundamental issue of parliament’s role in this process, it seems to me Defence sets performance targets, indicates risk to the achievement of those targets and that discussion is documented in the portfolio budget statements each year. A year later, the Minister for Defence is required to report to parliament about Defence’s achievement of those performance—

Senator HOGG—That is the annual report.

Mr Wylie—What I am suggesting is that industry is a part of that process and industry’s performance and industry’s capability can be included in that kind of reporting. Get that linkage right and I suspect you would see a dramatic reinvigoration of your defence industry policy.

Mr Woolner—I think Defence has developed its processes to a degree where problems that existed, say, when you were looking at the creation of the Collins class submarine back in the late 1970s and early 1980s, do not exist to such an extent. The DCP, the defence capability plan, at least in most instances should eliminate the sort of bureaucratic warfare that prevented general agreement on the objectives of programs. The Defence Capability Development Group has a structure that enables it to put before government rational arguments about why they want to proceed in one way or another. Given that Defence has done, and will continue to do, a great deal of work, including a lot of original research justifying its decisions, I think it is probably open for it to inform at least in a general way that does not impinge on areas of national security which are, in the main, fairly few. It remains open for Defence to inform committees like this of the directions it is going in and the reasons so that even if executive government insists on its

right to make decisions, at least you have a basis to know what those decisions were and have a fairly good idea of what the consequences are going to be.

The same process exists for the selection of source materiel. As Bob mentioned, they would put before government the pros and cons of taking a particular choice—of various selections of equipment being able to do certain things, having a consequence or perhaps not being able to do other things, the evaluation of risk and so on. The decision that is made might be, and often is, that they do not select the equipment with the greatest potential performance but they select the equipment with a more than adequate level of performance, a superior level of performance, but with less risk and greater potential for, say, construction in Australia. That is an option which they can pursue.

The only problem in the context of selecting prime equipment is that there is a great deal of commercial-in-confidence material involved. If, say, the committee was to argue this for reasons of having a better knowledge and therefore being able to tell the community why decisions are made in general, that might require in camera briefings, but they happen anyhow, as we know, and there are Senate procedures in place and procedures for joint committees to safeguard such evidence.

I think there are ways in which that transparency can be increased. I think there is also an argument for letting the Australian National Audit Office in on the business earlier. I think in many ways they are like the rest of us: they get to see the problem after it has developed. I am not sure how they would develop performance audits, but they have done performance audits for the whole of the Coastwatch function, for instance, rather than just looking at the running of contracts on Coastwatch. I think there is some scope there for—

Senator HOGG—But that would be exposed through the ongoing audit process of, say, the top 20 or 30 projects each year, surely? If that were happening then these weaknesses would be exposed earlier rather than later.

Mr Woolner—The question is to expose them as early as possible. There is some scope for maybe arguing that at some stage the audit should look at the whole of the capability development process. As I say, they do that in various other areas of government, they pick entire programs. That would be a huge project and they may not want to undertake it. But at some stage, if we are interested, for instance, in your question about how mature are we going to be, there is an argument for some such scoping audit to be done.

CHAIR—Thank you very much, gentlemen. It certainly has been quite enlightening for us.

Committee adjourned at 8.26 pm