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JOINT COMMITTEE OF PUBLIC ACCOUNTS AND AUDIT

Reference: Contract management in the Australian Public Service

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JOINT COMMITTEE OF PUBLIC ACCOUNTS AND AUDIT

Monday, 19 June 2000

Members: Mr Charles (*Chair*), Senators Coonan, Faulkner, Gibson, Hogg, Murray and Watson and Mr Andrews, Mr Cox, Mr Georgiou, Ms Gillard, Mr Lindsay, Mr St Clair, Mr Somlyay, Mr Tanner and Mr Kelvin Thomson

Senators and members in attendance: Mr Charles and Mr Cox

Terms of reference for the inquiry:

To inquire into, and report on the management of Commonwealth contracts focusing on:

- the adequacy of contract specifications including the design and framing of the initial contract documentation;
- the adequacy of mechanisms for ensuring management accountability and facilitating Parliamentary scrutiny of contracts, including the method by which the Auditor-General is given access to the accounts of contractors;
- quality assurance and performance monitoring of contracts—adequacy of documentation of contract deletions, side agreements, and amendments;
- risk allocation and risk management
- levels of accreditation and expertise of contract management personnel; and
- the extent to which corporate memory is being preserved in agencies to a level sufficient to protect Commonwealth interests.

WITNESSES

SHARP, Mr Ian, Director of Operations, BAE Systems Australia.....329

Committee met at 11.04 a.m.**SHARP, Mr Ian, Director of Operations, BAE Systems Australia**

CHAIRMAN—I declare open this public hearing of the Joint Committee of Public Accounts and Audit inquiry into contract management in the Australian Public Service. Today the JCPAA will take evidence from BAE Systems. I would refer members of the media who may be present at this hearing to a committee statement about the broadcasting of proceedings. In particular, I would draw the media's attention to the need to fairly and accurately report the proceedings of the committee.

Mr Sharp, welcome. Thank you for coming to talk to us today, and thank you for your submissions. I will say at the outset that your confidential submission will remain so. We do not wish to discuss ADCNET today. We have not discussed it with the department and it is sub judice, so we are staying out of it until the proceedings are finished. We are interested, however, in your general observations about contracts, and contract management particularly, including original specifications, contract documents and so on. Would you by any chance have a brief opening statement you would like to make?

Mr Sharp—Certainly I do. Firstly, thank you for the opportunity to attend this hearing. By way of background in my representing BAE Systems, this is a newly formed company—as of Christmas last year—between British Aerospace and the Defence group of GEC-Marconi. To that end, within the global market we are the second largest defence company, and we are probably the second largest defence company operating in Australia. So I believe we have some significant credentials looking at high risk, high technology contracting. Personally, I have had over 25 years experience working within the defence industry, and over half of those years have been in the civil sector.

After reading this committee's terms of reference, I think that the Australian Public Service is facing pretty much the same sort of challenges that industry is. One of the things I think we all face at the moment is trying to recruit, retain and train experienced project managers across the board. In particular, we are finding that within industry we put a lot of effort, a lot of resource and a lot of money into developing strong processes—risk management systems earned value systems, scheduling systems and generally training people to be able to work together. I think a project manager's life is probably one of the most difficult in the company. I think my job is probably far easier than the jobs of some of our project managers. A project manager has the challenge of meeting the customer's requirements, whether it be an internal or external customer. He is always challenged with schedule constraints, financial constraints and resource constraints. It is all in a day's work, but it is pretty difficult to try to get those balanced. I do not think anybody should underestimate those challenges.

Looking at contracts, I think it is always worth while to put into context, in particular, maybe the Defence industry. Whilst most of our experience has been within the Defence sector in Australia, probably five per cent of our business has been outside of Defence. You look at what technology Defence is contracting for today, and it is certainly the leading edge of technology. In most cases, it is technology that does not exist when it goes to contract. That is a far cry from where we were contracting 25 years ago. If you have a look at when I was a young apprentice,

the latest ship we had was a DDG probably running about 1,000 lines of software. A simple humble minehunter that we are just delivering with ADI today has over one million lines of code. So we have moved a long way in 25 years, and I am not sure that customers and suppliers have moved with the pace of technology in project management skills.

Also, one of the things that we do in industry is recognise that contracts are a two-way agreement, a bit like a marriage. An observation that I would make is that maybe some customers do not see contracts as a two-way agreement but a unilateral agreement. That is, if they have the stick over the supplier, they will beat the supplier, but they will not always have the will, the intent or the wherewithal to do that in connection with their part of the bargain. I would hesitate to say that maybe that is where some of the problems in recent contracts have arisen.

That said, I do not think it is gloom and doom. In working with Defence over the last years I have been party to some good contracts and some bad contracts—and I see Senator Hogg down there whom I have spoken to before on one contract. I think we have seen industry move forward, and I have actually seen the Department of Defence move forward in the last three years in improving their performance. However, I think we can all do better. Perhaps that is one of the areas we can discuss today as well as where we can move forward to.

CHAIRMAN—Let's take the example of a project that this committee visited on Wednesday last, and that is JORN. Earlier advice some years ago was that the signal processing front-end—that is, the analog to digital converter—was in great question at the time of contract placement because it had never been built. So it was real pie in the sky stuff. Also, all the software to go with the whole system was very susceptible to change and definitional problems. Recently I was advised that GEC-Marconi hardware has done the job, represents state of the art and is working properly. But we also know that your contract with Telstra nee Telecom, and ultimately RLM, was terminated and that that systems engineering and integration work was taken over by others. In the very tail end of the 20th century how do we go about writing specifications and writing contracts that manage to differentiate the really high risk items that you are attempting to procure from those that are less high risk? In other words, how do you allocate risk properly? That was a long question.

Mr Sharp—It is a long question and it is a challenging question. I think JORN is a good example of what has gone wrong. I think ultimately where it is today, when managed correctly, can actually turn out okay. If we look at JORN in particular, JORN was contracted, I would say—and this is my personal observation—to a prime contractor who did not have the experience in such a complex systems business and technology and program. I think it is always important that a contractor must have credentials and experience in such high-risk programs, otherwise it is risk up front. First off, you must look at the system as a total and be able to define very clearly its operational requirements, and I do not think you should ever separate hardware and software. In this day and age, hardware and software operate as one within a system. One of the problems we had on JORN was that, as the prime contract was broken up into subcontracts, the consortium at the time actually lost that definition and gave responsibility to some contractors for software, for instance, and hardware in other areas where they never really pulled together as a total system. That is a problem.

The only way of doing that, I believe, is by picking a competent prime who can demonstrate that he has the wherewithal and experience in being able to disseminate requirements, track requirements and performance, down to lower levels and manage that very, very complex process. It does not mean that he has to do all the work at the technology end, but he has to be able to manage the process. I think it is only probably a handful of companies in this day and age that are learning as we go on complex programs to be able to undertake that work. Look at the likes of Lockheed and some of their major programs, Raytheon and BAe Systems; they are only doing that today. We have learnt a lot in the last five to 10 years, but I do not really think that, say, the Commonwealth as a buyer should really get in there and dabble in trying to manage that process. However, the customer should be able to work with a supplier, once he understands where the risk is, and be able to agree on a risk sharing mechanism.

One of the things we even see today in large contracts and small contracts is where, under the current model of fixed price contracting, the Commonwealth always wishes for the supplier to take on the risk at his cost. There are two ways of doing that. Either the contractor, depending on the element of risk, will have to put heavy contingencies in his price and possibly lose the job; or he will have to go in very, very thin in his price and not have the flexibility to manage the risk.

We are working on a contract today, nowhere as complex as JORN, with the Commonwealth in trying to define how we share risk in various elements. Certainly the bulk of the program is fixed price and fairly easy to deal with. But there are certainly some specific elements where the Commonwealth has a problem providing information in a timely manner. I would suggest that that is the Commonwealth's risk and that, between us, we need to be able to work together to manage the risk but not leave it all with the supplier.

CHAIRMAN—In that answer, you have placed a lot of importance on contractor experience. How do you get experience if you have never done the first work?

Mr Sharp—It is always a chicken and egg situation. I really think at the moment it will be through consolidation of industry, through bringing in teaming partners that have the credibility. But, as a prime contractor, I believe that there will only ever be a handful that will be able to grow some as we move forward in time, with subcontractors and partners learning the ropes as you move forward. But I would say that it is really a 10-year minimum cycle before you can come up the learning curve. In the next 10 years we are going to see far more challenge than we have seen in the last 10 years. This will occur as technology moves forward and there is the need to get product into the marketplace quickly, from a commercial point of view, and at the end of the day for the customer to have either a platform or a requirement in the field rapidly. He does not want to wait 10 years from a concept to when he has a capability. So I think, as we move forward over the next 10 years, as that schedule comes to the right, the risks will increase.

CHAIRMAN—You talk about risk sharing and risk allocation. Defence in Australia has tended towards fixed price contracts; defence in the United States has tended towards cost-plus contracts. Both appear to be moving, I think. Is it reasonable for there to be some projects where the contractor can reasonably determine in advance what the risks are, even though there are some developmental aspects of the project? And there are almost always today developmental aspects in conjunction with defence projects, unless you are simply buying from somebody else

something that has already been produced. For instance, take the Collins submarine project. There, certainly the engineers were able to determine what would be necessary to build the platform and fit it out with diesel engines and periscopes and all that other stuff.

Some of it was a bit 'blue sky', but nonetheless that was pretty quantifiable when they tendered. But the definitional problems that finally arose were with software development. It was always known what the signal inputs would be, but then there was the developing of a code to make a particular piece of hardware, the computer and the input keyboard, work properly—to put those inputs to provide the right number of outputs so you could make decisions. This is all hindsight, and forget Collins because you were not involved with it, but does that kind of a complex contract require different thinking today where part of the contract might be on a fixed price and part of the contract might be on a risk shared basis of some form or other?

Mr Sharp—I believe so. I think you have picked a classic example. With designing mechanical structures, whilst it can be challenging, you are not pushing the frontiers of science. It is an engineering science that has been around for some years. Developing software and systems is a developing engineering science as we speak today. I think that is a good example where you could look at different models. I think Defence also is looking at some software programs and some of its intelligence software systems at the moment where evolutionary acquisition again is a good model. There, everybody has a vision for the future of what the whole system may look like, but you build it in bite sized chunks in fairly short time periods, understand what you have succeeded in or failed in, stop at that point, see where technology has moved to—because quite often technology has caught up to you or exceeded your expectations from only two years ago—and then you take another bite sized chunk.

Mr COX—Or go in another direction.

Mr Sharp—Exactly. I think that is a must. I think it is the only way you are going to move forward.

CHAIRMAN—In all procurement of the United States government, contractors are required, as part of the contract document, to allow access to contractor records by any other equivalent of our Auditor-General. Our Auditor-General has so recommended, and so have we actually in our report on Collins. As a private sector company, do you have any objection to the auditor having access to your books and your records with respect to a Commonwealth contract?

Mr Sharp—The short answer is no. We have programs running at the moment where the Commonwealth has in-depth insight of financial performance. The minehunter program is a typical example, and JORN was to some extent, where our financial performance was well understood by the respective project officers. With the minehunter, in particular, we had a very, very close and successful relationship with the project office at an engineering level. They understood, warts and all, how our process was hanging together—and not hanging together on some days maybe. I think through that close relationship we were able to resolve problems very quickly as they arose. I actually welcome that sort of process.

CHAIRMAN—That causes another question to be asked. You talk about contract cost control systems. It has been typical of Defence and some other departments of the

Commonwealth government that, when they go to examine cost completion on a major project, they talk about earned value but neglect to calculate, at the time they reach an agreement on earned value, the contractor cost to complete. So earned value plus cost to complete may exceed the value of the contract. Have you any comments?

Mr Sharp—As a chap who used to be managing director of a company but who is now running a section of a company, it is the same conundrum that I face on a daily basis: our project managers must always have a real live ‘estimate to complete’ so that I know where the business is heading. I think the only way you can get on top of that is really to have a robust internal process that is there to be used as a tool to manage a project, not as a front to be paid by your customer. We use ‘CS squared’ as a vigorous management tool within our business to manage the business, not so we get paid by our customer. With the bulk of our projects in the old GEC-Marconi, we had true earned value; we always had a monthly ‘estimate to complete’ update on all major projects. Sure, there were contracts running on budget and there were those running over budget, but at least I was aware of it and, in the main, the customer was aware of it, and it is what it is. But remember under a fixed price contract all we end up doing, if we overrun, is having a drop in profit, and utilising shareholders’ funds to finish the job.

CHAIRMAN—If there is enough money to do that.

Mr Sharp—Again, I think it goes back to who can actually prime some of these big contracts. I should not look and say that my shareholders will do it all the time, because they will not. But, again, you need big pockets if some of these projects go wrong—and JORN was a classic example. We made some healthy investment from shareholders’ funds to finish our scope of work.

Mr COX—You have the contract to do the software for the airborne early warning and control aircraft, haven’t you?

Mr Sharp—Some of the software.

Mr COX—That is a sort of comparable scale of project to JORN and the submarine combat system. Are there significant differences in the way that that contract has been structured to the way that the JORN and submarine contracts were structured?

Mr Sharp—I think there are probably two significant things to look at. One is that it is not greenfield technology. Both JORN and Collins really were starting off from a clean sheet of paper, with respect to the system. With the minehunter program we talk about a million lines of code, and it is not too much smaller than Collins when you look at it. We imported technology that was already at sea, and overall we only developed a third new code. AEW&C will be very similar. Coincidentally, I am leaving here this afternoon to go to Adelaide as part of the review team within the company looking at that program. My preliminary views are that we are in a sound position. We are re-using technology from offshore within the company and onshore in programs that were completed most recently for the Air Force. So I think it is reasonably a low risk. However, there are some challenging schedule issues in that program, which I think everybody is aware of, and some challenging IP release issues to be addressed. However, I do not think the technology will beat us on this one.

Mr COX—So the contract has not been really structured any differently; it is a straight fixed price?

Mr Sharp—It is a straight fixed price at the prime level. Our subcontract with them—we are a second tier subcontractor—is fixed price. We are looking at some risk sharing strategy with our customer Northrop Grumman to our mutual benefit that will work fairly well, I think.

CHAIRMAN—What does that mean?

Mr Sharp—With Northrop Grumman?

CHAIRMAN—‘Risk sharing’ just rolls off your lips. What do you mean?

Mr Sharp—We are looking at some areas where there are still parts of the radar to be designed that we will be manufacturing in Australia. It is very hard to quote for something ‘fixed price’ when it is still vapourware. So we are working with Northrop Grumman to develop a pricing model where we both share the risk and the gains in getting it right or wrong.

Mr COX—What happens if Northrop Grumman do not deliver the design to you on time?

Mr Sharp—We will be pushed and we will have to work with them to develop fallback plans to go into rapid manufacture, and we are doing that as we speak.

Mr COX—Is there anything about the contract that forces you both to work together in a way that you have not had to on some other contracts you have been involved in recently that have gone wrong?

Mr Sharp—Not that I am aware of. But I will say that I am two steps back from reviewing that contract at the moment, so I do not know the complexities of our contract. But at face value, from what I understand, we are developing that. It has not been forced down from the government. There is certainly an IPT arrangement, and we have had engineers in the US now for 12 to 18 months already working through precontract risk mitigation plans, understanding manufacturing technologies, how we can shrink components into smaller boxes, et cetera, and do things quicker. That is risk mitigation at its best—start work ahead of the game, put your design engineers and manufacturing engineers in the one room, living together, understanding each other’s problems. That is how it works.

If I may just take a step backwards, that may be one of the reasons why things such as JORN and Collins did not work so well. An observation that I would make is that, in my experience, most of the defence project managers are within sunny Canberra whereas most of the products are getting built in the other major states around the countryside. Those project managers go to a project meeting once a month, once every two months. They kick the tyres for a couple of days and then go back to Canberra and send a lot of emails and faxes and make a lot of phone calls. There is nothing better in my mind when, say, you are running your own business than being on the ground and knowing what is going on.

Senator HOGG—You are saying that is not the case with Defence?

Mr Sharp—Not all the time. Definitely at the working level, most programs will have some level of engineering resource with a prime contractor and some subcontractors. But I would certainly champion the senior project managements—whether it is a project manager or his deputy project manager—being alongside his counterpart or counterparts in industry. We all remember the good things, I suppose, but with the minehunter program I was lucky enough to be the project manager for Marconi at the time when it was first awarded. I worked with my counterpart at ADI and used to live in Newcastle three days a week in the early parts of the program. To the Navy's credit, their project manager did as well. I think that was the success of that program. We all knew what was going on. As issues arose, we could solve them pretty much there and then, without this hiatus of waiting a month, kicking it around and waiting another month for a decision.

Mr COX—I remember with the Collins combat system, the Navy basically left it to the contractor to do; it left it and left it for years, even when they knew there were problems.

Mr Sharp—Yes.

Mr COX—I take it that the same thing probably happened with DFAT and Stubs?

Mr Sharp—Definitely. I think that is a typical example again where there was not proactive management of problems. At an engineering level, I would say that the teams worked very well together. However, where there were significant issues that arose through the life of the contract, they were not resolved within a consortium of the supplier and the buyer.

Mr COX—How often does it happen that you have, as a subcontractor, a situation where you are totally dependent on the prime contractor and the prime contractor does not deliver?

Mr Sharp—I think in every program that I am aware of, there is always a relationship between the buyer, who normally has to provide information or equipment of some form—say, government furnished equipment to integrate a system—the prime contractor in managing a process and providing outputs to his subcontractors, and it goes back up the food chain. We are all dependent on each other. That is why I think at the end of the day there must be a partnering concept in any contract. That is why I made the earlier statement: contracts are a two-way agreement. You just cannot put a contract in place whether you are the buyer, prime contractor or subcontractor working down the chain and expect it to work; you have to really work the relationship.

Mr COX—When it all falls apart, as it occasionally does, how do you think the Commonwealth performs in subsequent litigation?

CHAIRMAN—That is a loaded question. That is going to get a biased answer.

Mr Sharp—I think this is one of the things that the Commonwealth struggles with. I think this is an issue for the Commonwealth generally to recognise, and in particular Defence maybe as they go through further downsizing. That is, if we look at a typical project team in industry, even at the management level, we are probably talking 20, 30 people working flat out and supported by a business infrastructure. With some of these major contracts within Defence, they

have a very, very thin organisation purely because of downsizing. One of the things that we find is that we must meet our milestone for a contract design review, or something like that; and I would say that in 90 per cent of the cases Defence and other government departments cannot meet their commitment to review the documents and move forward within a timely manner because they do not have the resources. It is not because they do not have the will or the want to do it; they are a bunch of good blokes and ladies normally. They just do not have the resources to do it.

Mr COX—Do you think there is occasionally a culture problem, whether it is with Defence or whether it is with DFAT, about not wanting to admit that some contract they have written has gone off the rails?

Mr Sharp—Definitely. I think historically there has been a problem—and we have had it in industry as well, so they are not Robinson Crusoe—where project managers do not want to put their head above the parapet and say, ‘I’ve got a problem.’ They used to get it shot off. Definitely within our company we changed that culture some years ago. We actually promoted people to put problems on the table on a daily basis—however, we try to also encourage them to come back with three answers to it and a recommendation for the right one. We cannot solve all the problems in our ivory towers. I think Defence suffers the same thing as does probably the Commonwealth Public Service and other similar organisations. I am not sure whether the Commonwealth Public Service has matured to the same extent. I think Defence is and we are certainly seeing changes. But we certainly found that every time something went wrong they would hide behind the contract and bring the contract out and wave it about and all sorts of things. Where there was a problem in one area, they forgot that for the last two years if they had had problems we had worked through it all.

CHAIRMAN—That is nothing new, is it?

Mr Sharp—It is not new, but it does not help the process. Unless we get that right, we are still going to have problems.

CHAIRMAN—But isn’t it just the nature of bureaucracy?

Mr Sharp—We can hide behind that, but I do not think we should. With maturity and our trying to move forward and stop these problems, we have to get out of that mindset. We could say the same thing in our organisation. We have 4,000 people in Australia. I could hide behind that and say that I have a bureaucracy to satisfy. But I get paid to get around my bureaucracy—and it is no worse than yours I would think—to make things happen. But I think that is experience.

Senator HOGG—How did you change culture? That is the real issue. There was a cultural problem in your organisation. You identified the culture problem and you set about changing it. How did you do that? How did you know that you had achieved the cultural change that you thought was desirable to enable your project teams to front up to various projects in a mature manner? Also, what can the government learn from your experience?

Mr Sharp—That is not an easy question. What we looked at firstly was getting the right people with some experience in the right jobs. We certainly went through a lot of pain in changing people within the organisation. We certainly tried to educate people, and more than 50 per cent of the people were acceptable to change. We had to move the other 50 per cent into different positions—not in the front line so much—where they could adapt to change and recognise they had to work differently. We also introduced a culture of performance focus. One of the things that we measure daily—and definitely monthly at my level—is whether we are meeting our customers' schedule. Are we delivering products—in whatever form that is: software, hardware—on schedule? If that is happening, everything else will fall in behind okay—we should be on budget, and the customers should be happy, et cetera. So it is really coming up with an attitude within the company of, 'Let's deliver everything on schedule.'

We pay well. Another thing that we have found is that there is only a handful of good project managers in Australia, and they get paid exceptionally well. Certainly some project managers in my organisation get paid more than I do. I sympathise with the Public Service because they pay project managers what we would pay a junior systems engineer. I think that is a stark problem. We battle within industry to try to keep the best, and you pay big money for it.

Senator HOGG—Taking it on from there, it would be reasonable to assume that it is not necessarily the best people who are handling the projects, from the government's point of view or from the various departments' point of view.

Mr Sharp—Yes.

Senator HOGG—It seems to me, from what you are saying, that the only way out is to pay to get the quality. Is there anything in retention policies within the Public Service which has seen people leave who have good corporate knowledge—good background—and a genuine dedication to their job, as many Public Servants have? Has that caused a problem for companies such as yours?

Mr Sharp—It has caused problems, and I think it will in the future. I have seen a number of good people—senior serving personnel in particular—who have worked their way up through the ranks, who have a lot of experience under their belt, who have become in recent years a little disenchanted with the Public Service—with the Defence Force—and have left to go to industry. Firstly, they get paid more, and they move into a different bureaucracy which they think is probably going to be better. I am not sure that it always is, but we certainly see a churn of people through the department.

I also think that serving personnel are not always the best project managers. I would say most serving personnel join the forces to fly aircraft and to drive ships—to be at the pointy end of the defence business. It probably takes 10 years of training to be a good project manager. If you are in the job for only 2½ years—maybe four, if you are really lucky—and move on to something else, you are not gaining the experience that you really need to move up the food chain, using that experience to your company's best advantage. That is what we do in industry. We take people who aspire to be project managers—they could be engineers, they could be anybody—and we grow them up through small projects and onto more complex ones as senior project managers. It is a career. They go and work for other companies and come back, but they stay

within their domain. I think that is the difference. My observation is that civil servants who have a career aspiration to be project managers may be better suited to those roles.

Mr COX—Have you had a chance to come to a view about the new Defence Acquisitions Organisation?

Mr Sharp—I think it is moving down the right path. The notion of joining Defence Acquisition and the Support Command has merit. You are looking at the total capability of a platform through its 20-year life. If that can be made to work in partnership with industry, I think industry can be forced to look at designing solutions for the prime equipment that are far more cost-effective to run through the next 15 years than they probably have been to date, especially if we are maintaining it and forced to offer a total solution at the time of offering up the prime contract. I think that is a very sensible way of running a business.

Mr COX—What you are saying is that they have been talking about through-life support and through-life costing for the last 10 or 15 years, but they have not been doing it?

Mr Sharp—Correct. I do not think anybody, including the US Department of Defense, has come up with the right model yet. I think between Europe, the US and ourselves we are struggling to come up with the right model, but I do not think we are too far behind the power curve in Australia. I think we are close to getting it right.

Mr COX—Does it imply giving very long-term contracts for supporting equipment to the company that supplies it in the first place?

Mr Sharp—You may get a biased answer here. I think it is a very good idea for a simple reason. If you look at it from our side of the fence—trying to run a defence company—it is a long time between drinks in prime contracting. The struggle we always have is that you may win a JORN or a minehunter contract, but the next major program you win could be six years out. How do you maintain that skill and capability within the organisation? What we all end up doing is hiring and firing, or people walk out the door if Boeing or Raytheon wins the next contract. We are just recycling people through the industry base.

Mr COX—Or if it was ASC—and we look like turning that into an industrial mausoleum in the next two years.

Mr Sharp—This may be a challenge for the government, the Department of Defence and industry to work through together. What do we need to retain in Australia is a capability? Is it shipbuilding? Is it systems houses? Is it people who build biros? Once we have that right, we can work together to maintain that long-term strategic capability, and we will have a better chance of getting things right and maintaining that capability.

Mr COX—What do you think are our comparative advantages?

Mr Sharp—In Australia we should be looking at maintaining a capability for upgrading systems. If we go back to Collins, upgrading platforms is relatively easy in my mind—challenging, but relatively easy. Upgrading major systems through 20 years of life is a

challenge. The chairman mentioned before that in the US they use different contracting models. One of the ones we are intimately involved with is the Trident submarine project. The first concept of that was in the mid-fifties. It is a critical program—also one that, if it goes wrong, it is catastrophic in the eyes of the world. The US Navy and the government recognised that they did not have the wherewithal to manage that design process and development contract and then to run it for the next 25 years. So they, in partnership with Tracor, a company that is now part of our group, have as their combat system design authority 500 people working full time, year on year, managing, maintaining and upgrading those systems, and it always works.

CHAIRMAN—If it makes you feel any better, we have been lobbied by Hans Ohff, we have been lobbied by Paul Johnson and on Saturday the Prime Minister was directly lobbied very publicly by the managing director of Tenex on where we are going.

Mr Sharp—I think we all suffer the same problems, but I would hope that our answers are very similar. I do not think, from industry's perspective, that we are all going in different directions. We may differ on what is more important—building ships or building systems—but I think we are all coming to a pretty clear conclusion: we need some sort of sustainable capability and some long-term view to manage our businesses and to work with the government in keeping their systems afloat.

CHAIRMAN—It is easy to talk about contracts when you understand something about how those contracts were constructed. If you look at Collins as an example—and actually the Commonwealth paid for the infrastructure to construct and launch submarines in South Australia—while the capability is there for ongoing maintenance and potential upgrades of those platforms, to date there has been no absolute commitment, probably because of the disagreement about ownership—or not so much disagreement but the decision making process—of ASC. So that is not a firm part of the overall contract, and I think what you and others are arguing is that it needs to be.

Mr Sharp—Exactly.

CHAIRMAN—So the industry has a better idea of future manpower requirements so you can keep your good personnel.

Mr Sharp—That is right; it is critical. As a big program is coming to an end—and the end may be 18 months or two years away—all our engineers, who have wives and kids and mouths to feed at home and futures to grow, are looking at where the next job will be. If we do not have a long order book, we are looking in the papers for the next job. Automatically you will lose your good engineers with experience on your programs, and the programs at the tail end start to suffer. Instead of taking 18 months to finish, they are taking three years to finish because you have lost your skill base. So it is a devil of a problem.

Mr COX—You said in your covering letter to your private submission that you would welcome the opportunity to talk about ADCNET in Canberra. Do you want to do that?

Mr Sharp—If there is the opportunity. I do understand the sensitivity, given that we are going through litigation.

CHAIRMAN—Given that the committee has made a decision not to further talk to the department, I see no value whatsoever in that. I think it best to stay out until it is over, and then we have a very definite interest. And we have said so very publicly. We would like to know what happened.

Mr Sharp—We would welcome the opportunity.

CHAIRMAN—We would welcome the opportunity to talk to you, I can assure you, because we have a very real interest in that contract. Our frustration is that the two of you will not get together to solve the blessed legal issue so we can get stuck into it.

Mr Sharp—We are certainly trying.

Resolved (on motion by **Mr Cox**):

That this committee authorises publication, including publication on the parliamentary database, of the proof transcript of the evidence given before it at public hearing this day.

Committee adjourned at 11.49 a.m.