



COMMONWEALTH OF AUSTRALIA

JOINT COMMITTEE

of

PUBLIC ACCOUNTS

Reference: Review of the Jindalee Operational Radar Network Project

CANBERRA

Friday, 6 December 1996

OFFICIAL HANSARD REPORT

CANBERRA

JOINT COMMITTEE OF PUBLIC ACCOUNTS

Members

Mr Somlyay (Chair)

Senator Crowley	Mr Anthony
Senator Macdonald	Mr Beddall
Senator Mackay	Mr Broadbent
Senator Watson	Mr Laurie Ferguson
Senator Woods	Mr Fitzgibbon
	Mr Georgiou
	Mr Griffin
	Mrs Stone
	Mr Vaile

The matter referred -

Review of reports of the Auditor-General.

WITNESSES

ARNOTT, Ms Jillian Mary, Solicitor, Telstra Corporation Limited, 231 Elizabeth Street, Sydney, New South Wales 2000	64
AYERS, Mr Anthony Joseph, Secretary, Department of Defence, Russell Offices, Russell, Australian Capital Territory 2600	77
BONIGHTON, Mr Ronald Bruce, First Assistant Secretary, Defence Materiel Division, Department of Defence, Russell Offices, Russell, Australian Capital Territory 2600	77
BRENNAN, Mr Maxwell James, Private Citizen, 32 Rafferty Street, Chapman, Australian Capital Territory 2611	37
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HAMMOND, Mr Nicholas David, First Assistant Secretary, Defence Materiel Division, Department of Defence, Russell Offices, Russell, Australian Capital Territory 2600	77
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JONES, Mr Garry Ferguson, Deputy Secretary, Acquisition Organisation, Department of Defence, Russell Offices, Russell, Australian Capital Territory 2600	77
SWANSON, Mr Charles, Managing Director, Telstar Systems Pty Ltd, 23 Lakeside Drive, Burwood East, Victoria	51
YELLAND, Mr Lindsay James, Group Managing Director, Telstra, 14/231 Elizabeth Street, Sydney, New South Wales 2000	64

JOINT COMMITTEE OF PUBLIC ACCOUNTS

Jindalee operational radar network (JORN)

CANBERRA

Friday, 6 December 1996

Present

Mr Somlyay (Chair)

Senator Gibson Mr Georgiou
 Mr Griffin
 Mrs Stone

Observers

Australian National Audit Office : Mr R. McNally
Department of Finance : Ms S. Gillett

The committee met at 9.32 a.m.

Mr Somlyay took the chair.

CHAIR—I open today's public hearing, which is part of the inquiry being conducted by the Joint Committee of Public Accounts into the Jindalee operational radar network—JORN—project. This inquiry was initiated in response to a report from the Auditor-General, *Audit Report No. 28, 1995-96*. The report contained concerns about the management of the JORN project by the Department of Defence and the performance of the prime contractor, which is Telstra Corporation.

Today we will be taking evidence from Telstra Corporation and the Department of Defence, which represents the Commonwealth, as well as from others who have participated in the JORN project to a degree. We have as observers Mr Ray McNally, the auditor who conducted the original audit into JORN, and Ms Susan Gillett, from the Department of Finance. I would like to remind witnesses that today's hearings are a legal proceeding of the parliament and warrant the same respect as proceedings of the House itself. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. The evidence given today will be recorded by *Hansard* and will attract parliamentary privilege.

I refer any members of the press who are present to a committee statement about the broadcasting of proceedings. In particular, I draw the committee's attention to the need to report fairly and accurately the proceedings of the committee. Copies of the committee statement are available from the secretariat staff present at this meeting.

[9.35 a.m.]

BRENNAN, Mr Maxwell James, Private Citizen, 32 Rafferty Street, Chapman, Australian Capital Territory 2611

CHAIR—I now welcome Mr Max Brennan to the first session of today's hearing. We sincerely thank you for making a submission to the committee. We found it very enlightening and very valuable. We appreciate you being prepared to come along to speak to the submission. Do you wish to make an opening statement?

Mr Brennan—Yes, please.

CHAIR—Please proceed.

Mr Brennan—From August 1990 until February 1996, I was Defence's director general, Jindalee project. In this role, I headed Defence's Jindalee project office, which had project management carriage of the JORN project. In March 1996 I retired from the Royal Australian Air Force on reaching compulsory retiring age. I therefore have made a submission to this committee and appear to give evidence before it in a private capacity. My motivations for doing so are to record my experience of problems with the JORN project with the intention of contributing to a better understanding of lessons to be learnt from them.

I have noted in my submission that, subsequent to my retirement, the ANAO gave me the opportunity to comment on a draft of its report, and I have appended a copy of my response to the ANAO to my submission. A major concern I had with the ANAO report was that it lacked balance in not commenting on Telstra's performance in progressing the JORN project and on the resulting very difficult circumstances under which the Defence's project office had to work.

I recognise that a review of Telstra's performance on progressing the JORN contract was outside the ANAO's terms of reference and I had no expectation of any detailed analysis of Telstra's performance. I did, however, believe that at least an overview of the level of performance and that the impact it had on Defence's management of the JORN project warranted some coverage.

I fear that this failure to address the totality of the management of the JORN project has generated incorrect perceptions on the contribution made by the members of the Defence JORN project office and does not do justice to their dedication, extraordinary efforts and sustained enthusiasm in the face of considerable difficulties and frustrations.

I would like to take this opportunity to place on the public record my appreciation for their professionalism and unflagging efforts in their attempts to influence and facilitate project progression. Any perception that members of the JPO were not active in attempting

to influence Telstra in better managing the progression of the contract activities would be erroneous. They were well aware of how important the JORN capability was to Defence and were fully committed to ensuring that capability was delivered.

In my submission, I have not attempted to address the individual findings covered by the ANAO report. I have not done so as I am satisfied that the responses made by Defence to the report adequately represent my own views. I argue in the submission that technological issues were not the major impediments to the progress of the contracted activities but that management issues were. I note that Defence's expressed concerns over Telstra's management of contracted activities were confirmed by a technical audit commissioned by Telstra and conducted under Lockheed Martin Management. It is not my intention to understate the technical challenges that are involved in delivering a system like JORN, but I submit that management difficulties overshadow any technical ones.

My submission concludes that the following elements in Telstra's management of contracted project activities contributed significantly to JORN costs and schedule overruns: firstly, a variable commitment by Telstra senior management to the project; secondly, an inability to effectively manage subcontractors, particularly Marconi, and noting that the continuing dysfunctional relationship between Telstra and Marconi was a major impediment to satisfactory progress; thirdly, a willingness to compromise accepted system engineering practices in the face of schedule pressures; fourthly, a failure to appoint a JORN system architect to guide and direct system design; and, finally, an inability to develop a sustainable plan and schedule for the conduct of the work. The submission also concludes that Defence's attitude to risk and its lenient approach to Telstra's continuing lack of performance were influencing factors.

CHAIR—There is a six-month delay between the announcement of the successful tenderer and the actual signing of the contract. Why does that happen?

Mr Brennan—The contract negotiation period was about a five-month period. It started in February and concluded in June. So that was the length of time it took to negotiate the contract.

Mr GRIFFIN—Why did Telstra get it?

Mr Brennan—Telstra got it because they put forward a credible bid. There was a belief that their technical solution more satisfied the requirement than the competitor.

Mr GRIFFIN—When you say the technical solution, do you mean analog versus digital?

Mr Brennan—Yes, more technologically up to date.

Mr GRIFFIN—How important was that question of analog versus digital?

Mr Brennan—Significantly.

Mr GRIFFIN—That is in the minds of Defence?

Mr Brennan—Certainly in the minds of the Source Selection Committee, yes.

CHAIR—Who in Defence decided that Telstra was a preferred tenderer on the basis of that technology? How did that process operate?

Mr Brennan—There are effectively two steps in the process. There was the source selection process, which was done at a project office and related level, from which a source selection report was written. That source selection report was then presented to the Defence Source Definition Committee, which is a higher level committee, and the decision on source selection was made by that committee.

Mr GRIFFIN—Just on that analog/digital question, some people we have spoken to have suggested that, in reality, in terms of what was required, the greater reliance on analog over some of the other major contract options was very clear—that that was sufficient for what was required. Can you outline, from your point of view, why digital was a significant consideration in the decision making process?

Mr Brennan—The intention of the JORN project was to build the next generation system, which I think I referred to in my submission. We were looking for a step up in capability from what was already provided. We had an expectation that this capability was going to mature over a period. Therefore, having up-to-date hardware which was going to last through that life type and be capable of being updated was a significant issue.

Mr GRIFFIN—Given the lack of experience of Telstra in OTHR radar, et cetera, do you think that was a sensible judgment at the time? What is your view on it now?

Mr Brennan—That sort of technology was not coming from Telstra; it was really coming from Marconi. Marconi had already gone some way in developing that digital technology.

Mr GRIFFIN—Marconi has never done any OTHR radar, though, has it?

Mr Brennan—It had done some work on surface wave radars. It had also produced the transmitters for the facility at Alice Springs.

Mr GEORGIU—I would just like to go back to the role of the JORN project office. From your submission, I do not get a real sense about what its role was and how its actual role diverged from its anticipated role. How many people were in the project office?

Mr Brennan—Around about 40, all told.

Mr GEORGIU—What was the project office supposed to do in terms of—

Mr Brennan—It had people involved in logistic support. It had people involved in the system engineering process. It had people involved in the project requirements area. It had people involved in finance and people involved in support management facilities and that nature of business.

Mr GEORGIU—You show a high degree of frustration with an apparent inability to influence Telstra. Can you tell us how the project office tried to influence Telstra?

Mr Brennan—There was an interface between Telstra and the project office very frequently. Our efforts to point out to Telstra the difficulties that were presenting themselves and to get them to do something about that were particularly frustrating.

Mr GEORGIU—One of your prime responsibilities was to progress the thing.

Mr Brennan—That is true.

Mr GEORGIU—So you were frustrated. Where did you go? How did you try to resolve this? With Telstra firstly? What about Defence?

Mr Brennan—There were mechanisms—meeting fora and correspondence—by which we tried to tell Telstra where we thought they needed to change their management direction. Towards the end of 1992 there was a concern on the part of Defence that we were not getting anywhere in doing that. We were concerned that the higher level management of Telstra was not paying the project sufficient attention and an approach was made to Telstra from a high level in Defence to try and get that issue resolved. Coming from that, we instituted a thing called executive review meetings. These were meetings held at an executive level. I attended, but they were at a level higher than my level. They were aimed at trying to break loose the particular problems that were facing the project.

Mr GEORGIU—Should that not have been the role of the project office rather than bumping it up a level? I am still confused about what the project office was doing, apart from being frustrated.

Mr Brennan—I submit that that is a normal mechanism. We did as much as we could at our level, project office to project office, and felt that we were not getting an adequate response, and bumping it up would be a normal mechanism.

Mr GRIFFIN—The structure of organisations is, I think, part of what Mr Georgiou is not certain about, and I certainly am not either. For example, the project

office would normally deal with what level within Telstra management?

Mr Brennan—The project director.

Mr GRIFFIN—Who is higher than the project director?

Mr Brennan—It changed a little bit, but there was the general manager of Telstra applied technologies and we were dealing with probably two levels above that.

Mr GRIFFIN—We are talking about four levels down, then, in terms of the project director, in terms of Telstra. In terms of Defence dealing directly with Telstra, what is above the project office?

Mr Brennan—The first assistant secretary defence materiel, the deputy secretary acquisition and the secretary.

Mr GRIFFIN—So, again, about four levels down. Is it true to say that when there is a general liaison between Telstra and Defence in terms of what is required, that would generally happen at project office level?

Mr Brennan—Project office to project office.

Mr GRIFFIN—Beyond that, where does DSTO fit into all this?

Mr Brennan—DSTO was the research and development authority and was providing technical advice and assistance to the project office.

Mr GRIFFIN—And then through there to Telstra?

Mr Brennan—Yes.

Mr GRIFFIN—So essentially there was a general conduit from project office level. If there is a drama and it cannot be resolved at project office level it is then referred up the line and attempts are made to resolve it.

Mr Brennan—That is right.

Mr GRIFFIN—You are saying that on a number of occasions the project office highlighted what they believed were concerns in terms of the operation of the contract by Telstra. Attempts were made to resolve that at project office level and then matters were taken higher, referred up the line, for consideration at the higher echelon. Is that correct?

Mr Brennan—That is correct.

Mr GEORGIU—When did you start really getting concerned about the project?

Mr Brennan—Probably during 1992. As I said, it was towards the end of 1992 that there was felt a need to elevate the dialogue between Defence and Telstra to try and get some resolution.

Mr GEORGIU—Maybe you can explain one thing which has puzzled me, and which I have tried to pursue. In the 1994-95 Defence annual report there was an extraordinarily high degree of confidence manifested in completion dates. Everything was on track and on time—no problems. When it was queried, Defence said that this had been done on the basis of advice. Where would that advice have come from?

Mr Brennan—That was done in good faith based on the advice that we got from our dealings with Telstra and the subcontractors. At that time, it looked like things had started to move forward.

Mr GEORGIU—I must say that I still remain puzzled. You were very concerned from 1992. In 1994-95 you said that everything looked okay. What created the change of attitude?

Mr Brennan—A couple of years. At that time it did appear as though the system design had at last got on to being progressed and it looked as though things were in a position with a good base to move forward.

Senator GIBSON—The 1986 project management team went around the world and looked at underlying technology—and we have received evidence about this—in 1986. The evidence we have received was that they came back and said that the most impressive contractor doing this sort of stuff anywhere in the world was GE-TRW who were just completing the project in the States at the time. They admitted they had difficulties, but they were overcoming them. Of the others, it was clear that GEC Marconi had no expertise in over-the-horizon radar and, if competition was wanted in this area, then Raytheon, who were building the US Navy system, could have been encouraged in there.

Given that that project management advice was carried out in 1986 and, according to the evidence given to us, the sort of strong recommendations that the lead contractor really should have been a technology company experienced in building these things, how did it come to be reversed—turned around the other way—that is, looking for the lead contractor to be an Australian company without any expertise in this arena?

Mr Brennan—There was a belief that the JORN capability was going to be such an important strategic asset in that the information that would come from the JORN would provide such an important strategic input into Australia's defence that reliance on an overseas company for its continuing support and enhancement was a wrong step to make. Therefore, a decision was made that the prime contractor for JORN would be an

Australian company.

Mrs STONE—Just following on quickly from that: in hindsight would you still have agreed that the JORN project prime contractor should have been Telstra?

Mr Brennan—Certainly there have been some problems with the progression of the JORN project with Telstra. I have no query with the decision that was made at the time and, as I think I said in my submission, I still have a firm belief that this job can be done. It is a matter of applying the management to it to getting it done. I guess I would have to say that, given Telstra are looking to move out of the business, then the decision probably was not a good one.

Senator GIBSON—I am still amazed that this decision was taken about not going with the lead technology company.

Mr Brennan—I have to say that I am talking here on hearsay, I was not there at the time, but my understanding is that there was a firm decision made for very clear strategic reasons that the company to do the business should be an Australian company.

Senator GIBSON—Where was that decision made? What is your understanding of where that decision was made?

Mr Brennan—I really would not know; it was sort of before my time. My suspicion would be that it would have been a defence decision in the acquisition and strategic policy areas.

Mr GRIFFIN—As a decision, that was strategic to actual defence policy decision, as such, because of the strategic significance of the issue.

Mr Brennan—That is right.

Mr GRIFFIN—Were there other alternatives to that? We have other programs such as the submarines and the frigates. Was the configuration of a prime contractor like Telstra with others the only option in reality? Weren't there other ways in which that could have been done in terms of having a situation where those sorts of down-the-line links with Australian companies and local strategic issues were taken into account, and not to have had a situation where we had a lack of experience in developing this type of radar involved in the actual prime contractor?

Mr Brennan—There was always an expectation that the prime contractor would have to rely on technology input from an overseas subcontractor. Indeed—again, this is before my time—my understanding of the three people who originally bid is that each of them had that organisational arrangement where the prime contractor was an Australian company and they had an overseas technology company as their major subcontractor.

There was an intent that that technology would transfer to Australia, that arrangements would be put in place so that the work being done by the overseas contractor would gravitate to Australia and that, through that process, the Australian prime would not only become knowledgeable and competent in the technology but also then be able to go on and do future complex defence projects of the same nature.

Senator GIBSON—Given the advice with the 1986 report from within Defence in setting guidelines for chasing technology and expertise that GEC Marconi did not have any expertise in this arena, why was there not a strong push for the subcontractor combination to be the subcontractor that actually had experience in that area?

Mr Brennan—At the time that I was involved in the process, Marconi was seen to be a competent OTHR capable of subcontracting. They had built—

Senator GIBSON—Wait a moment. I read out to you before the advice given to us by people involved in the project management advice in 1986—and that was that the most impressive contractor was GE-TRW just finishing off the US Air Force project. Of the others, it was clear that GEC and Marconi in the UK had no expertise in over-the-horizon radar; the technology flow would largely be out of Australia rather than inwards.

Mr Brennan—Inevitably, in any bid type arrangement, the customer would like to take bits and pieces of the totality and build an arrangement that combined bits of each. But, commercially, that really is not an option.

Senator GIBSON—Let us look at another dimension. You have made it very plain in your submission that there was a great lack of expertise within Telstra for managing the project. How come, in a billion dollar project, we got caught with a prime contractor who did not have proven expertise in managing such a project? How did that take place?

Mr Brennan—Firstly, I would submit that that level of expertise was not available in any Australian contractor. Indeed, one of the objectives of the project was to grow an Australian prime to be able to handle future projects of that sort of complexity.

Senator GIBSON—But that is a very risky game to play.

Mr Brennan—I have not finished. Telstra, in their bid, made big of their management capability. In fact, it was assessed as a strong factor in their favour. They had been involved in huge communications type projects in Australia. Indeed, they indicated that they would draw upon that wide expertise within their organisation to contribute to the JORN project.

Senator GIBSON—So you think you were misled?

Mr Brennan—I do not know if we were misled. I guess it is again inevitable that

people who are bidding for contracts are going to sell themselves in their best light. I think within Telstra some of that capability probably does exist. But, contrary to what was suggested in their bid, it never did get applied to JORN. I think, as I said in my submission, they set JORN up as a greenfield company.

Mr GRIFFIN—How much involvement did you have at the early stages around the time of the granting of the contract? Was that part of your role? I heard you mention before that aspects of what you were saying were hearsay. Some of these questions are probably better directed to Defence.

Mr Brennan—I joined the project in August 1990. At that stage there had already been one round of bids. The three original tenderers had been reduced to two, and a supplementary RFT—request for tender—had been released in about May 1990. When I joined the project in August 1990, the responses to those RFTs had still not been made. My memory is a bit hazy but, within a month or two of me joining the project, those responses came in.

So, personally, I was involved in the source evaluation process. I mentioned the two levels of selection. I was involved at the tender evaluation process and I attended, but was not a member of, the Defence source selection committee.

Mr GEORGIU—In your submission at page 6 you say, ‘The Defence Jindalee project office had been pushing for an independent technical audit for some time with the intention of convincing Telstra management of the deficiencies in the management of the project. This endeavour had been frustrated by Telstra and Marconi’s unwillingness to cooperate on the grounds that the mere conduct of an audit would cause damage to their commercial reputation.’ When did the project office push for an audit?

Mr Brennan—That would have started during 1993.

Mr GEORGIU—When did it stop pushing?

Mr Brennan—It never stopped pushing.

Mr GEORGIU—Can I keep on this. I am still puzzled by the situation. Despite the fact the JORN project was pushing for an audit, despite the fact it was concerned about deficiencies in management, despite the fact that Telstra was apparently being unresponsive, the 1994-95 annual report said, ‘Everything is on track and on time. We have a high degree of confidence.’ I am troubled by that in the context that you outline.

Mr Brennan—I can understand the concern you have there. All I can say is that, when I said that we were always pushing, it was not a continuum—we were not doing this every day. There were times when things got better and there were times when things got worse. During those periods when things got worse, we believed that a technical audit was

a good mechanism to baseline the project. More particularly, we thought Telstra might have been more influenced if they got an input from an independent technical audit then if the same information was given to them by Defence.

Mr GEORGIU—I am not defending Telstra in any sense. If I were Telstra and were subjected to consistent pushing for better performance and all of a sudden I picked up the annual report and got told, ‘These people think the project is on track and on time. It is fantastic.’ I would be a bit confused about the signals that were being sent out to me.

Mr GRIFFIN—Also, wouldn’t it be more accurate to have a situation where the report said, ‘There have been significant problems. However, at the moment Defence believes the matter is under control and will progress successfully’? Isn’t the nature of what the report said factually incorrect?

Mr Brennan—I would have to remind myself precisely of what the report said.

Mr GEORGIU—I have a paraphrase of it, but we will get you precisely what the report said. When did the project office become aware that there were problems with the schedules in terms of completion times?

Mr Brennan—Again, I do not have that level of detail at my fingertips, but my expectation would be that it was within the first 18 months of the project.

Mr GEORGIU—How much slippage did you think there was in general terms? How much slippage did you start anticipating when you started recognising there was a problem?

Mr Brennan—About six months.

Mr GEORGIU—It is going to be a lot longer than that.

Mr Brennan—Yes, it is.

CHAIR—Did that blow out progressively? Did you feel that slippage continued on?

Mr Brennan—Yes.

CHAIR—When was the first indication of cost blow-out?

Mr Brennan—Costs were held perhaps for the first couple of years. The suspicion of cost blow-out, to the dimension that I understand it may be, probably was not totally evident until 1995.

Mrs STONE—Mr Brennan, you have talked about the interest in having or growing Australia's capability to have a major project capacity like that which the JORN prime contract required. Presumably then the intellectual property agreements would have been critical in terms of maintaining whatever advantages were developed during the project and so on. The audit report in fact criticised the JORN intellectual property agreements with Telstra, the sublicense arrangements. Are you equally critical of those arrangements? If so, how would you suggest that they should have been different?

Mr Brennan—In some sense, I would be critical of the arrangements. The reality of any contract negotiation is that where there is a significant difference between the parties on any particular issue you will end up in a compromised situation. While it is possible to say that the Commonwealth's position may have been better projected on intellectual property than the contract gives it, the reality is you really can only achieve what you can negotiate.

At the first meeting of negotiations that we had in February 1991, intellectual property was raised as a significant issue as it was seen as one of the most difficult to negotiate. That assessment ended up being pretty spot on because intellectual property ended up being the very last issue that was negotiated. Also, I say that while now the contract terms and conditions may seem convoluted and difficult to manage on intellectual property, again, that was the best result that we were able to achieve during the negotiations. In the overall intellectual property arena, it is my belief that we did pretty well.

If I might just summarise, the ownership of the IP is vested in the Commonwealth. The Commonwealth has unfettered rights to use the IP for its purposes other than to commercialise it. The Commonwealth received rights to improvements made to IP by the contractor. The Commonwealth got commitments on the use of Australian industry and contractor commercialisation activities. The Commonwealth was given the right to veto IP commercialisation where it was judged to be against the national interest. The Commonwealth received some consideration in the contract price for the commercialisation rights given to the contractor.

For its part, the contractor received royalty free, exclusive rights for a 20-year period to commercialise IP. The deficiency in IP that I see was in the flow-down of that to Marconi. Under the terms of the head licence that was negotiated, Telstra was required to get Commonwealth approval before it entered into a sub-licence, and in the case of Marconi it did not. There were elements of that sub-licence which denuded some of the Commonwealth advantages that were in the head licence.

Mrs STONE—So, in hindsight, if you were able to develop the ideal IP contract for the Commonwealth, how would it have been different?

Mr Brennan—I accept that some of the contract terms and conditions are difficult

to manage, but I think that is more in the understanding, semantics and expression of language rather than in the content. So I would tidy those up. In fact, what we achieved during this period on contract negotiation pretty much now mirrors Defence policy for IP.

Mrs STONE—Who assisted your project team to negotiate this intellectual property? Who were the parties that did the face-to-face interaction and development of the IP?

Mr Brennan—There was a person with intellectual property skills on the project team at that time. We had the Australian government solicitor and, at the end when we were doing intellectual property, we had a private legal representative giving advice as well.

Mr GEORGIU—Fortunately, Defence had a copy of the annual report. It says: Design activity was nearing completion and confidence that the specifications would be met was high. Telstra and its principal sub-contractor, GEC Marconi, considered alternative contract structures to improve coordination . . . Construction of the JORN Coordination Centre was completed and communications and computing equipment was being installed.

It does also say:

Despite this progress, delays were experienced in finalising a design capable of meeting the very demanding specifications.

It did flag changes in the timetable. But the critical point that I am trying to make is that the overwhelming out-take of that was that the project was on track, and that is not the message I am hearing from you in terms of your definition of problems with the project, which come through very strongly both through your submissions and through your statements. Is that a reasonable comment?

Mr Brennan—I do not think there is any more I can add to the debate on it.

Senator GIBSON—When you joined the project, you said it was down to two contractors. Who were the two at that stage?

Mr Brennan—Telstra teamed with GEC Marconi and AWA teamed with GE.

Senator GIBSON—In chasing project management for large projects normal procedure in the commercial world is to go and chase the actual nominees by the contractors, assess the actual people—what experience they have had, what projects they have completed and go back and check with customers they have dealt with to make sure what they are saying is correct. In other words, you do a thorough analysis of project management expertise and systems before making a decision. Was that sort of thing done?

Mr Brennan—It certainly was not done as part of the second round. I cannot say whether that was part of the criteria for shortlisting after the first round. I was not involved.

Senator GIBSON—It is extraordinary if it wasn't.

Mr Brennan—I'm sorry; it may or may not have been. I don't know.

Mr GEORGIU—There has been a view that part of the problem with the project is that Defence was, firstly, insufficiently specific in its design plans and specifications; and, secondly, that it tended to resist closure at particular points in time in terms of the design. Is there any validity in that view?

Mr Brennan—I guess so, depending where you are coming from. Let me answer it by saying that the specifications were intended to be functional specs; they were not detailed requirements specifications. That step was left to the contractor, to take the functional spec. We specified what capability we wanted, largely, and then they were to specify what they needed to achieve that capability. To the extent that functional specs are not specific and intended, deliberately so, not to be specific on how the requirement is to be met but, rather, as to what the capability requirement is, then the contractor could argue, I suppose, that there was not a lot of assistance in that for him in how to go about the business.

Mr GEORGIU—What about when a contractor thought they had done an appropriate job that met the specifications but felt frustrated by Defence's apparent reluctance to say yea or nay, enough is enough, go for it. Is there any validity in that view?

Mr Brennan—There is validity in the view because it was a tenet of the contract that the risk for the contractual outcome resided with the contractor, and therefore Defence went to some lengths to make sure that its involvement in the contract and its actions in the contract did not transfer risk from the contractor to the Commonwealth. One of those sorts of things is that we would not have, under the construction of the contract, accepted—given approval for—a design or anything of that nature. We would comment on it, we would criticise it, we would—

Mr GEORGIU—But not say yea or nay.

Mr Brennan—But not say yea or may.

Mr GEORGIU—If you are going to comment, criticise, et cetera, what is the point if you are not going to say yea or nay—'We've commented, we've criticised but we now accept.' That would, I think, leave the contractor swinging in the air.

Mr Brennan—Those were the arrangements on which the contract was based, that the risk for the outcome remains with the contractor. If Defence had given approval for a particular design, a particular process, or anything, and that subsequently proved not to have been acceptable when it was implemented, then the contractor walks away and says,

‘Well, Defence, you said it was all right.’

Mr GEORGIU—But what does that ‘not to be acceptable when implemented’ mean? Does that mean it did not work?

Mr Brennan—Perhaps; what we are talking about is design, at this stage. We were not talking about the acceptability of the finished product. There was a requirement for Defence, and obviously so, to accept that product, but in the processes and procedures to get through the design and implementation of the product, Defence deliberately chose not to approve in a progressive way the achievement of that end.

Mr GEORGIU—Can you understand that a contractor may feel a high degree of uncertainty, frustration, if he’s got somebody kibitzing all the time, yet at the end of the day will not say, ‘This is okay.’ Is it conducive to a contractor doing their job properly?

Mr Brennan—In my experience, that is the way in which most contracts are constructed and—

Mr GEORGIU—Most Defence contracts.

Mr Brennan—And not only Australian Defence contracts.

CHAIR—Mr Brennan, I think time has beaten us. I want to thank you very much for making your time available to give evidence to the committee. If, in our deliberations, we need to contact you, we can do so in writing if we need clarification on any points, if you are willing to assist us in that way. I thank you very much for appearing today.

[10.25 a.m.]

GOULD, Mr Ross, General Manager, Operations, Telstar Systems Pty Ltd, 23 Lakeside Drive, Burwood East, Victoria

HALL, Mr Anthony, Chief Financial Officer and Company Secretary, Telstar Systems Pty Ltd, 23 Lakeside Drive, Burwood East, Victoria

SWANSON, Mr Charles, Managing Director, Telstar Systems Pty Ltd, 23 Lakeside Drive, Burwood East, Victoria

CHAIR—We now come to the second session of today's public hearing. In this session we are taking evidence from Telstar Systems Pty Ltd which has been responsible for most of software for the JORN project. I would like to remind witnesses that the hearings this day are legal proceedings of the parliament and warrant the same respect as the proceedings of the House. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of the parliament. Evidence given today will be recorded in *Hansard* and will attract privilege.

From the committee's perspective, the main purpose of this session is to examine the role Telstar Systems has played in the JORN project to date and to consider the impact Telstar Systems has had on the project cost and the completion date. With that background, I would like to provide an opportunity for you to make a brief opening address.

Mr Swanson—We do appreciate the opportunity to address the committee and address specifically some of the issues in the ANAO report No. 28. Our concern stems somewhat from some of the implications and conclusions that are contained in that report in so far as it sends a message to our peers in the defence community, including potential customers, that we have done a pretty poor job of managing the software subcontract. I do not believe for a moment that that is true.

Our submission was intended hopefully to clarify our role in what we have accomplished. I am hopeful that it provided you enough detail and background information to do that. I believe we have managed the project exceptionally well, given the fact that we did not even exist in 1990. We are, as you know, the joint venture company that was part of the bid.

To date our Commonwealth accredited costs and schedule control system is reporting an earned value, which is based on prior agreed criteria with the prime contractor and the Commonwealth. The earned value that is currently reported is measuring our completion at 76 per cent. I am hopeful again that the submission clarified the total scope of the subcontract because we have much more work to do than just produce source lines of code. I believe that is where a lot of the confusion comes from.

At the same time, to date our cumulative receipts, the progress payments that we have actually received from the prime contractor, are also sitting at 76 per cent. Recognising that, from the prime contractor's point of view, we have billed closer to 80 per cent but, with the five per cent retention that the prime contractor keeps until the final system acceptance in order to comply with the neutral cash flow policy in our subcontract, we have to bill 80 per cent to have 76 per cent of our earned value.

We have completed to date three of the five incremental builds of the software. In addition, we have completed all the software development environment which gets turned over to the JORN command centre as the software support and training facility. We have completed all the training documentation and all the preliminary design for the software is complete for our portion of the software.

As I said, we have completed three of the five planned software builds, which represents about 40 per cent of the total source lines of code that we now see as being required, which is about 700,000. I would like to correct the ANAO report; it is 700,000. As I mentioned in the submission, that has remained stable now for nearly two years, so we do not expect a significant blow-out from that.

The fourth software build, which we are currently preparing to start on and which will be completed in mid-1997, provides the prime contractor with a fully-integrated software system that will support radar operations and, therefore, will be quite suitable to support the prime contractor's system integration activities. The final full network capability software will be completed in late 1998.

We recognise that that represents about a 40-month slip from our original plan date of mid-1995. That stems entirely from the fact that we have never had any requirements telling us what the software has to do. The allocated requirements baseline, which is referred to in the submission, has not been baselined.

Mr GEORGIU—What does that statement about your never having any requirements mean?

Mr Swanson—That statement means that, in order to start the software development process—that is, the process where you start doing the programming—you must have a set of requirements, which are called the allocated requirements, from the system design that tell you what the software must do. That is called the allocated requirements baseline in Mil Standard 27-67A. Until that baseline has been established and approved, you are, in pure Mil Standard parlance, not allowed to start software implementation.

Mr GEORGIU—We will come back to that. Sorry to interrupt.

Mr Swanson—Sure. I will finish the current status. Our current estimate of

completion shows that we will complete the 700,000 lines of code by late 1998. We have no reason to believe that we will exceed the ceiling price.

In order to reduce the schedule impact due to the lateness of allocated requirements, which we will explain later, from the prime contractor, we implemented an iterative or incremental software development methodology which was beginning to emerge from the world community because they were all having similar difficulties with the Mil Standards. This required significant tailoring of the Mil Standard 21-67A process, the associated documents with the process as well as the review process associated with Mil Standard 21-67A. That was accomplished.

In addition to doing that, to speed up our efforts and enhance our productivity, we also enhanced our software development environment by incorporating some new tools and techniques that were evolving during the 1992-93 time frame. In addition basically to attempting to reduce the schedule impact of the lack of requirements, this iterative technique also provided a windfall risk mitigation, if you will, in that we now totally integrate all of the software configuration items into a fully-integrated software system as a normal part of the development process rather than waiting until the end and then having the big-bang effect when you try to integrate it together.

Our subcontract does not even call for us to do that. That would have been part of the prime contractor's JORN system integration. We are now doing that in real time as we develop the software and that should reduce somewhat the risks of the final JORN integration.

The implementation of this iterative methodology, the tailoring of the documents and the reviews that went with it, as well as upgrading our software development environment, was, as I mentioned, a jointly funded project by the JPO, the prime contractor and by Telstar Systems. No matter what anybody said, I think a lot of credit needs to be given to the JPO and to the prime contractor for having in this instance the vision and the courage to take this risk with us, allowing us to implement a basically not very mature methodology to reduce the overall risk to the program.

They took this decision in the face of some significant resistance, as you might imagine, from the traditionalists. I think they should have some kudos for that. This is a clear example in my mind of the kind of intelligent shared risk taking that projects of this magnitude require, as opposed to this continual flow down of risk aversion, which seems to get nowhere.

In closing, I would like to say from a company point of view we have reviewed the ANOA recommendations, which in general we do not disagree with. We certainly agree with, for the most part, Defence's response to those recommendations. That is about all I have to say.

Senator GIBSON—The Auditor-General's report No. 28 quotes from the JORN technical audit carried out in 1995 and said that there will be massive problems during systems integration. You were talking about integration just a minute ago. It said that it may require rework of an unknown number of hardware and software configuration items. Do you agree with that comment, because I implied from what you were saying before that basically you were overcoming integration as you were going?

Mr Swanson—I would agree. History would suggest that you could hardly disagree with that conclusion. We need to differentiate slightly. There are two levels of integration. There is the software integration into a single software system and then there is the integration of all the hardware configuration items in an upward style like building blocks up to a final JORN network. The way the contracts were constructed, we would deliver to the prime contractor individual software CSCIs that had passed all of their tests against their requirements.

Senator GIBSON—What is CSCI?

Mr Swanson—A computer software configuration item. The analog is a hardware box or a hardware configuration item. Basically, we had a contract to build 23 of these computer software configuration items and our contract required that we test each individual one against its specification. The prime contractor would then accept that configuration item, take all 23 of those and start their integration of the system along with the hardware.

What generally happens in that environment is that there are huge problems and they become difficult because the hardware people say, 'Well, that is a software problem,' and the software people say, 'That is a hardware problem.' That is not unusual at all. What is happening now, by virtue of the way we are currently doing it, is that we have an integration platform. Now we integrate all the CSCIs as they evolve into one complete software system. We get a chance to find those problems where one bit of software will not talk to another bit of software, et cetera. You are still left with potential problems when a piece of software is trying to talk to a piece of hardware and the specification was ambiguous or misunderstood.

But we are starting with a stable software platform, so when we and the prime contractor encounter problems in his integration then you can get to the heart of the problem much quicker because the software system may already have a degree of credibility and you say, 'Maybe, let's look at the hardware first.' It helps. That is what I meant.

CHAIR—You are doing additional work to what you are required to do?

Mr Swanson—Yes, we are.

CHAIR—Are you getting paid additional money?

Mr Swanson—Yes, we have submitted contract changes and our contract is being changed to enable us to do that.

Senator GIBSON—As to the integration, are you going to follow through with the testing between the software and the hardware?

Mr Swanson—For that phase our only responsibility under our subcontract during the prime contractor's integration is to provide software engineering level of effort support to their integration. In effect, the developmental part of our contract is over and we now go into a maintenance mode under which we have warranty requirements and so on.

Mr GEORGIU—When did you move into the system integration phase and what prompted it?

Mr Swanson—You mean when did we start doing our integration?

Mr GEORGIU—Yes.

Mr Swanson—That was part and parcel of the new iterative incremental build methodology. In August 1994 when we started build No. 1, that is when we started integration.

Mr GEORGIU—But that was an addition to the initial contract?

Mr Swanson—That part. The fact that we were integrating them became an addition, yes, because it was embedded. You cannot do iterative incremental software development without really doing integration. It all comes together, because you are viewing the software in a different way.

Mr GEORGIU—In simple terms, you are viewing its connection with one another?

Mr Swanson—To give you a classic example, if I am looking at Microsoft Word, I am a user. All I care about is if I do certain things on the keyboard certain things show up on the screen. I do not care how many CSCIs it took for Microsoft to build Word and I do not care what each individual one does. I care that when I do something I get the result that the book tells me I am supposed to get.

In the old 21-67A world, you examined every module of the software to determine if it has been designed correctly and so on and so forth, and if it will do the job as intended. In object oriented technology and in these large real time complex systems it becomes almost impossible for the software engineers, let alone the lay community that

has to review and approve these things.

What we do now in the incremental mode is we take the Microsoft Word view of the world and we say, 'If radar signals come in at this end of my software system, then the operator sitting at a console expects to see X, Y and Z happening.' So we define functional threads through this system and we sit down with the prime contractor and say, 'Build No. 1 is going to have these functional threads. Do you agree?' They say, 'Yes.' We say, 'How are we going to test it? We will do it this way. Do you agree?' They say, 'Yes,' and then we build it. Then we come in and we view it and see that it sure does what we said. That is the way you just keep building on that process. You do not necessarily examine down at the module level. You take a bigger view. It is like show and tell rather than reading truck loads of documents.

The risk you take is that in the early stages it is a bit prototypish and, if the requirements change dramatically, you must be prepared to throw it away and do it again. We had enough knowledge from our consulting work at the front end with the prime contractor, we had enough knowledge of the requirements, and there was enough system engineering work informally documented that we felt we had enough knowledge of the requirements to go ahead and start and take that risk, even though they had not been baselined to gain schedule.

CHAIR—And did that happen?

Mr Swanson—Yes, as a matter of fact it did.

Mr GEORGIU—So from your perspective, the fact that the system requirements were not specified did not hinder you unduly?

Mr Swanson—It hindered us for about 40 months—it is unfair to say that that hindered us for 40 months. It was the software requirements baseline, if you will—I will call it that. It started in late 1995 by emerging as a baseline, and it is continuing to emerge from the prime contractor now as a baseline. We are examining these requirements, and we find that they are reasonably complete now. But that is like 46 to 48 months after they were due in the middle of June 1992.

Mrs STONE—Can I come in here and ask this, following on from what Mr Georgiou is saying? What caused those several years of delay while you were expecting and anticipating these baseline requirements—in fact the specifications for your work? What were you doing during those 40 months when you were waiting for Telstra to deliver? Were you actively engaging with them in discussions of the problem or were you waiting somewhere else in isolation?

Mr Swanson—We had a number of choices. In June 1992 when it was apparent that the requirements were not ready, the system design was not stable enough and the allocated requirements were not, we had a number of choices. One of our options was a

remedy under the subcontract that said we stop work, we are in inexcusable delay. That was an option we had. Clearly, legally, that was what most subcontractors would do in that instance.

The problem was that we were a company formed to do JORN and, if we do not succeed and if the team does not succeed doing JORN, we are dead. So there was no commercial imperative obviously for us to stop work, so what we did during that time frame was complete those other 54 per cent of the deliverables under the contract that did not require those requirements.

Mrs STONE—But, Mr Swanson, why was there that delay from Telstra? Why was Telstra unable to deliver to you those baseline requirements of the specifications?

Mr Swanson—I can only speculate, but that function was performed by the Telstra system engineering function. It was their responsibility to produce and deliver those requirements, and they did not do that.

Mrs STONE—So you are saying they were incompetent or inexperienced or both? It is important for us to understand what that delay was for future major project development.

Mr Swanson—In a sense it is a bit unfair. We were not there. That is a Telstra problem, and I think it fair for them to answer.

CHAIR—Also noting in your paper, as at November 1996, ‘Most allocated software requirements have been received from the client contractor’—but still not all.

Mr Swanson—There are a few interface requirements still outstanding, yes.

Mr Gould—Simulator requirements are still to come, yes.

Senator GIBSON—Mr Swanson, was your company profitable in the last financial year?

Mr Swanson—Last financial year we made a loss of about half a million dollars, but it was not relative to JORN.

Senator GIBSON—And your expectation for this current year and the following year?

Mr Swanson—We will probably continue a modest loss this year as well. We were profitable for the first four years. Our board of directors did not allow us, for the first three or four years, to do anything but JORN, and we maintained a profit during those years. At that time it became clear that we needed additional business if we were to

sustain the company, so the board then took the wraps off, basically, and said, 'Go out and seek new business', which we have now been investing heavily in, and that is why we are incurring losses currently.

Senator GIBSON—What proportion of your business is outside the JORN project now?

Mr Swanson—At the moment, nothing. JORN is the only subcontract we currently have. We have a minor subcontract with Telstra multimedia to do the system integration on the interactive broadband system, but that is a very small consulting contract.

Mr Gould—It is a consulting contract, basically.

Senator GIBSON—What do you expect to happen to your company when the bulk of the work is completed at the end of 1998?

Mr Swanson—We have about half a dozen major capital acquisition bids on the street as we speak, and we hope to be working two or three of those. We are working extremely closely with the new Lockheed Martin corporation. Given that they are one of our parents, we find that in the new, larger Lockheed Martin, for every Australian capital acquisition program in defence, there is some entity in Lockheed Martin who is wanting that business, and they view us as a software engineering team member. So we are pursuing that with extreme vigour.

Mr GEORGIU—Where was the software in the project coming from, apart from yourselves?

Mr Swanson—In their subcontract, Marconi are building two kinds of software. There is some software embedded in their hardware devices, and then they build software on these purpose-built platforms for some of the FMS subsystems.

Mr GEORGIU—And your software has to interact with theirs?

Mr Swanson—Yes, it does.

Mr GEORGIU—You anticipate no problems with that integration?

Mr Swanson—No, we do not. We are working quite closely with Marconi to define what we call interface control documents which define quite precisely, down to the byte level, how these pieces of software must talk to each other.

Mr Gould—But we don't have a responsibility to do that integration; that is a prime contractor responsibility.

Mr GEORGIU—But from your perspective you do not anticipate any problems for the prime contractor when it executes its responsibility?

Mr Swanson—We do not, no.

Mr GEORGIU—Earlier on you used the phrase that your approach avoided the continued flow-down of risk aversion, or something to that effect. Has this project been characterised by risk aversion?

Mr Swanson—I believe, and this is a personal opinion, that there is an overwhelming view in the community of risk aversion. I believe the Commonwealth, for example, in the contractual arrangements that it makes tries to avoid the risk. In the case of JORN, I believe to some degree the prime contractor also tries to avoid risk through his contractual arrangements.

That leaves the lower level subcontractors basically the stuckee for most of the risk. That is a fair game. We calculate our bid prices given those ground rules. We all play in that playing field. On a project like JORN, when you are starting with a blank sheet of paper and saying to a team, ‘Build something’ and it has never been done before under commercial contract arrangements, a project of that complexity requires all parties to share in the risk. I firmly believe that. This is a classic example of why it works. On contracts where there is no risk sharing, the commercial organisations become the driving entities of the contract. Good, solid technical decisions get made amongst the team members but cannot get implemented because the commercial people will not allow it.

Mr GEORGIU—I appreciate the generality of that view. Could you be specific in terms of the JORN project. Apply the generalisations to this case.

Mr Swanson—I do not believe that I can cite a specific example of technical decisions. I recall sitting through schedule planning meetings where the technical team leaders of all parties would have an idea, scheme or process whereby they could meet the schedules they were committing to. But when the individuals then went back to their commercial people to get the full approval of that process, the commercial people said, ‘No. You can’t do that. That is a cost and schedule impact. We will have to make a claim against the prime contractor.’ That puts the prime contractor in the position of saying, ‘We can’t have a cost and schedule impact for that solution.’ It becomes a bottleneck.

Mr GEORGIU—And the consequence is elapsed time?

Mr Swanson—That is exactly right. It almost becomes not a dollar issue but a schedule issue. Often times in commercial projects you tend to lose sight of the schedule, which keeps marching on, while you are sitting around arguing about dollars.

Mr GEORGIU—In a sense, there is a trade-off between time and money?

Mr Swanson—Absolutely.

CHAIR—Do you think the Department of Defence is bearing its fair share of risk? I think that is what Mr Georgiou was asking.

Mr Swanson—I think they do under the rules and policies that they must operate under. Their risk sharing contribution comes from the fact that they allowed the JORN contracts to be cost incentivised. There is a risk sharing component in there which says that, if we do better, we cost less and, if we do worse, the Commonwealth will share in the expense of solving problems. In that sense, they are clearly sharing in the risk within the ground rules of the policies that they have to operate under.

Mr GEORGIU—They are the key realisers of the risk in that the project is very much delayed?

Mr Swanson—Absolutely. From a national strategic point of view, they clearly are. The Commonwealth suffers that risk as well. They are the lessons learnt. If the procurement process itself is causing more risk than it is mitigating, that is one of the lessons learnt. I believe that that should be examined as well.

CHAIR—The prime contractor has the ability to place penalties upon the subcontractor for non-performance?

Mr Swanson—Absolutely. Liquidated damages.

CHAIR—That has been the situation with Telstar?

Mr Swanson—No. We do not foresee that it will be.

Mrs STONE—I want to talk about intellectual property and commercialisation. Can you foresee that you will be able to commercialise any of the software development that you have been involved with? Have you started that process of commercialisation?

Mr Swanson—That is an interesting question. I will start off by telling you that we have no rights in our subcontract to commercialise intellectual property. There is no licence back arrangement from the prime contractor to us. The second point is that we need to understand to a degree that we are building software. The techniques, methodologies and what we are using is pretty much public domain information. It is even hard to figure out what we might have that is truly intellectual property.

However, we anticipate that there could well be commercial advantage for us in the future for other defence work and, most importantly, for exportable defence work, where we could use modules and code that we have developed and capitalise on that reuse capability. We would not necessarily build a JORN but any CCCI or command and

control system. A lot of what we have in there is common to those kinds of defence systems and some commercial systems. As a result of JORN, we will have an extensive library of aids, modules, capabilities, objects and all kinds of things that we would certainly like to know we could reuse.

Mrs STONE—But the intellectual property related to them is owned by the Commonwealth at this time?

Mr Swanson—From our view, it will be owned by Telstra. Obviously, it will ultimately be owned by the Commonwealth.

Mrs STONE—We have had evidence—I am sure that you would agree—that the whole of JORN is a software based project, that that is where the cutting edge work has been and—

Mr Swanson—Not exactly. I do not think I would totally agree with that.

Mrs STONE—You would say it is more hardware?

Mr Swanson—There are no really tough technical problems here for the software. Do not misunderstand me, the JORN project software is extensive, and it is one of those systems that relies heavily on the software, as almost all new systems do. But the technology underlying the software is not particularly pushing the envelope. A lot of what is pushing the envelope, from our perspective, is that we started from a low experience base in building this kind of software. We had to put together and create a very mature team very quickly, and that caused us to examine closely state-of-the-art developmental methodologies and tools and equipment.

The actual JORN applications, although they have really rigid requirements in the overall system performance, are not that hard. On the other hand, there are some really hard, as I understand it, hardware technology issues—this issue about analog and digital, for example, and designing algorithms for tracking. We do not design the algorithms. Some physicists and other engineers design them. We just code them. That does get tricky, mind you, and we have to understand the object oriented design technology. We have to understand the software behaviour and all those things.

CHAIR—Who designs them?

Mr Swanson—In the case of the tracking algorithms?

CHAIR—Yes.

Mr Swanson—I believe Marconi does that.

Mrs STONE—So what you are saying is that, in terms of intellectual property, there is equally commercialisation potential with both the hardware and maybe some of the software, but at the moment that is within your Telstra system and is yet to be proved as something able to be commercialised?

Mr Swanson—The software product we build for JORN clearly belongs to the Commonwealth—undoubtedly. The engineering know-how that our people have gathered and learned and have in their heads of how to do that is marketable. We hope that, as to some of the software modules, the Commonwealth will give us the approval to capitalise on them.

Mrs STONE—It would be your intention to apply for those at some time?

Mr Swanson—Absolutely.

CHAIR—We are getting very close to the time we should finish. One last question: DSTO support and cooperation, from day one, was written into the prime contract. Did Telstar Systems take up this offer? What sort of relationship is there between you and DSTO?

Mr Swanson—I believe we have had a rather close relationship with DSTO from the very beginning. Mind you, there was a lot of software that was developed at the Alice Springs facility over the years, and we have never been denied any access to examining that software and understanding how it works. We have also been provided with some real radar data to use as drivers to test some of our software. It has been a continuing relationship, and I believe a rather good one. They have been very helpful to us.

Mr GEORGIU—With the benefit of hindsight and all the experience that you have acquired, how could the project be more effectively handled if you were to go back and do it again?

Mr Swanson—If we were to do it again, I think we would need a much broader and deeper depth of experience of system engineering. Whether we can get that in an Australia prime or whether we have to go overseas, we need that. The level of hands-on system engineering experience in Australia is quite limited. I think we suffered greatly from that.

The system engineering community understands the academic rules associated with the process of how you do it, but they have never done it. They have never made the mistakes. They do not have the walking-around street-smarts who say, ‘This does not work. Do it this way.’ So they tend to get preoccupied with the process to the extent that you forget you are setting out to build a radar. To me, that is the biggest weakness in the process. You can argue, of course, that that weakness should have been picked up by project management, so on and so forth and dealt with, but I believe perhaps that just

points to the inexperience of the project management as well.

If we were to do it again, I would look for much more strength and depth in project management system engineering and contract management experience. If I wanted a particular Australian prime, I would see that that training and expertise was there.

CHAIR—Thank you very much for appearing before the committee. We really appreciate the comprehensive nature of the talk you have given us today.

Mr Swanson—Thank you.

[11.23 a.m.]

ARNOTT, Ms Jillian Mary, Solicitor, Telstra Corporation Limited, 231 Elizabeth Street, Sydney, New South Wales 2000

HIBBLE, Mr Barry Raymond, Project Director, JORN, Telstra, Clayton, Victoria 3168

YELLAND, Mr Lindsay James, Group Managing Director, Telstra, 14/231 Elizabeth Street, Sydney, New South Wales 2000

CHAIR—We now come to the third session of today's public hearing, during which time we will take evidence from representatives of the Telstra Corporation. I remind witnesses that hearings today are legal proceedings of the parliament and warrant the same respect as the proceedings of the House itself. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of the parliament. The evidence given today will be recorded by Hansard and will attract parliamentary privilege.

We received your submission last night, Mr Yelland. Would you like to make a brief opening statement to the committee before we proceed?

Mr Yelland—There was some other information solicited in your note to me and I will start, if you like, by just going through and addressing some of those issues which you have asked me to comment upon. Then, at your discretion, we can discuss likely future structures in whatever structure you want to do it.

CHAIR—I might add for the benefit of the people here, I think it is the intention of the committee to go into an in camera session for about 10 or 15 minutes at the end of these proceedings immediately before lunch.

Mr Yelland—The first thing is information about the completion date. We have discussed this before. Telstra is as confident as it can be, based on the current knowledge and the work completed to date, which consists of most of the design work and certainly most of the specification work, that the radar will be completed in 2001. We cannot absolutely commit to that because a lot will happen between now and the year 2001. But I think that is the judgment of wise people and it has been audited by a proper engineering process to the extent, I think, that that is the best date that we can come up with.

We would note, however, that we do not have an agreed schedule yet with the Commonwealth. We do not have a final agreed schedule with Marconi, although this is in the final stages of negotiation. Also, the Commonwealth have not yet settled their sell-off criteria—in other words, the way in which we sell off the component parts of the radar to the Commonwealth. So, within that construct, I think that is the best we can suggest.

The other question went to performance. The question, from memory, was: will the radar meet the performance requirements when it is built? I think, with what aspects are required in the specification, there are some things that it will not do. They are not properly discussed here, but they are absolutely at the margin.

Generally, the radar clearly will exceed its performance specifications and overall, with the task in mind that it was designed to do—surveillance, tracking, et cetera—it will exceed the requirements as specified. That is because of some of the issues that we have discussed before, including the digitisation of the front-end, which was not envisaged in the original tender construct but quickly became part of the design where Marconi identified that issue and, I think to their credit, acted very quickly to try to remedy that.

The other issues about restructuring I think are more properly left to a later time.

Mr GEORGIU—The key finding of the second pass in engineering conducted by Lockheed in late 1966 was that the system engineering technical baseline had still not been finalised nor accompanied by agreed verification statements to complete the understanding of the requirements. This general point has been made a number of times today. What is the situation with technical baseline specifications?

Mr Yelland—We are, I believe, quite close to closing out the technical baseline and the completion of that. It requires not only the technical baseline but the schedule for the implementation of the baseline to be done. You just cannot do the design; you have to really say how and when. Yes, I think we are very close to that.

Mr GEORGIU—Why has it taken so long? Is that causing substantial problems with the two subcontractors?

Mr Yelland—That is good. The issue, in my mind, gets back to this issue of systems engineering which has been identified, I think, by several of the people who have appeared before this committee. Within the original concept, as far as I can understand, reading back into the documentation associated with the project, it was the intention that Marconi would be responsible for the basic system engineering or the requirements study from which this top-down approach flowed.

In 1994 there was an internal study to decide how best to move forward. Since then there have been some attempts to address specifically the system engineering close out. It is only recently where there has been the new construct which we have decided to implement with Marconi. There is an exchange of letters to reflect how we would try to progress that. We are going away from the concept of the number of component parts of the radar and assigning individual companies responsibility for building significant and large parts of it—in other words, the concept of not building individual work packages with agreed interfaces to others, but basically taking design teams and having them design, then build a significant part.

The construct that we decided to use was that Marconi would become responsible for building the transmitters for radiating energy, illuminating targets, getting the signal back and processing that signal through the digitised receiver front ends and then pre-processing that signal, at which time there is an identified interface. They would then hand that signal to Telstra and Telstra would complete the signal processing in either the radar site or the JCC as was appropriate. We are in the process of moving to that, and the system engineering close out that is now being implemented is a result of that.

The other thing that happened as a result of that is Telstra sought the assistance of overseas expertise other than from Marconi to address specifically the system engineering issues. Again, we got some people from Lockheed to come to Australia and work specifically in that area because, as has already been flagged, we had identified that such expertise was not readily available in Australia commercially.

Mr GEORGIU—Mr Swanson made an observation about the flow down of risk aversion. It started with Defence and then went to Telstra and down the line. Do you agree generally with the observations? Can you flesh that out in terms of your perspectives on your relationship with Defence and then your relationship with your subcontractors?

Mr Yelland—I guess there is not only the issue that was raised by Mr Swanson but also the one raised in Mr Brennan's submission. From memory it is paragraphs 31, 32 and 33, where he refers to the concept of risk aversion. In thinking about that, I believe there is a major issue associated with that that we could learn from for the future. The concept of having a principal—namely, the customer—who does not want to affirm any part of the design going forward or does not want to be involved because of future potential liability puts effectively the prime contractor in a catch-22 situation, or some people would say between a rock and a hard place. We have an environment where it is very hard for us to now get approval to proceed, and any proceeding we do is proceeding at risk of getting it wrong and therefore having to fix it at our cost should it not work in its end envisaged manner.

When you are building something as complex as a radar—which is not being built, remember, to a set of specifications but is being built to a design yet to be done—there is risk associated with what you are trying to achieve. As I have mentioned before, some of the things that we are being asked to do very closely approach the fundamental laws of physics.

For example, when you are dealing with discriminating signal to noise ratios at the very threshold of what is possible, it gets very difficult to know where you are taking risk and where you are not. Certainly, if you try to apportion risk—and let us face it, in a commercial sense, that is what contract management is all about; it is apportioning risk especially at integration, test and performance going forward to meet the requirements—then you have a situation where the commercial people will always try to contract out of risk. The technical people, if they can get their heads together, will formulate the best way

forward, sometimes irrespective of the commercial or financial consequences.

The whole restructure—of the rebaselining of the project and the new construct that we are trying to move to with Marconi—is designed to return the project to the concept of technical primacy, which I have also discussed before, where, effectively, the people who technically are in charge of the project technically know how best to radiate energy, illuminate targets and paint pictures on screens when it comes back. They are the people who should be telling us how best to get the thing done.

It has been very difficult to put that into a commercial construct when we have a contract of the nature of the contract that we have got. We have made efforts. For example, we wrote to the Commonwealth nearly two years ago suggesting some operational scenarios for the radar, by way of determining what it should be doing, and we have not yet had an affirmation that that would be acceptable. That is a sign perhaps, I do not know, of risk aversion. We therefore have to proceed to implement the radar as we envisage it, and it might be satisfactory at the end of it all. I would recommend that future commercial constructs might try to get around those difficulties.

CHAIR—Effectively, you still do not know what you are building?

Mr Yelland—That is correct. Whilst there are some things which I think are implicitly agreed, there is not a sign off that what we are building is what we are building.

Mr GEORGIU—In your relationships with your subcontractors, you have looked up and looked down?

Mr Yelland—I guess the situation is that our subcontractors, quite rightly, come to us and say, ‘If you want us to change or if there is delay’—as Mr Swanson pointed out—‘effectively, that is to Telstra’s cost.’ That is why I made the comment ‘between a rock and a hard place’. What I really meant was it has put us in a very invidious position contractually because we are clearly proceeding at risk.

Mr GEORGIU—Have you sat on your subcontractors? Have you tried to shift the risk from you to them?

Mr Yelland—Generally, probably no. To the extent that it might have been practical or possible, no. Certainly since 1994, we have been looking for solutions and trying to return to technical primacy. It has proven very difficult within the current construct.

CHAIR—But the subcontractor knows that there is a penalty regime for non-performance?

Mr Yelland—There has not been, but in the environment that we are going to that may be a function of it, yes.

Mr GEORGIU—Can you just briefly outline over the course of the project what managerial changes Telstra has made in the attempt to address problems as they have emerged?

Mr Yelland—The concept that Telstra may have not adequately managed the project is something that we have obviously thought quite a bit about. Originally, I think it is fair to say that Telstra did not have experience, and would not profess to have had experience, in Defence contracting.

It is not reasonable to suggest that Telstra may not have had general experience in contracting and, indeed, the people who were then in charge of that business have gone on within Telstra to manage various things within the company. In the case of the person who was responsible for the project, they are now managing the cable roll out for Australia, some multibillion dollar project, which you probably know is proceeding according to the plan.

Mr GEORGIU—We know about it.

Mr Yelland—Some of you will know that some of it is underground. Therefore, I guess, in a commercial construct, I would suggest that in a normal contracting sense Telstra does have credibility in this country for getting things done. In Defence contracting, we did not have expertise. In 1994 one of the things that we did do was hire a number of people from Defence contracting organisations who had been working in the Australian defence environment, or in the overseas defence environment, and we brought them into Telstra in senior positions to try to address that issue.

Therefore, I am not sure that we did not have the right management in place at the time. I think that it was very difficult within the commercial construct that we had to manage the environment in the way that we would have commercially managed the environment because we were tied into a contract that was difficult. If you think about this, back in the 1980s when all of this was envisaged, there are not many organisations in Australia that could build comprehensive infrastructure in the desert and connect it together with high bandwidth communications. I was not around at the time and I do not understand what the criteria for selection were, but that must have been a little significant. The constructs we are using here are both satellite and terrestrial. So I think communications was perhaps a significant part of it. There were not a lot of alternatives.

CHAIR—I suppose it was government policy to have local involvement, Australian involvement, and there would be no other contender bar Telstra.

Mr Yelland—I cannot comment, but I did notice that the short list was Australian

companies with major overseas subcontractors from whom, clearly, they were expecting to get the necessary system engineering expertise to implement the radar. There were not many over-the-horizon radars in Australia. There was one at Alice Springs.

Mr GRIFFIN—This is a hard question for you to answer because it does not directly relate to you, but I will put it anyway. As far as you understand, in terms of the major players applying as prime contractors—you are right, they were all Australian companies—it essentially seems the differences would have related to the question of perceived viability to do the project. That would relate to whom their overseas partners were as well as their own expertise and what they were charging to fulfil the contract. For Telstra, it was a question of a greater reliance on digital rather than analog.

Mr Yelland—There are a couple of issues that come out of that question. First of all, when one enters these things, one enters it with a spirit of partnership not looking at the subcontractor to do this. You look at who the partners might be who can adequately bring to the table the kind of expertise and capability that you need to have. They necessarily do not have to have built exactly one of these before, but in your mind they probably have to have demonstrated capability in a particular discipline to achieve an end result. I think that is important.

Therefore, the partners that we chose—and in fact the company that we elected to form Telstar in a joint venture with Lockheed—reflect what we thought we had to do at the time technically to achieve that. If you look at the software, which was a material part of the radar, perhaps not as hard as the hardware in retrospect—Mr Swanson was being quite modest, I think some of the software is challenging—and the environment that they have elected to build, namely, using the rational ADA development environment, that is really world leadership stuff. So that is the kind of partner we were looking to have at the time. I suspect that, in that sense, it has probably been quite successful.

The other issue that you brought up was this concept of analog and digital. Let me just say that, when we bid this and when we started work, I am sure that Marconi contemplated building the front-end in an analog construct. As I said before, to their credit they realised that a digital construct was preferential, moving forward for a number of reasons. They include things like radar accuracy potentially and greater predictability. Also, because it is a programmable interface, effectively you build something which can be the first of a whole series of generations because you now have a programmable capability instead of something where you have to tweak resistors and wires and so on.

It was originally analog. It became digital because of specifications and other reasons, and therefore the end result will be better. I do not know—I was not around at the time—why this set of partners was considered to be superior.

Senator GIBSON—DSTO told us that they did not see too many advantages in going digital and there were many risks associated in going that way, especially when the

analog system had been fully tested and found to be functioning beyond expectations. Do you have any comment on that?

Mr Yelland—I cannot really comment, but the advice I have is that we could not have met the specifications with an analog interface. We were advised that we would have to go digital, so we went digital—at considerable cost, let me tell you. So I do not think that the decision was taken lightly.

Senator GIBSON—Who were you advised by?

Mr Yelland—By the engineers; and, in fact, in this case we relied very heavily on Marconi because they fundamentally made the decision—to their credit, I suspect.

Mr GEORGIU—So you put in a bid on an analog system to meet specifications that could not be met by an analog system? Have I missed something?

Mr Yelland—Probably not.

Mr GEORGIU—And then you went digital. How do these things happen?

Mr Yelland—I guess, as the design evolves, if you realise that you cannot meet the specs, you better try to meet them. I suspect that is what they did. You are asking me questions about decisions that were made before I even joined Telstra. The fact of the matter is that one can envisage a situation where engineers, trying to design a better way forward, change the design. I hope that would occur.

Mr GRIFFIN—That is past the contract being awarded?

Mr Yelland—I believe that was the case, yes.

Mrs STONE—Earlier you said, ‘We still don’t know what we’re building.’ That was a throwaway line perhaps, but given that sort of sentiment can you give us a firm completion date or a fairly solid sense of when you believe that the JORN project will be operational, functional, completed?

Mr Yelland—No. But, acting on the best advice that we can get now in a managerial sense, the date predicted in the year 2001 is the most reliable date.

Mrs STONE—So you are gunning for 2001?

Mr Yelland—Yes.

Mrs STONE—One of the objectives of the whole JORN project—and one of the reasons we went for an Australian major contractor—was that we wanted Australian

industry capability to support the over-the-horizon radar at the end of the day, and also to be able to do the maintenance and evolutionary development and, of course, to have some Australian company with major defence project capability. Are we going to achieve that objective at the end of the day, do you believe?

Mr Yelland—As you know, Telstra has the right to commercialise the intellectual property going forward and, yes, there is potentially some value in that. At this point in time, we do not know exactly what it is. There are three areas of benefit. One is the physical capability of the radar and the information that the radar can provide, which is not perhaps of primary defence interest but, because of the nature of the radar, it can see other things and that might be of commercial advantage in the future. That is one area in which Australia might benefit.

The second area is in the straight intellectual property itself, namely, the physical component parts and the pieces of code that constitute the radar, and maybe selling the radar to other friendly countries, with the permission of the Commonwealth. The third issue is the straight capabilities, some of which Mr Swanson alluded to, built as a result of this exercise, which hopefully will stand subcontractors especially in better stead for undertaking similar tasks in the future. They are the three primary areas where we can benefit from the intellectual property associated with the development of the radar. Potentially, all three of those will benefit Australia.

Mrs STONE—You are saying that the risk we took in going for an Australian prime contractor, who might not have had the experience of other overseas contractors, has paid off in that we are going to get a substantial benefit through having had Telstra as a prime contractor?

Mr Yelland—That requires me to go into the realms of conjecture but, yes, I think there is potential benefit to Australia. Certainly, Australia's reputation would be enhanced if we could pull this off. I do think we need the help of major overseas partners to get this done because I do not see the capabilities in Australia to get it done. DSTO is obviously where the main expertise lies within Australia. But, in a system engineering and hardware sense, I think we need assistance from outside Australia. We do not have a large enough developed defence infrastructure in this country to build this kind of thing. That is a personal opinion but perhaps supportable.

Mr GEORGIU—The audit report defines difficult relationships with some subcontractors as being a major source of problem and delay. Mr Brennan's submission focused on the relationship between GEC-Marconi and Telstra, in particular the very strong commercial orientation of GEC-Marconi. How many of the problems in the project stem from this apparently difficult relationship?

CHAIR—Can I add to that. The software done by the joint venture company has gone smoothly and the hardware development done by a subcontractor has not. Is there

something in the relationship to be learnt from being a joint venturer as distinct from a subcontractor, and could you have gone into a joint venture with Marconi?

Mr Yelland—I think there are a number of relationships, most of which are working to the benefit of the project. To take it out of the concept of joint venture type operations, if we look at the way the antennas were designed, built, tested, et cetera, which were very much a hardware construct, that was performed by a subcontractor operation; namely, RFS. The hardware computer systems have been done through yet another subcontractor. That relationship is quite a constructive and good relationship.

The relationship with Telstar, which you allude to is a joint venture company and I have the honour to be the chairman of that company. That relationship has basically been conducted as a subcontract relationship, not as a joint venture company. While the parents might have generally said at the board level, 'We want you to work exclusively on JORN until we can see a way forward here,' now the intention is to try to commercialise our interests in that company. We will discuss that further later.

The issue I see there therefore is not one of Telstra's ability to get on with subcontractors. Specifically, the relationship with GEC-Marconi has become extremely commercial in nature and with this difficulty we alluded to before it compounds the problem rather than mitigates it. Therefore, there is a very difficult problem for us.

Mrs STONE—Can you describe what your response to the change to the earned values system of payment was and how you see that now assisting or not assisting the final achievement of the outcomes?

Mr Yelland—Telstra has been paid against a set of agreed milestones and schedules—in fact schedule changes which have been made every six months. The Commonwealth has ceased to pay on the agreed milestones which we dispute. We have filed a notice of dispute with the Commonwealth. The Commonwealth, I guess, wishes to contractually implement a new technique for payment by earned value using CS² or the cost system.

We are more than happy to discuss that with the Commonwealth. We do not appreciate the arbitrary nature of the change but we are very happy to talk about that. I think in our view earned value is one of a number of issues which we have before us. I think there are significant issues associated with earned value—the concept of scope creep, agreed schedule, operational requirements, baselining of the project, and the sell-off criteria; in other words, the criteria by which we are to be paid. All of those are issues which should be discussed properly between the Commonwealth and ourselves.

Mr GEORGIU—What is the state of the contract between the Commonwealth and Telstra in terms of completion dates, et cetera? You have had two reschedules. Has that been embodied in a formal agreement with the Commonwealth?

Mr Yelland—No, it has not. In fact, the schedule as currently filed with the Commonwealth we are now unable to update because we are moving to earned value.

Mr GEORGIU—You have had two substantial changes over almost three years and none of this has been agreed.

Mr Yelland—The intention is that we would try to reach a resolution with GEC-Marconi. I think the date we had set down for that was 16 December. At that date we would have gone to the Commonwealth and said, ‘Here is effectively our new baseline and this is therefore the proposed schedule.’ A part of that close out of the Marconi arrangements is the schedule.

CHAIR—Could you talk to us about your relationship with DSTO and their role as far as you are concerned in development of software, the exchange of information, has it been an amicable relationship, et cetera?

Mr Yelland—To answer the last part first, I think it has been an amicable relationship. I am unaware of any tension or difficulties that have existed between Telstra or indeed the subcontractors or DSTO. Every time I have been there they have been more than helpful. I think we value very much their advice and guidance.

It has perhaps been difficult to use it in any significant way because, with the risk aversion nature of the Commonwealth’s management of the contract, if they get DSTO to pass an opinion about something it cannot become something which we can then implement other than at our risk. In many cases we would perhaps like that to be a definitive judgment that then says, ‘This is the way it will be done or won’t be done or whatever,’ and then we can move forward.

The relationship is fine. Usability is fine for exchange of data, exchange of ideas, et cetera. The practical implementation is perhaps more difficult because of the construct of the contract. We have tried in this technical primacy construct to move to an environment where we take the highest level of technical input from a group of people. I think Dr Bardo, who was here with the Marconi people, Dr Malcolm Golley from DSTO and Dr Brent Summers, who is contracted to Telstra, were the three people we established as the pre-eminent technical minds to use. They were the people we relied on for the high level technical input.

CHAIR—You mentioned before that there was a recent dispute which you are negotiating with the Commonwealth. What is the process of dispute resolution between the Department of Defence and the prime contractor? How much time has been lost in the schedule because of disputes?

Mr Yelland—As I understand it—and I might need assistance here—we file a notice of dispute.

CHAIR—But who physically does that? Was it Mr Hibble or someone else?

Mr Yelland—Yes, Mr Hibble did it. The legal people were probably involved. There is a period under the contract that is designed to enable us to discuss it. If the period expires, then the contract nominates an arbitration process.

CHAIR—What is that period?

Mr Yelland—Ten days. In fact, I think the 10 days probably expire today, so we will now go to arbitration.

CHAIR—Who is the arbitrator?

Mr Yelland—I do not know. I am informed that the Commonwealth has written to us today—I am sorry that I did not know that—and asked for a deferment in the arbitration process. I really have to have discussions with the Commonwealth before I can definitively answer.

In answer to the second part of your question about whether disputes have cost us time, I think I would answer no, because I am not aware of where there have been formal disputes. In fact, we have had very good relationships with JPO generally as far as trying to get resolution is concerned. This is the first time we have ever had a dispute, which is perhaps partly brought about by current circumstances.

Mr GEORGIU—Can I come back to the perennial ‘no price increase’.

Mr Yelland—To the extent that the Commonwealth wishes to change the current construct of the contract. If that occurs within the current contract, then clearly we would welcome the opportunity to have a discussion around some other issues, not only the move to earn value, which in our view changed the value of the contract. In fact, I think we have filed a claim with the Commonwealth for some \$20 million for changes to the electromagnetic interference and electromagnetic control requirements under the contract.

Mr GEORGIU—We have been reassured by both yourselves and Defence—a little more lightly in your case—that there were no additional costs. Scope creep has been mentioned and then forgotten, but there is now an additional cost?

Mr Yelland—With respect, I do not believe I have ever said that the price of the contract will not change given a change in the contract. If the Commonwealth requires a change in the contract, then so be it.

The other thing I would point out is that there is the potential for much of this to be washed up in whatever discussions we have regarding the new structure. But that is an observation.

Mr GEORGIU—You have had a number of discussions with the committee. One of the committee's prime considerations is how to remedy the process or improve the process. With the benefit of hindsight, how would a more effective result emerge? Should we have structured the project differently? Was this inevitable?

CHAIR—Or is it a part of the learning process?

Mr Yelland—Again, this is conjecture. In the discussion I had before I alluded to the concept of splitting up the design and the build part of the contract. I still personally believe that that is probably not a bad idea.

Another concept is: governments around the world, certainly in Western democracies, are moving to this iterative build process that Mr Swanson described. I know that in Canada and in the US that is now the fastest way in their minds to generate what they call 'time to market', which is a quick deliverability.

The other thing is it might have been better—and this is personal opinion—to build a radar that was not gold plated and did not look like a Rolls Royce and, therefore, had a level of expandability built into it. For example, one of the clauses in the contract obligates us to provide double the amount of computing power that is required to run the radar on day one. That is, obviously, making the radar programmable in the future and is designed for expansion of the capabilities of the radar.

I think that is a very sound principle because, once you have got something that is working, you are modifying it. It might be substantial modifications, but it does not stop working and the modifications are on against a known benchmark. But, when you are designing womb to tomb, from start to finish, it is very difficult to envisage what changes in the design spec or changes in the environment might do to the overall environment.

From a commercial viewpoint, I would build it in an environment where there was an obligation to make decisions to enable the thing to move forward and which was not, if you like, so risk averse. I understand the requirements of the Commonwealth because, if it is committed to a price, it cannot really allow people to stray from that. Contractors, obviously, will come back and say they want more money if things change.

But there needs to be a way to stop this difficulty which seems to have evolved by not being able to make decisions because you cannot physically get things done. If you are buying something which is known, hard and concrete like a fleet of motor vehicles, then you can do it that way. But if you are designing and building something which is by definition speculative, then I do not think it works. That is my personal opinion.

Mr GEORGIU—So that means that Defence has to say, 'That will do.' Is that what you are saying?

Mr Yelland—Yes, or, ‘We are comfortable that you have done enough work on this. Therefore, we want you to build in extra modularity, like build this in a separate box which is plug compatible with the rest of it so that it might be swapped out in version 5, but it is okay for now.’

Mr GEORGIU—Thank you.

CHAIR—There being no further public questions, we will move into an in-camera session. Accordingly, will all people in the gallery and the committee’s observers please leave the room.

Evidence was then taken in camera, but later resumed in public—

[2.06 p.m.]

AYERS, Mr Anthony Joseph, Secretary, Department of Defence, Russell Offices, Russell, Australian Capital Territory 2600

BONIGHTON, Mr Ronald Bruce, First Assistant Secretary, Defence Materiel Division, Department of Defence, Russell Offices, Russell, Australian Capital Territory 2600

GOLLEY, Dr Malcolm, Chief, High Frequency Radar Division, DSTO Salisbury, Department of Defence, Commercial Road, Salisbury, South Australia 5108

HAMMOND, Mr Nicholas David, First Assistant Secretary, Defence Materiel Division, Department of Defence, Russell Offices, Russell, Australian Capital Territory 2600

HEDGES, Air Commodore Richard Peter, Director General, Jindalee Project, Department of Defence, Russell Offices, Russell, Australian Capital Territory 2600

JONES, Mr Garry Ferguson, Deputy Secretary, Acquisition Organisation, Department of Defence, Russell Offices, Russell, Australian Capital Territory 2600

CHAIR—We now come to the final session of today's public hearing during which we will take evidence from representatives of the Department of Defence. I would like to remind witnesses that today's hearing is a legal proceeding of the parliament and warrants the same respect as proceedings of the House itself. The giving of false or misleading evidence is a serious matter and may be regarded as a contempt of parliament. The evidence given today will be recorded by Hansard and will attract parliamentary privilege. Mr Ayers, do you wish to make a brief opening statement before we proceed to questions?

Mr Ayers—I do not, Mr Chairman, but I will mention that, as Ron Bonighton will take over from Nick Hammond as the First Assistant Secretary, Defence Materiel, I thought it would be useful to bring him here today in case there was any extension of the hearings of the committee. Nick Hammond, after 36 years in the Royal Australian Navy, as a two-star, and as a First Assistant Secretary in the Department of Defence, is to take over as CEO of a defence company. If I were not on oath, I would say I am sure it would be at some salary sacrifice.

CHAIR—You can demand equal time, if you like.

Mr GEORGIU—Mr Ayers, when we first discussed this project, you said that it pushed the boundaries of technology. Some of the things that we have heard from various witnesses indicate that the boundaries of technology have not been pushed all that hard.

They say it is more a task of execution rather than a high level of uncertainty about whether or not it is possible. Is that accurate?

Mr Ayers—I would say the answer to both questions is yes. I think it was a fair way out. Secondly, yes, we just have not reached what I believe is a respectable level even on the current boundaries.

Mr GEORGIU—What are the remaining areas of uncertainty that Defence discerns in the project?

Mr Ayers—I think that is more on Nick's technical side.

Mr Hammond—I think that the remaining areas of uncertainty are in the management of the project through to completion. Our view is that the technical issues are fairly much resolved in that the way ahead can be fairly clearly seen. That is not to say that there will not be problems during the systems integration component of the work ahead. You heard Mr Swanson talk about that this morning. Clearly, the major issue affecting JORN is one of management.

Mr GEORGIU—One critical response by Defence in terms of overruns, et cetera on JORN is that the position of the Commonwealth is protected because there is a ceiling price. I would like to ask two questions. Firstly, how much would the Commonwealth have saved if the contract had been brought in at the target price? Secondly, are we confident that there will be no further escalation beyond the ceiling price?

Mr Hammond—I do not know if I can answer the first question from memory. I will have to check my notes on that.

Mr Ayers—We can get that information.

Mr GEORGIU—Is it in the order of \$50 million?

Mr Hammond—It would probably be in that order, or slightly less, yes.

Mr GEORGIU—And on the issue of confidence that there will be no payments above the ceiling price?

Mr Hammond—I think we have responded to that in our submission, with the caveat that contract changes we may request could involve changes. Escalation will involve an increase in the ceiling cost. With those caveats, the answer is yes.

You heard Mr Yelland say this morning that Telstra had made a claim against the Commonwealth. We received that yesterday. It is a claim for \$21 million related to the

facilities construction of the task. We have had only a very preliminary look at it but the advice from our solicitors is that we do not have very much to worry about in the claim. In other words, it lacks substance.

Mr GEORGIU—A recurring theme that has emerged from the prime contractor and subcontractor is they have found that one of the prime difficulties in managing the contract is the fact that, whereas there is certainty as to the performance Defence wants, Defence has been very reticent in actually agreeing at any particular point that what they are getting is acceptable. Is there validity in that perspective?

Mr Hammond—There is some validity to that. This will require a somewhat long answer. At one extreme of a contract, the Commonwealth could adopt a totally risk averse position saying, 'Here are our requirements. You go away and design, build and deliver this. We will test it against our requirements and, if there is the slightest deviation, we will reject it.' That is one extreme. That offers the most protection for the Commonwealth.

The other extreme is where the contractor would like to get to, where each individual component is approved as they build it and, at the end of the day when those components are put together and do not work, it is not their fault; it is the Commonwealth's fault because the Commonwealth had approved all those components. Either of those two extremes would be a silly position to be in. Somewhere between them is a sensible balance in risk between the Commonwealth and the contractor.

My view two years ago, when I came to be in charge of this project, or to run the division which had the project, was that the project was a little bit too far towards the Commonwealth's risk aversion than it should have been. We have taken some steps in the last two years to try to ameliorate that. It takes some time to shift mental attitudes on both sides and you would not say that there has been an instant switch, but our position now is not an unreasonable one.

To give some examples: the contract currently includes some very broad performance based specifications, known as the PDC specification. Telstra and Marconi together, during the system design, developed some other more definitive specifications known as the network specification. We told Telstra in about August of last year that we would be happy to have a contract change which substituted the network specification for the PDC specification. In other words, that reduces Telstra's risk because the specification incorporates more of the design that has been done by them. It is not just in the nebulous requirements area; it incorporates more of their design.

That offer still stands. I wrote to Telstra in October of this year, reminding them that the offer was still on the table. My understanding is that there have been two issues. One is simply the engineering process of keeping a specification up to date, and they are working on that. I also understand that they have had some difficulty getting a similar agreement between them and Marconi and did not wish to be in the exposed position

where the specification they had with us was different from the specification they had with Marconi, so that has delayed it. That is an example of the Commonwealth being willing to assume a sensible amount of risk but not all the risk.

The second area is in the verification documents. These are the things that Mr Yelland referred to this morning as the sell-off criteria. In other words, they are documents that describe how we will test the specific requirements of JORN and what the acceptance criteria are. Those we are working through together with Telstra. The progress has been slowed because Telstra is also working through that process with Marconi, so it can devote only a certain amount of effort to that task. At the moment we are doing our best to respond to Telstra's generation of these documents and approve them as appropriate.

Mr GEORGIU—Can you give us an estimate or feel for how much of the delays and cost overruns can be attributed in significance to that risk aversion on the part of Defence?

Mr Hammond—I do not think you can. The problem with risk aversion is twofold. It causes attitudinal problems between the client and the contractor or the contractor and the subcontractor and it devotes management attention away from the main game on to those sorts of issues. It is a second order affect. It is nevertheless moderately important. I would not say that that has been a cause of any significant component of the delay.

The significant component of the delay to JORN is, firstly, in the excessive time it took Marconi and Telstra to do the system engineering process at the beginning, the 40 months that Mr Swanson referred to this morning; and, secondly, in Marconi's difficulty in producing its hardware configuration items, specifically the receiver—they have also had delays in other areas—the very excessive delays in Marconi being able to deliver the hardware that it signed up to deliver.

Mrs STONE—With proposed changes to the prime contractor arrangements, what would Defence see as potential improvements to the project management and delivery of outcomes versus what setbacks there might be with the changed contract arrangements?

Mr Hammond—The setbacks would involve the disruption as the changeover occurred. My view is that that is well controllable and should be relatively minor. The positive aspects are two or threefold. One is an opportunity to bring in from both of the companies that are potential purchasers of the JORN business some significantly additional resources with skills in project management. The second one is to bring in skills in the specific domain of over-the-horizon radar from one of the companies. Together that will overcome a significant amount of the problem.

The third, I think, is experience of those companies and their project managers in the defence industry and their ability to deal with GEC-Marconi and to overcome the

somewhat corrosive relationship that exists there. A particular aspect of that is not just simply experience in being able to deal with it. Because of the technical resources available in one of the two companies there is an alternative to going to GEC-Marconi to solve problems. You can do it in another way. That puts a fair bit of contractual leverage on them that would, in my view, incline them to come to an agreement much more readily than they have been able to do so to date.

Mrs STONE—You see a major positive outcome?

Mr Hammond—Very much so.

Mrs STONE—In terms of the intellectual property or the Commonwealth's interest in still maintaining, very substantially, an ability to control that intellectual property, what role have you taken in those negotiations as regards looking at the intellectual property?

Mr Hammond—All we have done to date is advise all three companies that we will require special arrangements to be put in place to protect sensitive Australian intellectual property. Typically, that is done by deed of agreement. It may well involve requirements that the board of directors of the operating company be Australian nationals.

There used to be a process called AOCI, which stands for Australian ownership of classified information or something along those lines. That was a standard formula applied in these cases. That has been discontinued, but the basic processes will be the same. It is a thing that we have done in several companies recently. An example is British Aerospace Australia when they brought out a WADI: we had to put in very similar arrangements to protect the intellectual property. It is a relatively common thing that is well controlled.

Mrs STONE—So you are quite satisfied that with the new arrangements you will be able to be assured that the Commonwealth's interests will be protected.

Mr Hammond—Yes.

Mr Ayers—I think there is a problem if there is a delay in the handover of the contract. In other words, in that interim period there is a tendency for the original organisation to lose staff because people do not see them necessarily having a long-term job. People get into what they call the water cooler syndrome: they stand round the water cooler and debate their future.

Senator GIBSON—Mr Ayers, given the delay and the evidence volunteered by the major contractor about lack of management expertise in managing the project and lack of systems analysis expertise in putting it together, can we go back to the start and see if there are any lessons for the Commonwealth in the process and whether we can have more confidence in what Defence does on our behalf in future. Part of the evidence we have

taken is from someone who was on the original project management review team in 1986 that was sent around the world to look at contractors in the US and the UK at that time. The conclusion states that the contractors who were then constructing the USAF over-the-horizon network were easily the most impressive. That was GE-TRW. They were open about the difficulties they had experienced and they were overcoming them. As I understand it, they were just about completing the project then.

Of the others it was clear that GEC-Marconi in the UK had no expertise in OTHR. The technology flow would largely be out of Australia rather than inwards if we went with them. The review team assumed that the procurement policy would discern readily that only one source of expertise existed for constructing the Australian network—in other words, GE-TRW. Maybe, if you wanted competition with other US groups with experience, Raytheon would be one that has had experience with the US Navy smaller system. Given that advice to Defence in 1986, how come we went the other way and went first for Australian companies as the prime companies? That seemed to me to be a very risky thing to do.

Mr Ayers—I do not think any of us were involved—Dr Golley was involved, but not in the contract situation—in 1986. My interpretation, with all the benefit of hindsight—

Senator GIBSON—Sure, I understand that.

Mr Ayers—We were very keen on seeing an Australian prime in this. We wanted to be able to maintain the systems and we wanted to upgrade the systems. It is true that we have not always had access to all the material from the United States when we wanted to upgrade systems. We have made it quite clear now in negotiations at my level and at Mr Jones's level that we will longer buy equipment if we do not have that guarantee of access. That was not the case in those days; we did not have such guarantees of access.

We were very keen on having an Australian prime to have good Australian content and, more importantly, to be able to maintain the system and upgrade it. I have no doubt that that would have been behind my predecessor's view in looking at whether it was an Australian company or an overseas company.

Senator GIBSON—I find that amazing. From my background in the manufacturing industry—and I have managed and implemented in today's terms a \$500 million project—the first thing you do if you are trying to be internationally competitive is look for the best technology around the world, assess that and lock in the appropriate bidders of the technology.

Secondly, you go and look for appropriate project managers who have the expertise to put it all together. Thirdly, and in this order, you ask, 'How can we lock in as much Australian content into this?' You ask that for the same sorts of reasons—because we have

to maintain it and keep it rolling. I am sure that every Australian company out in the commercial world goes through that sort of process. Why would you not do that in Defence?

Mr Ayers—The major Australian companies decided on who their subcontractors would be in the bid. The successful contractor was Telstra, which did look for GEC Marconi. In fairness, I have no doubt that they would have consulted very strongly with Defence in the then project team. It would not have been just simply a question of Telstra—or Telecom, as it was in those days—running off on its own. We certainly would have been involved in that.

With all the benefit of hindsight, looking at what was happening in those days, I still would prefer to have seen an Australian prime. We had two choices. In open session, I will not talk about why we took one and not the other because there were commercial factors involved in that.

Senator GIBSON—Perhaps we can have a chat in camera later on.

Mr Ayers—A constant issue with us is: if you go out on the leading edge, how far you can evolve Australian industry and still pick up this top technology from overseas while still maintaining control of the project and being able to access things, like source code, et cetera, on any number of occasions.

Recently, we pulled a US company off a short list because it could not give us an undertaking on access to source codes. It was not its fault; it was the US government. But we did take it off the short list, and that would concentrate the mind of the United States government.

Senator GIBSON—You can answer this now or later on, were GE as part of the AWA team offering you access to the code?

Mr Ayers—I do not recall that stage of the game. Our problem would not have been with the sub in that case. Perhaps that is something that might be discussed in a closed session.

Senator GIBSON—The second thing I would like to explore is what testing was done within Defence about the project management expertise, which has proved to be lacking in the project. Again from my experience, the commercial world goes to a lot of trouble trying to identify actual individuals from the competing firms that are offering project management expertise. It goes out and checks those individual's track record, checks with the customers of that firm going back to the previous file or whatever, and does that thoroughly with the top six or eight people who are going to come in and run the project. Was that done?

Mr Ayers—I am sure that Defence would have looked at the top team in Telstra. I think Telstra made some changes in its own strategic approach with changes to its chief executive officers. When the previous CEO was there, it saw itself as a major project player in the Asia region and, without doubt, this was seen as one of the opportunities of building up those sorts of teams.

I think, with a change of chief executive, it decided that it wanted to concentrate on its core business. Government decisions about competition meant that it had to focus more on its core business than perhaps before and I think it decided strategically that it was not for it to get into large-scale developmental projects.

Senator GIBSON—Sure. If we can step back a stage before that, what did Defence do to check out Telstra's offerings of project management expertise? Again my experience in the commercial world is that firms tend to lock in the individuals into the contracts. If someone has to resign or go, the replacement has to be agreed between the two parties.

Mr Ayers—I will let Mr Jones have a dip at that, but throughout the project there have been changes in Telstra. Quite frankly, we have had a hand in suggesting that maybe there could be changes. It is not as though Telstra have done their thing and we have kept away from them in that sense. It is the same thing with GEC-Marconi. In fact, I think there have been three changes of management there that we might have had a hand in at some stage.

Senator GIBSON—But the critical one is when you are awarding a contract.

Mr Ayers—Yes.

Mr Jones—I cannot speak from personal recollection of this individual contract, but it is the normal practice in our defence contracting when we request tender offers from people to seek information on how they propose to manage the contract in a whole lot of dimensions. One of those typically includes lists of senior people they propose to put on these contracts. I can recall many over my experience of looking down the lists of people, looking at them and their CVs in terms of what experience they had and trying to make a judgment about whether that was a good team or a less strong team or whatever. As you identified in commercial practice, it is exactly the same sort of process in the defence organisation.

Senator GIBSON—Do you tend to lock those individuals in?

Mr Jones—It is not normal for us to contract and require those individuals to stay by name in the contract, no. That is not a normal contracting process with us.

Mr Ayers—I might add also that at various stages of the game some people from

within Defence have moved over to Telstra with our encouragement. It is not as though there was any conflict of interest in that situation, but we felt their expertise would help the organisation.

Senator GIBSON—When the contract is let, that is the only time when you really have maximum leverage over the contractor. You say that this is the level of expertise that you require and, if it does not reach that level and that person does not perform, he or she then goes and you have to reach agreement on who replaces him or her.

Mr Ayers—I think we would find it pretty difficult to enforce an agreement which forced the company to keep some people on regardless. I think there might even be some restraint of trade problems with individuals in those circumstances.

Mr Jones—It would be not at all unusual for Defence in major contracts to be consulted were there proposed to be any significant changes in the senior management of the project team. Indeed, usually, but not always, the contractor will listen fairly closely to Defence as a customer and our views about how their senior management on the project team are performing and very often take action as a result of that.

Senator GIBSON—How come it took so long to wake up to the fact that the management was inappropriate or not good enough?

Mr Ayers—I do not think it is true to say that it did take a long time. I think there were several changes of management and on each occasion we were hopeful that that would solve the situation. I am not just talking about Telstra here. I am talking about GEC-Marconi and, indeed, we made changes within our own organisation. One of the reasons for Mr Hammond's appointment was to take a closer interest in projects like this. The fact is that those changes did not achieve the desired result.

Senator GIBSON—I would like some more details about the other tenders when we are in camera.

Mr Hammond—I would not like to leave the impression that Telstra and GEC-Marconi have not had some good people on the job. We need to balance our view of management ability against the difficulty of the task. Given the substantial difficulties that were encountered, particularly in the Marconi subcontract, it is not a question of there being a whole bunch of incompetent people. It was a question of people lacking the necessary skills to take on this quite daunting task.

Senator GIBSON—In a general sense, the Industry Commission report of 1994 into defence procurement stated that defence procurement officers were poorly trained, did not appreciate the commercial imperatives of firms bidding for defence business and stayed only a short time in the job so there was a lack of continuity and depth of experience in project teams. Do you have any comment on that?

Mr Ayers—Partial truth. Having said that, I would be willing enough to say that our project teams are as well trained as any other area, including the private sector. It is true that the service posting system means that they turn over more regularly. That is part of our process of developing people and giving them broader training across the whole defence spectrum. Procurement is just one part of that.

No doubt the defence efficiency review will be looking at whether this is an area where we could perhaps use more civilianisation, contractors or whatever else. That is one of the issues that I know the review is addressing. I do not think it is fair to say that the project teams have some massive deficiency in training. I have seen the backgrounds of the people who have been part of this team over the years and the extent of their training is not slight, as I see it.

Mr Jones—I do not think I have anything to add.

Mr Hammond—I could probably add something about the particular project team. If you take the five senior managers in the project, two have turned over fairly recently, but the average tenure has been over five years in each case. They are definitely long-term players. We pulled some statistics on the training they have done since they have been in the project. Over that period it ranges from 58 training days down to 26. There is quite a significant amount of on-the-job continuing training going on, in addition to their basic training.

I would not want to gloss over this. Getting trained and skilled people is a difficult task. There is always a difficulty in getting people into organisations with a good understanding of the commercial realities of life. That has always been a deficiency in the public sector but, to the extent that Defence has been able to overcome that, it has certainly made a good effort to do so.

Mr Ayers—There is no question that what Dick says about the lack of commercial experience is justifiable, but we have to look at what we are able to pay them within our system and what the private sector is prepared to pay them within that system. It is very understandable why they have those gaps.

Mrs STONE—We have heard other evidence where it was suggested that in the very early days of the project the defence forces did not have very great faith in the JORN project and that led to quite some time evolving before the defence forces focused on the problems associated with the project and then perhaps these changes took place that you are talking about. How would you respond to that suggestion?

Mr Ayers—I think there was a little latitude early in the piece in air force, and there may still be in some aspects today that if you can't fly it, it is no good. You get similar things in navy, et cetera. Over the horizon radar is quite an advanced concept. There were people in air force who liked to fly planes who saw this as a potential rival to early warning aircraft—which it was not; it is an 'and', not 'either or'. But I do not want to embarrass my colleague Air Commodore Hedges about some of his earlier colleagues.

In fact, I remember one ex-chief of air staff who wrote to the newspaper saying, 'Look, we shouldn't be doing this; we should be having all aircraft in the sky.' We would use the entire national debt of Australia putting early warning aircraft up in the sky to get this. Dick, would you want to lose your career? That is the end of his promotion!

Mrs STONE—It is a very serious issue in the sense that if it took quite some time then for the difficulties and the problems associated with the project to be recognised and realised, and then we lost time, we lost—

Mr Ayers—I am not sure whether that would have been a cause and effect. In effect, there is no doubt air force were not enamoured of anything that could not fly, but I think now it is seen and you have had a chance to look at Alice Springs and know what capability is there—and I do not want to talk too much about that in open session—thus there is a greater understanding now, I think. In earlier days, though, there was some doubt as to whether this was just a bit of smoke and mirrors, and I think Dr Golley would have had his chances to be belted up in a few of the Defence committees about what he was doing with this new-fangled technology.

Mr Jones—Can I add to that? I think it is a general comment you can make about an organisation like Defence that when someone comes along with an idea of a technology that does not exist, which is brand new, and you do not have a history of seeing it develop over time, it is not unnatural that there will be a degree of caution in terms of introducing it, and there will be no natural constituency within the organisation. You can imagine as one fighter aircraft wears out and the new technology becomes available, there is a whole group of people who work very hard to ensure that the new technology is acquired. But when it is a brand new sort of capability you are introducing into a defence organisation, that base of support does not exist. So the organisation I think is particularly cautious about the step it is taking. That is an inevitable consequence of the fact, as I mentioned.

Mrs STONE—So that might have been part of the reason behind the very substantial use of risk aversion-type strategies, perhaps, in those early days?

Mr Ayers—In part, I think.

Mr Jones—I would also comment, while you have reminded me, on one of the earlier questions about the Australian prime. We buy an awful lot of our technology from overseas and we adapt it and do things with it, so it is very natural to go to overseas companies. This was one area where I think there was felt to be a significant Australian unique input available, and people were very concerned that Australia as a country did not lose that and that we did not become captured by some overseas firm that would use it in a manner that did not offer maximum advantage to Australia. I think that was the genuine motivation behind those who saw that as one of the principles they should adopt in a project of that type.

Mrs STONE—Yet we have also had evidence to suggest that there was in fact a technology transfer from DSTO to GEC Marconi in those early days—a reverse transfer from what you have just described as the ideal.

Mr Jones—We might ask Dr Golley to comment, but I think there has also been a transfer of technology or a use of GEC Marconi's technological skills, undoubtedly, in this project that we did not contribute to—they brought a whole lot of skills to the table as well.

Mrs STONE—It is two-way.

Mr Jones—Presumably.

Dr Golley—DSTO spoke to all the potential primes, plus the overseas potential subcontractors, and passed on information that we had acquired up in Alice Springs.

Mr Hammond—Could I comment on the issue of technology transfer to GEC Marconi? It is certainly true that they know more now about over the horizon radar than they did at the beginning. It has cost them a fair bit to get to that point. But the sub-licence agreement from Telstra to GEC Marconi precludes that company from commercialising OTHR except in conjunction with Telstra, so the arrangement basically is that Telstra and Marconi can commercialise it as a team, but Marconi does not have the ability to go off and do it by itself.

Mrs STONE—So you will be watching that very closely should there be a change of prime?

Mr Hammond—We will indeed.

Mr GEORGIU—Retired Air Commodore Brown makes the point that, in his judgement, Defence's risk aversion meant that the project office could not drive the project more strongly. Do you see any merit in that view?

Mr Hammond—I do. It is certainly the case that, where the project office starts directing the contractor to take particular actions and do things, it is fraught with danger. If the contractor says fine, and goes away and does them, things go wrong, and they say, 'Well, it's your problem; you told me to do this. I did it; look what's happened—here is my claim.' So clearly that is a valid position; it is a thing we avoid.

The point I was trying to make earlier about the risk sharing was rather more subtle than that. We certainly should not be directing the contractor, but we certainly should be sharing with the contractor information that we have, and we certainly should be giving the contractor a good indication that this design that it has produced is, in our opinion, going to be fit for purpose or not going to be fit for purpose. That does not

absolve you from the need to test it and approve it, but I think it is a valid point that we could have gone further, particularly in the early days, to take responsibility for some of the design decisions that were being made, but in a cautious and controlled fashion.

Mr GEORGIU—Do you think that the system of milestone payments gave the contractors enough price signals to get on with the job while they were getting money for not moving very quickly?

Mr Hammond—No, we said that at the last public hearing. In retrospect, it was not a good mechanism for progress payments. Defence has now abandoned that approach, largely for just those sorts of reasons.

Mr GEORGIU—And earned value remedies the deficiencies of milestones?

Mr Hammond—Earned value is not a panacea, but it is certainly a lot better than milestones. The good thing about earned value is that the payment signals get sent automatically. The slower the progress, the slower the cash flow. That tends to attract boards of directors fairly quickly.

Mr GEORGIU—I understand it is Defence's view that, in other than cost plus contracts, all parties involved have a very strong motivation to get on with the job. I have not actually seen that manifested in the case of JORN. It was not a cost plus contract. There seems to be significant foot dragging.

Mr Ayers—I do not think the two things quite go together. Because there is not a cost plus contract does not necessarily mean that they will go the next step. There has been foot dragging here, but they have not been getting paid when they have not been meeting milestones.

Mr Hammond—Certainly my observation is that nobody is dragging their feet. Marconi is working very hard on trying to solve its receiver problems. That is causing its cash flow problems. The longer the work extends, the more their overheads bite into their costs. There is no percentage for either Marconi or Telstra in extending this program by a day. If they could recover a week, they would, because that means a week's less overheads that they will pay. I see no evidence of foot dragging. The difficulty is overcoming the problems.

Mr GEORGIU—The lines were not specified for Telstar for almost three years. This is across the life of the project. Now that we are at the sharp end, it is quite different. In getting here, there was significant under-performance by significant contractors and subcontractors. Are you denying that?

Mr Hammond—There was certainly under-performance. I do not think I would characterise it as foot dragging. They did the best they could with the people they had,

given the task they had to perform.

CHAIR—Telstar told us this morning and in their submission showing the subcontract history from June 1992 that the allocated software requirements were not available. As of September 1993, the JORN sets of design were not stabilised. In December 1992, the allocated software requirements were still not available. As of November 1996, most of the allocated software requirements were received by the paying contractor but not all of them. Is that foot dragging?

Mr Hammond—It is not foot dragging. It is delay. It is certainly an excessive increase in the schedule. I take the term ‘foot dragging’ to imply that there is something deliberate in it and that there is money to be made by delay. If there is, I do not see where it is to be made. The costs of delay are very substantial for both those companies. The point we were trying to make in our submission was that the motivation of all the players is to get the job done as quickly as possible. I did say at the beginning that one of the two major causes of delay was slowness and the deficiencies in the system engineering work done at the beginning of the project by Telstra and GEC Marconi. That was the cause of the delay in the definition of the software requirement specifications which caused the problems for Telstar.

Mr GEORGIU—One thing that has been nagging at me is the issue of the delays in delivery. There have been three changes in delivery times by Telstra. They have never been embodied in a renegotiation of the contract with Defence. Why is that?

Mr Hammond—We are not prepared to change the contract until we have a credible, realistic schedule out of the prime contractor, which is agreed to by its subcontractors. We have not yet got to that position. There is no benefit to Defence in changing the contract to relieve Telstra of the fact that it is late. We have been talking for the last 18 months to two years with the company and saying that we would agree to reschedule the contract so that Telstra would be relieved of the fact that it is currently in breach of one provision in exchange for some fairly minor concessions. That has been a tacit agreement for some time. We have said that we will not do that until we get a realistic, sensible schedule. Because of the difficulties that currently exist between Telstra and Marconi, that has not yet been delivered. Mr Yelland said this morning, and it is certainly my information, that they are now very close to agreement on the schedule. We expect to be able to do something early next year.

Mr GEORGIU—But there are no penalties on Telstra for delay?

Mr Hammond—There is no liquidated damages provision in the contract; that is right.

Mr GEORGIU—We are trying to be genuinely helpful. With the benefit of hindsight, what key changes would Defence make in its contract administration in light of

this? How many of these have you actioned, either with respect to this project or other projects?

Mr Hammond—We have mentioned the issue of risk aversion. In hindsight, it would have been better to take a slightly less risk averse line. I do not want to present this as a binary option. There has been a degree too much risk aversion. That could have been improved in the administration of the project. We certainly would have done the previous payment regime differently. That was not a good approach.

Mr GEORGIU—Is that now being generalised across Defence?

Mr Hammond—Yes. We would have had a preference for the greater involvement of DSTO in assistance to the prime contractor as opposed to acting as the agent for the project office. Again, this is with hindsight. It seems to me that if the core body of expertise in over the horizon radar is available in DSTO, it makes sense for them to assist the people who are trying to build the thing rather than the client. It makes a more intelligent use of it.

Mr Ayers—Risk aversion.

Mr Hammond—We have tried to do this. There has been some difficulty in doing it. There is a fairly natural ‘not invented here’ attitude in the lower levels of the engineering organisation within Telstra.

Mr Ayers—It is not confined to Telstra.

Mr Hammond—Stronger project management in the early days would have detected that and seen some obvious benefits. The DSTO display technology would be a good example. It involved much lower cost and risk. It was easy to do and could have been done. However, the keen young engineers who figured they could do it better had their way. I think we would have preferred to have greater DSTO involvement.

I make two final points. One is that the subcontract arrangements that were established between Telstra and its subs, which had the subcontractors providing the configuration items that Mr Swanson talked about this morning and then Telstra taking on the task of integrating them, were not a good idea. Although Defence objected at the time, it allowed itself to be overridden by Telstra, and they are the prime contractor. But, with hindsight, I think we could have made more of that issue.

The second point is that we could have done better in managing expectations. The announcement that the completion date for this project was the contract completion date was not an intelligent thing to do. We provide contingency in projects for cost and, clearly, one needs to provide contingency in projects for time. With the first change that had been agreed in the contract, which extended the completion date, we would have been

late. So we originally needed to learn to manage the expectations better, although we certainly would not have managed them by adding three years to the delivery date. It is a minor point but one that needs to be made. They would be the major lessons that I would see out of this project.

Mr Jones—On the more general point about whether we have learnt from these things and what we are doing, it is always hard to prove these things. There is also a very long cycle time between cause and effect, and trying to separate them can be difficult. As part of the ANAO review, they hired a legal firm to look at the contract and make an assessment. We had some dispute with the ANAO and the company about their assessment, which they later modified.

I recall looking at the areas they were most critical of in the contract, and they were all areas where our approach is continuing to evolve. In other words, they were not areas that had stayed static since that time and where we were still using exactly the same. They were all areas where we had acknowledged there are difficulties and had been working on improving the issues.

You may be aware that the intellectual property clauses, for example, have evolved over the years as a result of experience. But it is still an area of some contention with industry. The industry associations are still unhappy about the intellectual property conditions we want to put in tenders. We believe we are protecting the Commonwealth and the taxpayers' interests; they believe we are being unduly onerous. We work those out from time to time.

All the areas that seem to be in contention with JORN are areas that were and are being actively worked out in terms of project management. What that says is that these are very complex issues and there is no simple answer. Gradually, we are getting better at it, but we are certainly far from perfect.

I would support the comments that Nick Hammond made about some of the expectations being managed in the project. We have certainly tried in some more recent projects to control that, although it is still a difficulty because even Defence is an organisation where there are enormous pressures to complete things as fast as possible. These new capabilities are seen as an imperative in all these things. In my job, I am continually being pushed from almost every angle to do these projects faster. People ask me, 'Why does it take so long?' Going faster, or trying to go faster, is the quickest way I know to increase risk in the project.

There are a number of other areas. I do not think the issue about progress payments and earned value is resolved. It is too easy to say milestone payments are unsatisfactory, and it is too easy to say earned value is the solution. The true balance is probably different for different sorts of projects and involves a combination of both of those things. In total, I think the hardest thing for us and industry to get is the appropriate

balance between all these complex factors that make up a project—the risks, the costs, the schedule—so that we have the maximum chance of succeeding in it. That is a thing that is extraordinarily hard.

As I look around the world, I see that we are not alone in grappling with those problems. I look at defence organisations around the world and see that we are certainly not alone. If you look around industry generally in Australia, you will see we are certainly not alone. These are big, complex projects, so we have to keep improving. We are not doing badly in comparison with our peers around the world.

Mr Ayers—At the time that this contract was signed, there were financial correspondents saying this is a very imaginative project in terms of the contract—

Mr GEORGIU—They always say that—

Mr Ayers—Because it gave incentives to share between Telstra and Defence on early completion. That is all very true, of course, but it did not happen because it did not have an early completion.

Mr Jones—It is very sad in a way because, as to the features that were innovative—like the incentive thing—if the contract had not run into trouble, people would be saying that it was very effective. It is not a good test of the incentive model, because of the way the contract ended up.

Senator GIBSON—Mr Hammond, one of the points you made in answer to Mr Georgiou's question related to Telstar and the integration and risk management, if you like. I did not understand exactly what you were getting at there.

Mr Hammond—Mr Swanson described the Telstar arrangement this morning. It was a very similar arrangement with GEC-Marconi. Marconi was involved at the top level of the project in doing the system engineering and the overall design. Then its task was to go away and construct the transmitters and receivers and the hardware. But Telstra's scope of work included the actual integration of those transmitters and receivers in the desert together with the Telstar software.

In other words, the plan was that they would be out in the middle of the desert with 1,500 receivers and 60 transmitters and a whole bunch of software. If they put it together and found that it did not work, they were somehow going to try to fix it. It is clearly not sensible. The new construct that Telstra and Marconi have come to is that Marconi is responsible for delivering subsystems which are integrated complete and working, and that is a much more intelligent approach.

Senator GIBSON—Thank you, I am with you now.

CHAIR—One thing of concern to the committee is the perception in the Department of Defence that Defence's financial responsibility and accountability stops with the defence budget, because you had a ceiling on your price. From our point of view, looking at government and the effect on the budget as a whole, if Telstra, for whatever reason, has to pick up the excessive costs, it is still directly and indirectly a cost to revenue. It is a budget blow-out, even though it is not a budget on the defence budget. This is of major concern to this inquiry.

Mr Ayers—I would go one further. We do not enjoy seeing Telstra in trouble on this project. We do not enjoy seeing any defence contractor in trouble. If defence contractors do not make profits, they do not stay in defence. There is a very real problem with us coming in here saying, 'Yes, we have a fixed price contract, but we have sent three companies to the wall.'

That is great, maybe in terms of the Commonwealth budget, but it means we have no defence capability in this country. This is really a constant problem of how far you screw Defence primes and how, in turn, they put pressure on their subs. At the end of the day, there is no sense in sending companies broke in this country.

Mr GEORGIU—I am not sure Telstra is going to be bitter in the future.

Mr Ayers—I think this is one of the real problems. I talked to an overseas company recently which made it clear to me that, looking at the balance sheets of public companies in defence in this country—they used Mr Fraser's, my old master, words—that it would be better off putting its money under the bed. You probably wrote it for him, Mr Georgiou.

Mr GEORGIU—Thank you for that.

CHAIR—That is where the reds were.

Mr GEORGIU—And he was right.

CHAIR—I do not think we have any more questions of a general, open nature. We will go into a short session in camera.

Evidence was then taken in camera—

Committee adjourned at 3.23 p.m.