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SENATE

FOREIGN AFFAIRS, DEFENCE AND TRADE REFERENCES COMMITTEE

Procurement procedures for Defence capital projects

WEDNESDAY, 5 OCTOBER 2011

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SENATE

FOREIGN AFFAIRS, DEFENCE AND TRADE REFERENCES COMMITTEE

Wednesday, 5 October 2011

Senators in attendance: Senators Bishop, Eggleston, Fawcett, Humphries, Johnston, Stephens and Xenophon

Terms of reference for the inquiry:

To inquire into and report on:

Procurement procedures for items identified in the Defence White Paper, Defending Australia in the Asia Pacific Century: Force 2030 and in particular:

a. assess the procurement procedures utilised for major defence capital projects currently underway or foreshadowed in the Defence White Paper, including the operations of the Capability Development Group and its relevant subcommittees;

b. assess the timeline proposed for defence modernisation and procurement outlined in the Defence White Paper;

c. assess proposals arising from the Defence accountability reviews, including, the Mortimer Review, the Pappas Review and the McKinsey Report (2010), in regards to enhancing accountability and disclosure for defence procurement;

d. make recommendations for enhancing the availability of public information and parliamentary oversight and scrutiny of defence procurement in the context of guaranteed 3 per cent real growth in the Defence budget until 2017-18; and

e. assess the effectiveness of the Defence Materiel Organisation including:

   i. its role and functions,

   ii. its processes, management structure and staffing, in particular as compared to similar organisations in the United Kingdom, the United States of America, Canada and other comparable jurisdictions and large Australian commercial enterprises,

   iii. its full costs, assessed against the timeliness and quality of its output and the service it provides to the Australian Defence Force, and

   iv. the extent to which it value-adds to national defence and to the long-term viability of Australian defence industries.

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Committee met at 8:34

CHAIR (Senator Eggleston): I declare open this public hearing of the Senate Foreign Affairs, Defence and Trade References Committee. This is the committee's third hearing in its inquiry into procurement procedures for defence capital projects. This is a public hearing, and a *Hansard* transcript of the proceedings is being made. Before the committee starts taking evidence, I remind all witnesses that in giving evidence to the committee they are protected by parliamentary privilege. It is unlawful for anyone to threaten or disadvantage a witness on account of evidence given to a committee, and such action may be treated by the Senate as a contempt of parliament. It is also a contempt to give false or misleading evidence to a committee. The committee prefers all evidence to be given in public, but, under the Senate's resolutions, witnesses have the right to request to be heard in private session. It is important witnesses give the committee notice if they intend to ask to give evidence in camera. If a witness objects to answering a question, the witness should state the ground upon which the objection is taken, and the committee will determine whether it will insist on an answer, having regard to the ground which is claimed. If the committee determines to insist on an answer, a witness may request that the answer be given in camera. Such a request may of course also be made at any other time. I remind people in the hearing room to ensure that their mobile phones are either turned off or switched to silent mode.

The committee is hearing evidence today in relation to its inquiry into the procurement procedures for items identified in the defence white paper, *Defending Australia in the Asia Pacific century: force 2030*. On behalf of the committee, I would like to thank all of those who have made submissions, and sent representatives here today, for their cooperation in this inquiry.

I welcome our first witnesses today, from Engineers Australia. The committee has received your submission, submission 32. Do you wish to make any alterations or amendments to your submission?

Mr Jackson: No, we do not.

CHAIR: Would you like to make an opening statement?

Mr Jackson: If I may, very briefly, Senator.

CHAIR: Please do.

Mr Jackson: Good morning, all. Engineers Australia is the peak body for engineering practitioners in Australia. We represent all branches and disciplines of engineering and we currently have approximately 96,000 members across Australia, which makes us the largest and certainly the most diverse professional engineering association in the country. Our members are bound by a common commitment to promote engineering and to facilitate its practice for the common good.

Our submission outlined the broad situation in the engineering labour force in Australia and provided the committee with specific and, hopefully, useful information on the subset of the engineering labour force employed in defence. As you will note from our submission, we do rely heavily on information from the 2006 census. Just for your information, this is in most cases still the most current and up-to-date information available for our specific area of expertise. We will obviously be revisiting our data once this year's census data is released and, of course, we will make that available to the committee once it has been 'crunched', so to speak.

I would also like to draw the committee's attention to our 2000 publication entitled *Government as an informed buyer: recognising technical expertise as a crucial factor in the success of engineering contracts*. We believe that this covers a range of matters that are pertinent to this particular inquiry. Again for your information, I do know that this was produced in the year 2000, so it is ageing now. We have in fact engaged consultants and expertise to review this and provide a new edition later this year, which will be released at the end of the first quarter, 2012—perhaps a little bit late for this particular inquiry; nonetheless, will make that available to the committee once it is prepared.

As you will note from our submission, we do believe that Australia-wide registration of engineers is the most effective way to ensure that engineering practitioners have the necessary and current skills to undertake engineering and technical assessments. Dr Robinson would be happy to answer any questions you have on this particular matter. Also, we must apologise in the first instance: we did intend to have two of our subject matter experts here today; unfortunately, they are both overseas. So, if there are any specific questions that they would

otherwise be able to answer, we are happy to take those on notice and provide you with the answers at a later date. Thank you.

CHAIR: I am quite interested in what you just said about national registration. How are engineers registered at the moment?

Dr Robinson : Engineers are not registered at the moment generally. Anyone can say that they are an engineer and practise as an engineer. There is only one jurisdiction where you have to be registered, and that is in Queensland. If you provide an engineering service in Queensland or for Queensland you have to be registered in Queensland or under the direct supervision of a registered engineer. To become registered you have to have the equivalent of chartered status within Engineers Australia. We set two standards—one is the standard for the skills that you need to enter the workforce. We accredit courses at universities in Australia. We have some 36 universities and 380 courses that we accredit on a five-year cycle.

We believe that people with those competencies are fit to enter the workplace as an engineer either as a professional engineer, an engineering technologist or an engineering associate—which is a four-year, a three-year or two-year plus qualification. After something like five years of experience, you have the ability then to practise without close supervision. We call that becoming chartered. So, in Queensland, if you wish to become registered, you have to demonstrate that you have the competencies of a chartered engineer.

Other jurisdictions do have some requirements, particularly in the building construction area but not generally. That is the situation with registration at the moment. Currently, we are on the 2013 Council of Australian Governments agenda looking at the issues of registration.

CHAIR: What happens in other countries of comparable status to Australia, like the European Union countries, the United Kingdom, the United States and Canada?

Dr Robinson : Most of those do have registration in one form or another. In Canada, for instance, you have to be registered in the provinces, which is equivalent to our states; in the United States, you have to be registered in the states. In the United Kingdom, there is no registration as such but you can become a chartered engineer under government legislation there. So many developed countries do have a registration system so that when people are procuring engineers' services they know the person is, firstly, competent to enter the workforce and, secondly, has been assessed by their peers as being competent to practise without close supervision and are committed to lifelong learning.

CHAIR: It is a bit of a mixed picture, isn't it? What do we do about the recognition of qualifications obtained overseas by people who then come to Australia?

Dr Robinson : It depends in what form they come to Australia. If they come on a short-term visa, they do not need to have their qualifications assessed at all.

CHAIR: Can they work though?

Dr Robinson : Yes. Basically the 457 visa means your employer has nominated you. The employer has gone out to the international workforce and said, 'You've got the skills that I need in my particular business,' and you can come here for certain periods of time. If, however, they wish to become permanent residents they have to go through a process whereby, at the moment, they need to get at least 65 points. Engineers Australia has been appointed as the assessment authority for the competency of overseas engineering qualifications. At the moment, we assess about 8,000 overseas engineers per year in that function.

CHAIR: Does the term 'engineer' encompass a lot of different levels of training and skill? Do you think it is specific enough?

Dr Robinson: 'Engineer' is a word that covers a lot of things, much more than the professional engineer. Engineers Australia has the right to use a chartered professional engineer, (CPEng), or chartered engineering technologist (CPEngT) or chartered engineering associate (CPEngA). Otherwise, anyone can put up a shingle and say, 'I am an engineer,' other than in Queensland, as I have already mentioned to you.

CHAIR: How would a national registration for engineers operate in this country and how would it serve an improved defence procurement?

Dr Robinson: The way we foresee it at the moment, given that it has to go through COAG where a number of different jurisdictions have representation, the most likely outcome would be registration in each jurisdiction. So if you were registered in Queensland, that registration would be acknowledged in all other jurisdictions. If you were registered in the ACT, that would be recognised in all other jurisdictions. For instance, immediately after the Queensland floods, the Prime Minister offered a number of defence engineers to go and help in Queensland. Only two of them were registered. That offer could not be accepted because they were not registered to practice in

Queensland, whereas engineers from Australia were able to go quite easily to Christchurch and help there during the earthquake. So one of the things we are doing at the moment is looking at the economic implications. If you are a consulting engineer in New South Wales and wish to practice in the Northern Territory, a lot of time and money goes into becoming registered in the building area there. We would hope to see that, once registered, once seen to be competent and once agreeing to lifelong learning, that would be applied everywhere. That would be for the engineering profession as a whole.

How would this help Defence? When Defence recruit their engineers, they would know that this engineer is competent. HMAS *Westralia* is an example of where a person who was looking at the refitting of that ship looked at whether there could be a proper flexible diesel hose which was expensive or a cheaper hose which was not as expensive. They specified the cheaper hose because they were running on a budget. As we all know, that hose fractured and a number of ratings were killed as a consequence. That person was not competent to make the judgement as to whether a cheaper hose was appropriate or not. Going closer to home, you are probably all aware of when the Canberra hospital was imploded. What happened there was that the contractor did not realise the nature of the structure and called in a competent structural engineer who said: 'You've got a really difficult job here. You will need to do these things.' The contractor said, 'That is too expensive,' sacked that particular engineer and brought in another one who was not competent and who suggested a way of doing it which ended with a person being killed and a number of other people threatened. The coroner at the end of that said, 'This person should be struck off the register,' but we had to say to the coroner, 'There is no register to strike them off.' So the quick answer to your question is: if the person is registered, we know that person is current and competent and that will make sure that the engineers employed within the defence service or anywhere else in the economy are current and competent and can make better engineering decisions; hence, I think we will have better value for our engineering investments either in Defence or generally in the community.

CHAIR: Do Engineers Australia have a formal role in the defence procurement process? Is your organisation asked to give technical input or advice in relation to any capability development plans as a matter of course? Do they come to you to get your opinion?

Dr Robinson: Not as such.

CHAIR: Is it a standard, in effect?

Dr Robinson: Defence is one of the largest participants in our professional development program. We have some 6,000 engineers who have recently graduated, who are moving from being a graduate engineer into being a chartered engineer. Within that group, we have 1,500 people in Defence. So our role with Defence is to make sure that their engineers become chartered, which means that they come equivalent to being registered and have the competency to practice. We do have professional societies which we work with and which are associated with Defence, and they may well be involved in those things. But, as such, I am not aware of them coming to us for defence procurement, other than the general background information such as we have presented:

Mr Jackson: We do not ordinarily have a formal role. If I may also add just on your earlier question of essentially what defines engineer that we talk a lot in the organisation about the 'engineering team'. I will make a clarification as to what that means exactly. We essentially divide our engineering team into three separate classifications. We consider a 'professional engineer' as somebody with a four-year bachelor degree, an 'engineering technologist' is somebody who would typically have a three-year bachelor degree and an 'engineering associate' would have an associate degree, a diploma or an advanced diploma. That is what we are talking about when we raise those three terms. Dr Robinson can answer more questions on that, if need be. That is his area of expertise.

Dr Robinson: One other point of clarification is that we are a member of a number of international accords which relate to the professional engineer, the technologist and the associate, and we are regularly being audited. So the competencies to enter the profession and the competencies to become chartered are international best practice. In many ways, we have led the world in setting these competencies. We have recently revised our competencies for universities and we are in the process of revising our competencies for people who wish to become chartered.

Senator MARK BISHOP: Thank you gentlemen for your submission and your attendance this morning. When I look through the submission it speaks generally of engineering but it does not differentiate between the types of engineers, such as civil, mechanical, maintenance, marine diesel, weapons systems and communications—the sorts of things that are used across the board in the three services and the wider defence community. Does your organisation have a view on the specific challenges facing Defence in the wider engineering area?

Mr Jackson: We touch upon this broadly, as you say, 'generally' in our submission—

Senator MARK BISHOP: The reason I say it is that it has been a recurring theme in a range of inquiries and committee hearings over the last six, eight or 10 years that Defence faces specific challenges in recruiting and retaining a whole range of subcategories, for want of a better description, of people involved in the engineering field. Defence face a whole heap of challenges on the wages and conditions front, particularly in the resources states where they have large naval or army bases and the like. When they are questioned as to the chronic ongoing shortages, for instance, in submarine maintenance, design planning or construction work in the west or in parts of Queensland, they say, 'We just can't get the bodies to come and stay for three, five or nine years because as soon as we get a team together the resource company down the road puts double the pay on the table and people are motivated by money, of course, and leave.' So my question is in that context and the specific challenges of recruiting and retaining the quite technically dependent groups or subgroups of engineers that Defence face. Do you have any views on those challenges?

Mr Jackson: There are certainly going to be perennial problems with high-paying sectors of the economy drawing from specific areas that do not have that capability. There are, of course, a couple of issues specific to Defence. Where other companies, resource companies for example, can draw from migrant engineers quite freely, Defence is constrained somewhat by citizenship requirements and, of course, security clearances and such, which means that they largely have to rely on domestic growth to fuel their demand, which is of course a lot slower than just getting somebody in from overseas who is suitably qualified. That is something to be mindful of that is specific to Defence. Do you have any comments, Rupert?

Mr Grayston: This has been a longstanding problem of government employers and agencies across Australia over some years. This is a problem for many regional councils and utility organisations, particularly in Western Australia and Queensland, in that the resources sector, the oil and gas sector, do offer opportunities or salaries that cannot be matched. There is no simple answer to that that we are aware of and we do not have detailed data on specific technical areas, specialist areas, of practice. This is a problem that many sectors have observed but have not found a simple answer for.

Senator MARK BISHOP: We particularly hear of problems about a shortage of engineers in mechanical maintenance, marine diesel, aircraft, avionics, weapons systems and communications systems, not to mention the assessment skills and the planning skills that are required in capability, especially capability identification and capability design. Do you have any ongoing dialogue with Defence around solutions to that ongoing shortage problem in those defined technical areas?

Mr Jackson: Not in any formal sense, no.

Senator MARK BISHOP: Do your members raise it with you?

Dr Robinson: Yes, we do have members at various levels within the services who are on committees that we have and they certainly do raise these questions in the general context of a shortage of skilled engineers. Engineering has not been an attractive profession to go into for some time, which means generally we are producing just over half the engineers we need within Australia. The remainder are being imported from overseas from people wishing to come here. As Mr Jackson has mentioned, there are problems in terms of recruiting those into Defence because of citizenship issues. In going down to specialties like diesel maintenance, we are not involved in that level even though many of our members may be interested and we do have technical societies within our general umbrella, who may be addressing issues such as that, but we are not aware of their details.

Senator MARK BISHOP: Are you engaged with Defence and the wider university or tertiary sector to ensure that sufficient engineers are being trained in those areas of specialty required by Defence?

Dr Robinson: DMO has approached us recently. There are some 1,500 people who have come more through a trades background, and they want these people to become chartered. A number of them have certificates or charge certificates, depending on which service they are in, but they do not have anything perhaps above a level 5 or a level 6 in the Australian Qualifications Framework. We are entering into discussions with them as to how these people can be upskilled, we call it articulated, and to this extent we are talking with particularly dual-sector universities, for instance Swinburne and RMIT, where you have the opportunity.

A number of these people may also have a master's degree, particularly so in military science or things like that, and these people may have the ability to articulate to being an engineering technologists. In the general sense of training, DMO representing Defence have spoken to us and we are working closely with those people to provide a platform. When we go to the tertiary institutions they are very interested if we can arrange for something like several hundred people to come into a course. They are very interested in taking up that course and

providing the skills and things needed to do that. Sometimes they may have to take modules from overseas but that is quite easy to deliver.

Senator MARK BISHOP: In relation to those discussions with the DMO, are they embryonic or advanced?

Dr Robinson: Somewhere in between in the sense that we have been talking to them, in this particular case about the people who are from the trades background, for about six months. They sent us some examples of people, we looked at them and suggested the way to go. They are actively going out and we are talking to, as I have said, mainly dual-sector universities to try and progress this. It is in the planning stage. It is advancing but it has not got to the signing on the dotted line yet.

Senator MARK BISHOP: In that context of the discussions with DMO on an ongoing basis, are you also engaged with the three services in one or more of the particular states to address those ongoing shortage areas? Is DMO acting half and half of the three services?

Dr Robinson: We have a roundtable at least once a year with all the services and DMO are represented. We have people from Air Force, from Navy, from Army and from DMO. We are talking more about upskilling the general engineering workforce in the sense of going through our professional development program with them. As I said, we have some 1,500 people from the engineering team on that at the moment.

Senator MARK BISHOP: Is upskilling the general engineering workforce a different proposition to identifying shortfalls in the various specialist areas, which I referred to, that Navy and the like might require?

Dr Robinson: We have little power to change things.

Senator MARK BISHOP: No. Conceptually is it a different proposition?

Dr Robinson: That is really outside my area of expertise to be able to respond on that one. We could answer that more in detail at a later time if you wish.

Senator MARK BISHOP: I would be interested. It is one thing to raise the overall skill set of people who are engineers, broadly and generally, across the field. It is another thing to identify and train people in specific highly technical subsets that Navy or Defence contractors might require.

Dr Robinson: One point of clarification: we are not a training authority. We do not do training as such. We do assessment or accreditation of engineering courses and assessment of engineering capabilities of individuals, but as such we provide no training.

Senator MARK BISHOP: Okay, I have got that. In that case, then, with the limitation you have outlined, do you have any observations or comments on the recent reports by ANAO and Mr Rizzo into shortcomings in respect of naval maintenance, which are quite seriously critical of maintenance engineering failures in Navy?

Dr Robinson: I have no specific comments. I am not close enough, really, to have comments on the technical detail there other than to say that what I saw in that report is indicative of maintenance right across the infrastructure systems in Australia.

Senator MARK BISHOP: What—a shortage of skilled people?

Dr Robinson: Yes. I will give an example. I used to work for Sydney Water. At one stage, when it did a lot of day labour work, it had 18,000 people working for it. When I worked for it 15 years ago there were 7,000 people. With progressive outsourcing, there are some 3,000 people now. That is not enough people to run the Sydney water supply, sewerage and stormwater drainage system, so they are having to import a lot of consultants who will come and work on the job and have no knowledge of the system, so a lot of the understanding of that system has been lost. I think that is very similar to what has happened in defence. The people who understand the aircraft, ships, the tanks or whatever defence equipment there was are not there. They do not understand. People who come in and do a job having not been familiar with this before are a real problem.

Senator MARK BISHOP: Thank you, Dr Robinson. Thank you, gentlemen.

CHAIR: I welcome Senator Ludlam, who is on the phone from Perth. I will go to Senator Fawcett now, but I understand that you have some questions, Senator Ludlam, so we will come to you.

Senator FAWCETT: Just to go back to the question around registration, you were saying that it would benefit Defence. One of the things is that, certainly in the aerospace world at the moment, the Director-General of Technical Airworthiness in Defence has his own system of awarding authorities or recognising levels of competence in engineers. I am assuming that, for example, awarding someone a design authority would be similar to your chartered status. Are you familiar enough with that system to say that it is roughly comparable to four or five years of hands-on experience to have that competence?

Dr Robinson: I would say that those systems are very compatible. I know for instance that with the Navy charge systems we worked out a system whereby there was a rapid way of becoming chartered if you had certain qualifications from Navy, so there was a recognition. Also, in terms of rewriting our stage 2 or charter competencies, we will see that there are opportunities for employers to write in their own competencies, which is what you have just been talking about, and we would acknowledge that. So the competencies we are looking at now are much more strategic and also reflective, which will mean that your indicators of competence can well be demonstration of certificates from Defence.

Senator FAWCETT: In the Rizzo report, one of the comments he made was that the naval, if you like, regulatory structure around engineering had atrophied significantly compared to Air Force. Do you have a sense, as you have worked with all three services and DMO, about the differing standards of the regulatory structure across the whole defence organisation—whether the three services and DMO differ?

Mr Grayston: That has not been an area of inquiry for us, and it is probably not the end of the problem that we seek to address. Our focus in the skills shortage area more generally has been in attracting and retaining people to the profession rather than at the detailed end of individual needs or problems of specific employers or agencies.

Senator FAWCETT: I guess I am asking more about just philosophy, if you are talking with them, to the extent of comparing their systems—for example, the charge system within Navy. I am just wondering: do you get a sense through your interactions that, gosh, these guys are really on top of their game; those guys look pretty hollow? That is essentially what I am asking, not whether you have done a formal inquiry. Do you have a sense from your interaction of whether there is a difference across the services?

Mr Grayston: I do not believe we are able to comment on that.

Senator FAWCETT: In section 2, under the heading 'Government as an informed buyer', you talk about a number of risks. You talk about the 'inability to manage engineering contracts because contracting staff lacked the necessary technical expertise' and the inability of staff to 'adequately assess the engineering competencies of contractors and subcontractors'. Would you like to expand a bit more on that?

Dr Robinson: Again, our concern is that, particularly with Defence, the edge that Australia has is a technical edge, and unless we understand the technologies involved we do not make good, reasonable decisions. For instance, the Seasprite helicopter, as I understand, was something that sounded like a good idea, but there was a problem in managing an analog and a digital system, so in the end they did not marry properly. Had there been a greater level of technical surveillance and questioning at the beginning, that particular issue may well have been identified sooner, and a experienced person may well have said, 'That's not possible.'

I remember that, when I was a very young engineer in Public Works in New South Wales, one of my colleagues went to the chief design engineer of Public Works with a design and said, 'It's here,' and the comment came back from the chief design engineer: 'In my water I know this is wrong.' That person then went back and checked all their calculations and they found a flaw in their calculations. So what I am saying is: if there are experienced technical people there—engineers, scientists and various other technical people that you need in Defence—they can have a look at some of the proposals which might sound very good but from a technical point are very hard to deliver or where the risk in delivering them is very large. It is very difficult to go beyond that at this stage.

Senator FAWCETT: With DMO investing a lot of money in upskilling people's project management capabilities and contract management capabilities, your comment later in that paragraph basically says that that is not going to be sufficient to avoid technical failure in the project. Is that common across other areas?

Dr Robinson: I think that we have to look from the beginning to the end, at the whole of the life cycle, in terms of defining (1) exactly what we want and (2) what we can deliver. Once we have got that specification well written, we can then go ahead and manage the procurement of it, and then we have to look for what happens at the end. It is very important for all technical things to have a whole-of-life cycle approach to looking at them. If we have wrong decisions made at the beginning, inappropriate technical decisions, the best management may well deliver a lemon, but that is not what you want.

Senator FAWCETT: You have talked about experience in the engineering workforce and you have talked about your own background and that senior engineer who kind of smelt that something was not quite right. Can that kind of ability to quickly discern whether something appears or feels right or not come from training alone, through universities, or does that need time in the workplace actually applying those engineering skills through a system essentially of mentoring, training and experience, as well as qualification?

Dr Robinson: Both are needed. You need to have an understanding of the underlying physics, mathematics and engineering sciences, but only through experience will you know whether those things mesh together. In our sense, a chartered engineer is a person who has both experience and the appropriate level of learning, but we are talking about someone in their 20s. We want them to keep growing so that, as they go through their career, they become more and more competent and more and more appropriate to the jobs that they are doing, so experience and learning are both needed. Again, things are changing so rapidly at the moment. When I did my engineering, I spent four hours looking at computing, and that was punching cards. If you look at the role of computers now, even in your mobile phone there is probably more computing than there was in the university when I was there. So you cannot just have training 30 years ago which has to be suitable for the rest of your career. That is a launch for your career, but you need to keep topping it up as you go through your career.

Senator FAWCETT: More critically, at the moment, say we get a young graduate who comes out of university as an engineer and then goes into Defence, where much of the desk-level engineering work has been outsourced to contractors, and he goes into, for example, DMO, where a lot of it is contract management or project management work, or he goes into a workshop, which is a lot of personnel management, but does not actually get to do his core engineering roles to develop that experience. In your mind, is he on a growth path to become equivalent to what you would call a chartered engineer, or are we seriously disadvantaging him and the defence organisation by not having that environment where engineers can actually apply in practice their skills?

Dr Robinson: I would not see a productive, rewarding career path in the picture that you have put to me there; therefore it is going to be difficult to attract people. We were at a meeting with the chief of DMO a month ago when we were discussing this very issue. He had a number of engineering vacancies at that time. How could he attract people to them? Any press that came out about what they were doing was not good press.

Particularly at the moment, a young engineer is not interviewed by the employer; the young engineer interviews the employer and works out which one they are going to go to. You are in a marketplace and you attract people via the marketplace. The reputation there at the moment and the opportunities in Defence and a lot of government departments where a lot of the engineering has been outsourced are not there. They would tend to go to the big engineering houses—the GHDs, the Sinclair Knights, Thales or people like that—where they can get real engineering, but to have them actually in defence it is going to be very difficult to attract them with limited career opportunities.

Senator FAWCETT: You have addressed my question from the point of view of the individual. From the point of view of the organisation, are we going to have the competence within our procurement and sustainment organisation to manage the contracts that we do have or to make appropriate decisions either in the capability development—and you mentioned the Seasprite case—or in through-life support if we do not have people who have had that growing ground of experience as well as a qualification?

Dr Robinson: I would say it just proves your very point, in the sense that there is not the capability there. We are not growing it within Defence. We are not attracting and keeping the people that we need. The problems we have now will continue to occur.

Senator FAWCETT: Thank you.

Senator LUDLAM: A lot of the things I wanted to ask have been addressed already.

CHAIR: Could you just speak up a little louder, please, Senator?

Senator LUDLAM: Sure. I would like to pursue some of the questions that Senator Bishop was asking around the wage differentials and so on. As a senator for WA, I am thinking particularly of the Western Australian context. Have you done any work looking at the differentials in wages between engineering salaries in the services compared to the resources industry, and how much is the shortfall?

Mr Jackson: We and a subsidiary company, Engineers Media, do a yearly salary survey that covers this, and I am aware that our colleague organisation APESMA also does a similar survey. We do not have that information to hand, but we can provide it to you on notice if you wish.

Senator LUDLAM: Yes, that would be helpful. I am just wondering, because we have addressed a lot of problems but it is difficult to see what the solutions are: should the government be offering people more incentives? Is it just a case of proposing to pay people more, or how do you think we get out of this bind?

Mr Jackson: There are also a couple of issues, of course, in that not everybody who identifies as an engineer is necessarily employed to do engineering work per se. I raise the example of Defence, where I think there are approximately 7,100 people who identify as engineers, and there are some 2½ thousand of them who are employed doing things that are completely unrelated to their engineering qualifications, so we need to be mindful of that. Of course, engineering companies are not necessarily competing with each other. They are also competing

with the broader industry, and mining is the case in point. But engineers do have a skill set which is highly valued by a number of places. We are not necessarily competing amongst ourselves, and I think you need to be mindful of that. Defence needs to be mindful of that, most certainly.

Mr Grayston: If I might comment on the Western Australian context: the roads authority and the Water Corporation in Western Australia have expressed particular problems in competing with resource sector salaries for engineers. They are not able to fund competitive salaries in that sense, so they take a view of competing in terms of lifestyle and career development of their engineers, and perhaps that has made them smarter in that respect. Not all resource sector jobs offer strong career structure and development and certainly not lifestyle.

The other thing that I think is worth noting is that of corporate culture and the culture of engineering technical versus project management or management. It is a problem for procurement organisations to retain a technical capability and culture. By comparison, the big engineering consulting firms, which in recent decades have grown from local to global organisations, have not only regional line management structures but also parallel structures of technical. So there are global technical leads in the various technical areas that a big engineering firm might deal in and a structure beneath those. In other words, they have learned to reward and recognise and have an equal status to technical experts within their ranks as well as the managerial seniority. Woodside is an interesting case in point of being a procurement organisation in Western Australia that has recognised this. Woodside over the last 10 or so years I understand has developed a parallel technical and management stream for engineers to see that it retains engineering expertise, rewards those careers and encourages capable people to pursue technical careers as an alternative to management careers. In that way they have sought to retain expertise as a procurement organisation with a technical strength and a culture of technical decision-making in parallel with project management decision making.

Senator LUDLAM: Are there particular disciplines or subdisciplines within Defence where this is most acute, where the shortfall or the difficulty in retaining people is the most extreme?

Dr Robinson: We do not have granulation of information to be really able to comment on that. In many ways it is the managers within Defence who will know the most difficult areas to recruit and maintain versus areas that are not. Going back to your previous question, salary alone is not the determinant as to whether you will attract engineers. You have got some of the most exciting projects that an engineer could want to become involved in. So in many ways if you were reduced just to being a procurement organisation as opposed to a development, manufacturing and maintenance organisation, the question may well be to a young engineer, do I go and work for Thales, which is doing a whole lot of interesting things, or do I work for DMO, where I would tend to be more of a bureaucrat? I think these are some of the issues you need to address. In the old days when there was much more engineering within these there was much more opportunity for career progression for the engineer and also there was much more engineering knowledge within the organisation and I think better decisions were being made.

CHAIR: I think we might have to leave it there, Senator Ludlam, because we are running out of time. A quick dash to Senator Humphries and then to Senator Xenophon.

Senator HUMPHRIES: I am not sure if you feel you have answered this question already but in the roundtables that you refer to, Dr Robinson, with Defence annually do you have any impression about which particular areas of Defence are most critically short of the kind of engineering skills that you identify are needed? I assume, for example, an area like Navy would have a greater demand for engineers with their major shipbuilding exercises. Do you have a sense that there is any particular area of Defence that has a more critical need for these sorts of skills to be uplifted than any other?

Dr Robinson: Again, we have problems with the granularity of data, but our feeling is that all areas of defence have critical shortages of technical support—engineering in particular, but there are a lot of other things, like physics and computing and things like that which are allied to engineering, which are needed, but I could not say one more than the other.

Senator HUMPHRIES: And you couldn't comment on whether the needs or the gaps lie principally in areas like capability development or acquisition or sustainment?

Dr Robinson: No, I am not in a position to comment on that.

Senator HUMPHRIES: Thank you.

Senator XENOPHON: Dr Robinson, you may want to answer some of my questions on notice—or expand on them on notice—because time is limited. You talked about a national registration system; could you see a hybrid system in place whereby there would be a national system of accreditation, of being chartered, so that, if someone is a chartered engineer or has that level of qualification, that gives them an advantage in terms of any procurement or contracting issues?

Dr Robinson: Again, there is quite a strong culture within defence, particularly DMO, that people become chartered. If you are recognised in one area, you would be recognised in others. The oil and gas industries have had problems in terms of the North West Shelf and also in the Gulf of Mexico. So, for insurance reasons, they are now requiring their engineers to be chartered, so they can demonstrate to their insurance companies that they have engineers who are competent and have been externally assessed. So the same things would apply here with registration within defence.

Senator XENOPHON: Can I just go to the other issue, and you may want to take this on notice. Nearly 10 years ago you drew attention to a number of risks with inadequate assessments of engineering—technical aspects of defence procurements—to what extent are those issues still outstanding; where are the most glaring examples of matters not being resolved, from your point of view; and how do you think it ought to be fixed in the short to medium term?

Dr Robinson: As Brent Jackson mentioned earlier today, we are in the process of rewriting that. We have let a contract for a person to come back and do it, and that will be available early next year. We can give you some response in terms of a question on notice.

Senator XENOPHON: If you could, that would be quite valuable. The final issue is the fact that there has been a shrinkage—you mentioned your time with Sydney Water—of that internal technical expertise in government. To what extent do you see that as a risk in issues of procurement? How do you remedy that lack of internal expertise in the context of procurement?

Dr Robinson: You have to try and redress the balance. If I can go back to the example of Sydney Water: in the 1930s there was a major failure of the pressure tunnel. This was bringing water from outside Sydney into Sydney; it was more administered than engineered and as a result of that there was quite a strong engineering culture in the Water Board until about 20 years ago. Often engineering advances only come through a failure. I do not wish that, but they may well be one of the ways of bringing attention to it. For example, the failure of the bridge over the Barton Highway in Canberra has drawn attention to problems there; the ACT government is realising there are a lot of problems with construction, particularly in medium density here. As a result, they are looking at these issues. One engineering problem is that we are doing it so well, there are not many failures; therefore, people say, 'Why do it?'

Senator XENOPHON: You only need one catastrophic failure and—

Dr Robinson: Yes.

CHAIR: That concludes this section. I thank the witnesses for appearing.

BINSKIN, Air Marshal Mark Donald, Vice Chief of the Defence Force, Department of Defence

HARVEY, Air Marshal John, Chief, Capability Development Group, Department of Defence

ORME, Mr Neil, Acting Deputy Secretary, Strategy, Department of Defence

[09:24]

CHAIR: Gentlemen, I welcome you to this inquiry. Would you like to make an opening statement?

Air Marshal Binskin: Yes. On behalf of CDF and the Secretary, defence welcomes the opportunity to participate in this inquiry and looks forward to enhancing your collective understanding of procurement procedures and processes for defence capital projects throughout the capability life cycle. Over the course of the two days of the hearing, senior defence and DMO representatives will be available to address the broad range of issues and concerns raised by the community, through public submissions and the witnesses who have already appeared before you. Air Marshal John Harvey, Chief of Capability Development Group, Department of Defence on my right; Mr Warren King, Acting CEO, Defence Materiel Organisation; and Mr Harry Dunstall, Deputy Chief Executive Officer, Defence Materiel Organisation will be the principal departmental representatives throughout the hearing.

I would like to upfront apologise on behalf of the Chief of Navy and Chief of Army who are unable to attend either today or Friday due to international commitments. They will be represented by Deputy Chief of Navy and Head of Modernisation and Strategic Planning respectively.

To help set the scene, it is appropriate that we start with the role of defence's strategy executive in the capability development cycle, the foundation of defence future capability requirements. In this regard, I would now like to invite Mr Neil Orme, Acting Deputy Secretary, Strategy, to address the committee with an overview of the Strategy role, which should provide an excellent context for the two days of this hearing.

Mr Orme: This morning I would like to provide some context, give you a brief outline of the role of the Strategy Executive in defence's procurement process. In essence, we sit at the front end of the capability development and procurement process, so we are here to guide and shape. By way of background, the 2009 defence white paper stressed the need for defence planning to be done in a whole-of-enterprise way, with clear links between strategy, priorities and resources. The Strategy Executive, which is where I come from, is part of the Office of the Secretary of the Defence Force and the Chief of the Defence Force, and we play an important role in providing strategic guidance to inform defence planning, in particular in the areas of capability development, which is germane to the proceedings here today, operations, international engagement, preparedness and budgeting.

Strategic planning in defence involves analysing trends and developments in Australia's strategic environment. Intelligence assessments undertaken by agencies such as the Office of National Assessments, which sits in the PM&C space, and the Defence Intelligence Organisation are integral to this process of analysis and environmental scanning. Intelligence assessments inform the development of policy guidance, including broad courses of action designed to deal with both threats and opportunities. Policy guidance, in turn, helps to shape more detailed plans to meet the government's current and future national security objectives.

In defence, strategic guidance is promulgated through a number of key documents that provide the lead for periodic updates of subordinate defence planning documents. These key documents include both cyclic and what we call 'needs based' assessments. The former, the cyclic, include the key document for us, the five-yearly defence white paper. That in turn is supported by the subordinate annual defence planning guidance, and in turn the three-monthly quarterly strategic review. So it is a cascading effect, if you like. Key needs based documents in our system include Chief of the Defence Force's planning directives, the Australian capability context scenarios, ad hoc strategic papers and the future joint operating concept.

In the capability space, the Strategy Executive is responsible for managing the identification of capability needs at the front end of the process. This is achieved, as I said earlier, by providing what we call policy guidance, strategic guidance. A five-yearly force structure review which is conducted in conjunction with the development of the five-yearly defence white paper is a key element of this process. The next force structure review is in its very early stages and is due to report to government in 2013. This force structure review in turn will inform the development of the next defence white paper that is due in 2014.

The key role of the strategy executive in the early stages of this process is to ensure that the development, acquisition and evaluation of capabilities align with defence's strategic priorities as written in these various guidance documents. Once capability needs are identified, the Capability Development Group that is headed by Air Marshal Harvey leads the development of the Defence Capability Plan, which outlines a 10-year program of

new, major capital equipment investment. A revised Defence Capability Plan completes the five-yearly force structure review and white paper package. The development of the Defence Capability Plan is a whole of defence activity, led by Capability Development Group, with input across the portfolio from all interested parties to ensure again that we have alignment between strategy, priorities and resources.

In turn, capability managers are responsible for developing the requirements for the capabilities to be acquired under the Defence Capability Plan, with the Vice Chief of the Defence Force coordinating joint capability aspects. Once capabilities requirements have been approved, the Defence Materiel Organisation in turn is responsible for the acquisition of new capability and for sustaining it through its in service life.

That is a very brief synopsis. These processes are laid out in more detail in the *Strategic Framework 2010* document. We have a number of copies that I will table today for your interest and edification.

CHAIR: Thank you very much.

Senator JOHNSTON: Thank you, gentlemen, for coming along today. When looking at the white paper the thing that commands attention is: where do some of these things come from? Firstly, let us start with the offshore combatant vessel which combines offshore resource protection, border security, hydrographic, oceanographic, environmental assessments and mine clearance. Is there any such vessel in existence anywhere in the world that does all of these miraculous things in our vast maritime environment?

Mr Orme: I will start with the first part of your question, which was: where do these things come from?

Senator JOHNSTON: I did not know how else to put that, if you will forgive me.

Mr Orme: Perhaps it would be useful if we looked at the process that led to the development of the 2009 white paper and the Force 2030 package that hangs off that. In the context of preparations for that white paper, there was a fairly detailed classified force structure review process that was undertaken in 2008. That looked across the broad sweep of defence capabilities. There were some particular niche elements of that process—for example, there was a fairly detailed look at submarine capability. In that context of that broader force structure review, questions about the nature of the maritime service combatant force would have been in the mix.

I guess looking at the procurement solution to that set of requirements that you laid out in the second part of your question is a little further down the track. In terms of actually articulating the need to address those capability requirements is very much part of the force structure review process, which, as I said in my opening remarks, will in turn feed into development of capability options in the Defence Capability Plan. But, in terms of looking for a solution to identify that particular set of needs, that is a fair way down the procurement path.

Senator JOHNSTON: Are we talking 2025?

Mr Orme: I am not sure what the—

Senator JOHNSTON: I do not think that particular vessel is even in the DCP, is it?

Air Marshal Harvey: In terms of your first question—whether such a vessel exists—nothing to do exactly what we want exists as yet. We do believe it is possible to develop such a vessel though. The key requirement with our relatively small fleet size is commonality where we can, so the benefits are based on that. You asked a fair point in terms of whether such a thing was possible. The expectation for the future, particularly in the mine-hunting and mine-clearance role, is the use of uninhabited vehicles so the vessel itself does not have to go into harm's way in the future. The prominence of technology allows the common-use vessel to do a number of tasks.

Senator JOHNSTON: So you will retain a ferrous vessel and then deploy unmanned vessels that are non-ferrous to do the clearance?

Air Marshal Harvey: It would not necessarily be ferrous; it could be aluminium, for example. We do not necessarily need the very specialised developed fibreglass vessels we have used in the past. Technology allows us to do that with a common vessel type.

Senator JOHNSTON: Does this have a DCP number?

Air Marshal Harvey: Yes it does, I believe. SEA 1180 is the project.

Senator JOHNSTON: Where are we at with SEA 1180, for instance?

Air Marshal Harvey: I believe that user requirements have just been developed to go out to the market to get ideas of how it is to be done, so it is still fairly early in the process. It provides the prospect of commonality for the future and we are in the early phases of engaging industry on that.

Senator JOHNSTON: In here there is mention in passing of the SM-6 extended range antiaircraft missile. It sounds like we are going to have them on board tomorrow, but the SM-6 is a long way off, isn't it?

Air Marshal Harvey: The delivery time is post-2020. It takes quite a long time to get those things into service. We identify the need in the long term so that you can plan for those capabilities.

Senator JOHNSTON: I have another question about the SM-6, but I cannot for the moment find the reference to it I was reading, so we will have to come back to it. It was to do with air warfare destroyers.

Let's go the amphibious capability. Is HMAS *Choules* the vessel depicted in paragraph 9.24?

Air Marshal Harvey: Which document are you referring to?

Senator JOHNSTON: This is the white paper.

Air Marshal Harvey: HMAS *Choules* would have not have been at the time.

Senator JOHNSTON: Let me read it to you:

The Government has decided to enhance this amphibious capability by acquiring a large strategic sealift ship to move stores, equipment and personnel. Based on a proven design, the new ship will have a displacement of 10,000 - 15,000 tonnes, with landing spots for a number of helicopters …

Et cetera.

Air Marshal Harvey: HMAS *Choules* is one of the Bay-class ships. I believe the Bay-class is used as an exemplar. When you put things in the capability plan you need to base it on some realistic assessment of cost and availability—

Senator JOHNSTON: So, can we tick clause 9.24 as having been achieved? That is a 16,000-tonne vessel, isn't it?

Air Marshal Harvey: It was bought as an interim measure in the short term. The long-term disposition of the ship will be assessed as we move forward. As new opportunities become available and as the requirements change the government will determine in the future how long the vessel is retained to satisfy the long-term requirement.

Senator JOHNSTON: Going back to either one of these, how big is the team or committee, or whatever you call it, working on this offshore combatant vessel?

Air Marshal Harvey: The specific team at this stage is underneath the director-general of maritime development. I can get the exact numbers, but I imagine it is a relatively small team at this stage, because they are working on what we define as the user requirements—ready to go out to industry to get information on what the art of the possible is as we go forward. Even if it is not a formal integrated project team with people dedicated from all the resources at one time, it is always a combination of the capability development group, maritime development people, Navy, DMO and DSTO. I know that DSTO already are doing a fair bit of work looking at the possibilities.

Senator JOHNSTON: And your team, the compatibility development group's team?

Air Marshal Harvey: My team would be leading it through maritime development branch.

Senator JOHNSTON: You have just received some changes in the way the structure of your development group puts ideas forward. You now have to go through an associate secretary, and the DMO has been moved to one side, before you can go up beyond that. Is that correct?

Air Marshal Harvey: I have a few points. As a result of the response of the Black review a few things have changed. As you know, an associate secretary capability has come in. Capability development group will report to the associate secretary. It is not a matter of capability development group putting forward ideas. Our job, based on strategic guidance and what is in the white paper, is to convert what we call the 'needs phase' into the 'requirements phase' to convert those high-level needs into specific requirements so that we can go out to industry to get proposals.

Senator JOHNSTON: So you are following the white paper's discipline and direction?

Air Marshal Harvey: The white paper leads to the Defence Capability Plan. Our job is to deliver what we call 'decision-quality advice' to government in delivering what was in the Defence Capability Plan. We do not come up with ideas of new capabilities. We convert the high-level strategic needs identified into capabilities that can be delivered by industry.

Senator JOHNSTON: Okay, let us go back a step. Where do the precise strategic ideas in the white paper have their genesis? Is there somebody?

Air Marshal Harvey: As Mr Orme would have said, from the strategy group.

Mr Orme: Yes. As I said earlier, the strategy executive is at the front end of the process.

Senator JOHNSTON: And who is in the strategy group?

Mr Orme: The strategy executive includes the strategic policy division, which —

Senator JOHNSTON: Of how many people?

Mr Orme: That is a division of about 80 people. In that division probably a couple of dozen or so would be involved in the strategic planning business. For example, inside the strategic policy division sits a small cell called the force structure development cell. That was an initiative that was—

Senator JOHNSTON: Of how many?

Mr Orme: That is a small handful of less than half a dozen people.

Senator JOHNSTON: And what qualification and rank?

Mr Orme: I believe the head of that section is at the O6 level, so it is a colonel equivalent, an experienced ADF officer, with civilians. It is a mixed workforce. So as for the strategy executive, as I said in my opening remarks, our role is to take the assessment of the environment threats and opportunities that come through the intelligence base and translate those threats and opportunities, if you like, into an assessment of our strategic circumstances going forward and translate that into guidance documents that can be used in turn to inform the capability development process. Now the key—the top-level guidance document for government—is the white paper. From the white paper we in turn translate the broad guidance in this document into more detailed guidance in the form of what we call defence planning guidance.

Senator JOHNSTON: Who determines that the initial guidance document is feasible?

Mr Orme: This is a document that reflects, as I said earlier, work that is undertaken inside the defence department, so we commission inside the organisation environmental scans—so it is intelligence led—and in turn we will develop strategic guidance that will go forward to government for consideration. That in turn manifests itself in formal government guidance, generally in the form of a white paper.

Air Marshal Binskin: Senator, there is also, in parallel with the white paper, the force structure review. The force structure review was led by two star and had a one star and a small team that worked across Defence to bring together the force options that were tested and costed and then rolled into the white paper.

Senator JOHNSTON: I know we all have a huge dedication to structural graphs inside Defence. Where do I find the step-by-step graph of how all of these divisions, cells and committees put forward their ideas and work up their responses to the intelligence that you talked about to be the embryonic commencement of a capability development? Where do I find all of this laid out? Is there such a document?

Mr Orme: I would commend the Strategic Framework 2010 document which I referred to in my opening remarks. We have provided copies of this document. This is a very good description of the process that takes you through what we call the key steps of the capability development process, all the way from top-level government direction through to capabilities being brought into service.

Senator JOHNSTON: When you say 'top-level government direction', what are you talking about? Are you talking about politicians or are you talking about CDF or are you talking about—

Mr Orme: The white paper. The white paper is the capstone guidance paper for the organisation.

Senator JOHNSTON: But the 2009 white paper talks in very technically specific terms far and away beyond the expertise of anybody here—and I mean the parliament. Now you are saying you are taking your direction from the white paper. The white paper takes its direction from somewhere. Where?

Mr Orme: Let us look at the construct. We have at the top of the tree the national security statement, which is the broad statement of the government's security intent. In the defence space that broad national security guidance is translated into usable guidance for our organisation through the defence white paper. As I said earlier, it is then if you then flow through the process to support the five-stage aspect. We talk about a five-stage capability life cycle. Let us turn to page 37 of this document. Chapter 7 of this document is essentially about how we translate capability outcomes from strategic guidance. If you look at that blue horizontal flow chart on page 37 at a very high level it describes the key stages in the process of taking concepts from strategy all that way through to disposal.

Senator JOHNSTON: Forgive me, but I am getting a cart-before-the-horse type scenario here, because the white paper is very technical. It talks of capability down to, for instance, real-time communications. Not many people around here would understand what that actually entails in terms of management, capacity and energy. What you are saying is that strategy is set by government, and I think you are saying, 'As set out in the white paper.' I am saying that the white paper does a lot more than talk about strategy; it talks about the things we need—the nuts and bolts—and the capability down to a degree. Is that specified capability coming from your group?

Mr Orme: The strategy group provides the strategic guidance part of that continuum, which in turn informs the development of force structure options, which are then fed into the development of a defence capability plan, which articulates projects that give effect to delivering those capability outcomes. If you look at the diagram on page 37, where the strategy executive and the CDG focus a lot of effort upfront is in what we have described there as the needs phase and the requirements phase. Strategy group is very much involved in that upfront needs phase: articulating strategic guidance and informing judgments about broad capability needs, which are then translated in successive levels of detail ultimately into particular capability outcomes or projects.

Senator JOHNSTON: Let me just come back to this SM6 issue. Now let me just take you to paragraph 9-11 of the white paper on page 71:

The Government will proceed with the acquisition of three Air Warfare Destroyers (AWD)—

—and we are hoping to have them in the water and up and running by 2016.

In order to enhance the air defence capabilities of the AWDs, the Government will equip them with the Standard Missile 6 (SM-6) long-range anti-aircraft missile.

Is that a true statement? Ultimately, we might equip them with it, but when they come out of being manufactured and their test and evaluation phase, there will be no SM6 on board, will there?

Air Marshal Harvey: That is correct. They will have SM2 missiles which are transferred from existing stocks of missiles and progressively in the future they will replace those with SM6.

Senator JOHNSTON: Yes, but that is well into the 2020s.

Air Marshal Binskin: Correct. That is why it is Force 2030. It talks about what is envisaged for the force development of that capability throughout that period.

Senator JOHNSTON: Well, we have specified the SM6. There may in fact be something much better on the market and more effective and cheaper by 2025, in any event. Why have we gone to the trouble of actually nominating a particular brand of capability?

Air Marshal Harvey: We do for a number of reasons. We plan to stay common with the US. It is a fundamental part of the Aegis weapon system as well. The expectation is that we will go that way to stay common with our allies. We still have to go to government and justify every purchase. Just because something is in the DCP it does not mean that is a done deal and you are going out to buy it. We have to go through the analysis phase.

Senator JOHNSTON: I accept that. Do we say that anywhere in the white paper?

Air Marshal Harvey: I do not know if the specific words or expectation are in there, but the expectation is that this is a plan that will be refined over time.

Senator STEPHENS: I was just listening to that conversation with Senator Johnston about the white paper. We are aware that sometimes there are major defence assets that are not contemplated in the white paper, but are procured—I am thinking of the *Largs Bay* purchase. What is your role in a decision to purchase those kind of assets that are outside of the white paper?

Mr Orme: In the current capability development process, every significant new project that comes through the defence committee system for review has a strategic guidance component. When we look at projects coming forward for consideration for approval by government, we see that now an integral part of that process is a treatment of how that capability stands in terms of strategic guidance.

Air Marshal Harvey: The strategy group is also represented on the key capability committees. At the top level we have their guidance informing the white paper, which informs the defence capability plan. We have specific guidance on individual projects. They are also represented as we then go through the committee process. If we need additional guidance in terms of basis of provisioning—that is, numbers or the threat level we might need to face—we will ask for amplification. The strategy group is involved all the way through the process.

Mr Orme: As I said in my opening remarks, the current construct is five-yearly defence white papers. That decision was made in the context of the 2009 white paper. To support that process, there is an annual process of developing a defence planning guidance. This is a more refined, if you like, assessment of needs. That annual cycle provides government with the opportunity to respond to new threats and new opportunities. Across a five-yearly cycle, there will on occasion be a need for government to contemplate requirements that might not necessarily have been set out specifically in the white paper. That is often in response to operational imperatives.

One of the most significant threats we deal with in the conduct of operations in Afghanistan is the threat from improvised explosive devices. While relatively simple, this technology evolves quickly. Within that five-year development cycle, there is often a need to develop responses to emerging threats. We have mechanisms inside

the defence process that allow for the contemplation of capabilities that might not necessarily have been included in the white paper but are subject to the disciplined analysis we would apply to major capabilities as set out in the white paper.

Senator MARK BISHOP: Senator Johnson raised a point in the context of early engagement with industry. Mr Thomson, who gave evidence last time, cited the inclusion in the white paper of the multi-role boat. That is what Senator Johnston opened up on. He then asked: 'Is it going to be a mine hunter and is it going to be a patrol boat? Is it going to be all things to all people?' That is the suggestion: we will use it in the midland rivers, we will do mapping, we will send it out to the middle of the ocean, it will plant mines, it will clear mines—it is a wonderful thing. We all know that the Norwegian government did it for 10 years and finally decided that it could not do it. It is interesting that we are going down that path. In that context—having cited the development of this multi-role patrol boat, the timelines you have analyse and you have now outlined that you will send it out for tender specs—when was industry first engaged at this early stage of capability development?

Air Marshal Harvey: We engage industry through a number of means. One is that we have one-to-one meetings with industry. Our maritime development group talk with industry. We recently reinvigorated the environmental working groups including the maritime working group. We stepped through the whole content of the defence capability plan there. We identified individual projects. We have specific workshops associated with projects. As part of that, we have one-on-one meetings with industry. The capability development group looks at the market to see what is out there. For example, this project is looking at what is happening in the US on the littoral combat ship. They have replaceable modules in the ship to do different roles. This is part of the role for us.

DSTO have been involved as well. They have looked at what can be done with a single type of vessel for the multi-role—what type of vessel that should be, what can be done with different modules for that task, and what is the role of the uninhabited vehicles which may be a key player in terms of a mine-hunting/mine-clearance role. There is quite extensive engagement. I am not sure whether it has been publicly released yet but I will check, but there is the basic user requirement for the vessel. We are seeking to get industry feedback that way as well.

Senator MARK BISHOP: The reason I is ask is the comments that are on the public record, and what you have just outlined, strike me, on a scale of 1 to 10 in terms of off-the-shelf to extreme highly developmental, that the appropriate number for this craft is No. 11, because it is so highly developmental. When I have discussed this with all the industry players in this sector, they roll their eyes and laugh at the likely possibility inside the next decade of developing this craft. My question is this: in the context of the white paper specifically identifying the multi-role patrol boat doing all these intensely defined tasks, when did the authors of the relevant paragraphs go out and consult with industry and see whether good information upfront might have tempered the prescriptive paragraphs in the white paper? Or have we not even done that as yet?

Air Marshal Harvey: If I can make the general comment, Senator. At the start as I said, the white paper is a very high level description of the plan for the future. Every individual items within the capability plan is subject to a very detailed analysis. We talked about the needs phase with strategy leads. I lead the requirements phase. We go through and do a very detailed analysis, and government wants not only one solution but options to progress this as well. We are heavily engagement with DSTO to look at the feasibility. There is a balance here between the desire for the common vessel type versus the challenge of having the specialist roles mixed in with that special type. We do detailed analysis with DSTO and we engage with industry.

Senator MARK BISHOP: I understand all of the work done by the CDG, with DSTO, with the experts in DMO and with the experts in Navy. I have that picture that there is wide, ongoing and extensive consultation across the arms of the Defence family of government; I have that. I want to know when the thought bubble—I do not mean that disparagingly, I mean the idea of the offshore combatant vessel—is first put to the players in industry and they say that you are living in fairyland, or that it is possible or that it is going to take 10 years, when is that discussion held and when has it been held?

Air Marshal Harvey: That would be held progressively. As I said, I understand the user requirement has been released to industry. The capability maritime development team is working on the project proposal. Certainly feedback I have had is that it is possible; it is challenging, certainly, but the potential developments going to the common vessel type do make it worthwhile pursuing that. In parallel DSTO are doing their studies, we increasingly engage with industry as we go through and, if it turned out not to be feasible, we would include that in advice to government. The advice we have so far is that we believe it is feasible and it is worth pursuing.

Senator MARK BISHOP: That is not the advice I have, but in due course that will come out in the inquiry. If you are asking people to comply with user or tender requirements, the natural inclination of those industry players is to get the work, to say it can be can be done, and to get funding from government for X number of years. I am asking, really: why are they not asked at a very, very early stage, a much earlier stage when you are consulting

DSTO, DMO, Navy and CDG. Why are they not then consulted at that stage as to whether it is possible and feasible?

Air Marshal Harvey: Senator, on the advice we have today is that it is possible and feasible.

Senator MARK BISHOP: No, why were they not consulted then?

Air Marshal Harvey: I would have to check back on the white paper if there was consultation.

Senator MARK BISHOP: They say there was not. This is the question I am asking: the industry people are going to have to develop the craft in due course, once the specs are firmed up and identified. Why are they so late in the process of consultation?

Air Marshal Harvey: As a matter of ongoing refinement, Senator, you go through with the concept of the first stage. Advice we have is that technologically it is feasible, whether it is economical or can be done in the time frame, which is when we go through the next phase of it. It is not possible to engage every part of industry on every possible proposal at the time.

Senator MARK BISHOP: I do not think I share that assertion, Air Marshal, with respect. The experience I have had over 10 years on this committee suggest that it might be time to change. I have the point you made, so I can come back to it in due course. Can I move now to developing shared understanding of risks. In its audit acceptance in Navy, the ANAO found significant issues, including the Navy, CDG and DMO not having a shared understanding of the risks and not taking a shared responsibility for mitigating those risks. Understanding that such bodies will be critical at later stages in the capability development cycle, to what extent are they engaged at this very early stage of identifying capability gaps and determining capability priorities?

Air Marshal Harvey: Can you clarify when you said to what extent 'are they engaged', which 'they' do you mean in that case?

Senator MARK BISHOP: The Navy, the CDG and the DMO.

Mr Orme: All those parties are involved in the capability development process from inception.

Senator MARK BISHOP: When is inception?

Mr Orme: The very earliest stages leading to the development of five-yearly white papers, force structure reviews. The Defence Capability Investment Committee which is the peak internal body for developing and reviewing capability, that has representation from all of those relevant players.

Senator MARK BISHOP: Yes, but listen: the ANAO found that the Chief of Navy, the capability planner, the CDG and the DMO—the three primary bodies in terms of vessel capability acquisition—did not have a shared understanding of the risks and did not take a shared responsibility for mitigating those risks; that is, they had a different understanding. Unless the ANAO is wrong in its findings, how can that be?

Air Marshal Binskin: It would depend on what phase over the last 10 or 12 years you are talking about. If you are talking about post-DRP to pre-Kinnaird, there was a different way of doing business. Post-Kinnaird, the process started to get more refined, but the capability managers were still fairly removed from the process until about Mortimer, and Mortimer came in about the same time as this did as a part of the Strategic Reform Program. It got rolled into that. So we are only talking about from 2008 and 2009 onwards where the capability managers, CDG and DMO come together a lot earlier so that they all have fairly well equal say in the development of the project as it goes through.

Senator MARK BISHOP: Post-2008, you say?

Air Marshal Binskin: Yes, about post-2008. Now I could talk about that having been a capability manager in that time. Right up front now the capability manager signs off on projects as they start—and it is all part of their maturement as they go through—that it will meet the needs, will there be capability gaps or not, risks that are foreseen, and whether the service or the capability manager can even accept that into service in the time. So the capability manager is more up front now.

Senator MARK BISHOP: Do you say, Air Marshal, that the problems we had prior to 2008 and 2007 where the CDG, the DMO and the particular service, in this case Navy, had a different understanding of the risks and did not take a shared responsibility or share responsibility for mitigating those risks—do you say that that problem is now essentially remedied?

Air Marshal Binskin: I think post-Mortimer it has gone a lot way to addressing it. We are still tying down a lot of the processes to be able to ensure that the three groups talk a lot better up front—

Senator MARK BISHOP: And earlier.

Air Marshal Binskin: And have a better understanding, and the processes are being refined within Defence to do that.

Senator MARK BISHOP: The reason I ask this question is that I can remember in the middle of 2007 when the previous Chief of Navy sat at that table and told the Senate estimates committee that he did not like the frigate, that it did not do what he wanted, that he did not agree with it and that he would not be using it. This is a billion dollars into that cycle of development and upgrading—Air Marshal, you were around in those days in a different capacity sort of rolling your eyes in the back of the room as well. It has always struck me from that discussion that the Chief of Navy, the man who is tasked essentially with running the Navy and providing capability and whose head is on the block, did not have a high regard for the capability that was being delivered into his service. That colours my questioning. How can the Chief of Navy, the Chief of Air Force or the Chief of Army not be satisfied that a capability tasked, planned and essentially delivered into service does not do what he wants?

Air Marshal Harvey: Adding to what Air Marshal Binskin said, since 2008 the capability managers have had a more prominent role. For example, the material acquisition agreement that used to be between Capability Development Group and DMO for the delivery of capabilities is now co-signed by the capability manager as well. So they have a specific role in that all the submissions that go to government in terms of the capability have to be cleared by the individual capability managers as well.

Another key player in risk on this is DSTO, and you will have a chance to talk to them shortly. They do a formal technical risk assessment, and the Chief Defence Scientist does a technical risk certification. He makes his comments explicitly to government as the proposals go forward and as there is independent advice or separate advice from the CEO of DMO to go to government and covering risk assessment as well. So there certainly has been much more focus in the last few years in terms of making the risk assessments explicit and identifying the mitigation strategies for those as well. Particularly the capability manager has a key role to play in that.

Senator MARK BISHOP: I would have thought that the capability manager should have the supreme role in that—the Chief of Army or the Chief of Air Force or the Chief of Navy. That is why we have chiefs: to run the show. Defence in this inquiry and its subunits of the services, DSTO and DMO, are appearing as a whole-of-government approach. You have just told me, Air Marshal, that the respective organisations have to certify, sign off and all those sorts of things. Is their independence and their ability to certify independently of what another arm thinks or wants or desires enshrined in any regulation or legislation, or is it just custom and practice?

Air Marshal Harvey: I think this gets back to part of the accountability. I believe the Chief Defence Scientist has a requirement to report to cabinet on his formal assessment of the technical requirement—

Senator MARK BISHOP: But he does that through Defence.

Air Marshal Harvey: That is right; but it depends on how you—

Senator MARK BISHOP: That is the point I am making—he does it and DMO do it through Defence.

Air Marshal Harvey: It depends on how you mean 'through'. They independently make that assessment. It goes with the same set of documents for coordination purposes, but for accountability reasons both the Chief Defence Scientist and the CEO DMO report on their specialist areas to say, 'I am satisfied this risk assessment is correct and can be delivered as proposed here.'

Air Marshal Binskin: We might wait until the CEO DMO is here. Through their current set up, the CEO DMO reports direct to government on commercial aspects of procurement, I think you will find. But the CEO DMO will be able to give you his exact reporting requirements.

Senator MARK BISHOP: I will show you the absurdity of the proposition. We have an additional term of reference in this inquiry negotiated between Senator Xenophon over there and the minister for finance, Senator Wong, in another area of endeavour which essentially is for a full inquiry into the DMO. But the Department of Defence under the previous secretary, Dr Watt, wrote to the committee and told us that DMO would not be making a submission even though there is a term of inquiry into the DMO and that Defence would be doing that. With due respect, I would have thought that DMO might have had some views on its own capability, its own personnel and its own practices and that perhaps the secretary of Defence—now the secretary of PM&C—might have had a different view. But, notwithstanding that fact that the terms of reference in this inquiry were negotiated by a Senator at the table and the minister for finance, Defence tell us that DMO are not going to put in a separate submission. So how do we know that there is independence? We get the Defence view.

Air Marshal Binskin: Last I heard, they are the Defence Materiel Organisation, and they do report to the secretary. So I think you would be best to hold those questions for the Acting CEO DMO, and he can tell you how

he feels about it. As you know, Warren King does not hold back—he will be quite upfront with you—so I suggest you hold it for him.

Senator MARK BISHOP: I am responding to the air marshal's comments. He says that there is proper independence and proper certification. But we cannot even get a submission from an organisation employing 8,000 or 10,000 people, notwithstanding the fact that the government negotiated the terms of reference with a senator at the table.

CHAIR: Senator, we are now 10 minutes over time, so I think we will have to leave it there. These people will be coming back this afternoon. We thank them for appearing.

BINSKIN, Air Marshal Mark Donald, Vice Chief of the Defence Force, Department of Defence

HARVEY, Air Marshal John, Chief, Capability Development Group, Department of Defence

SARE, Dr Ian Richard, Deputy Chief Defence Scientist, Platform and Human Systems, Defence Science and Technology Organisation

SMITH, Mr James Stuart, Chief, Projects and Requirements Division, Defence Science and Technology Organisation

[10:10]

CHAIR: Welcome. The Defence Science and Technology Organisation has made a separate submission, numbered 31. Do you wish to make any amendments or alterations to your DSTO submission?

Dr Sare: No, we do not wish to make any amendments to our submission.

Senator FAWCETT: Since we still have Air Marshal Binskin here, I might ask the question I was going to ask when the last group was in front of us. In the broader Defence submission it talks about the need for industry to play its part in planning. I guess I am looking here at the strategic level of both capability from the materiel sense but also industry as a strategic capability for defence. The submission says industry need to plan and gear up early and the whole capability development process needs to engage industry early in the process. There has been a deal of discussion around that. My particular interest is that the feedback we get from industry is that the early engagement is largely a cost driver for them and despite policies around PICs and SICs and other types of capability, there is no certainty for them as to whether this early engagement is going to lead to anything that actually generates income for them or whether at the last minute a decision will be taken that this capability is going to be purchased through FMS or offshore et cetera. DSTO will have an input into this, but at what point in the strategic consideration does Defence holistically look at what capabilities we need to be able to either do battle damage repair, manufacturer repair, modify on shore such that it actually bounds subsequent procurement decisions as opposed to at the moment where you think of a capability and it gets thrown over the fence eventually, with some signatures but thrown over the fence and industry division sits within DMO and it seems to be more about jobs and job placements and things as opposed to defence capability. At the capability level when is that decision made, if it is made, that this capability is so important it will bound how we buy the capability?

Air Marshal Harvey: As you know, the process is quite a lengthy process. We talk about the needs and requirements phase and we go through the two-step process there. One of the requirements leading the first pass is broad engagement to understand the capability, what the realistic options are. At the first pass we would narrow that down to options to be pursued beyond that point. So the review is on a case-by-case basis in terms of what is physically possible out there anyway. Does Australian industry a lead role in terms of the actual acquisition phase? In almost all cases with Australian industry we have a major role in the sustainment phase. So we take strategic considerations as we go through how important it is to have that in-country support capability for that particular capability versus a guaranteed supply chain and whether it is realistic to modify. On the face of it it looks good to be able to modify something for Australian conditions but do you necessarily want to change it for Australian conditions given that you will be operating it somewhere else? Do you want to change something to become different from the rest of a potential global fleet?

All I can say is that we look at it progressively on a case-by-case basis based on the need—where it is likely to be used. In terms of Australian industry engagement, even though it is a cost to Australian industry, I think by far the majority of Australian industry would still say they want to get involved early to open up the possibility for them to progress it. It is a consideration throughout and it will be a matter of how important that consideration is—the ultimate outcome, at what point you decide whether you are keeping that option alive or not, again noting that in the background there is a requirement to have an off-the-shelf capability as a benchmark to measure against. The direction is that you need a good reason to go against an off-the-shelf capability, just because the risk again is reduced. But we engage industry as broadly as we can and we refine their contribution as we go along.

Depending on the project, it is a matter of at what point you would make the decision to go one way or the other. I cannot be more specific than that. It is a key consideration, but at what point you would make the decision depends on the project.

Senator FAWCETT: You mentioned the MOTS capability or the COTS. I think it is important to differentiate that you can have a MOTS purchase of the capital piece of equipment but the through-life support may well be onshore with industry as opposed to some of the solutions where everything is offshore, both the acquisition and through-life support. That is important to differentiate.

Air Marshal Harvey: It is very rare to have through-life support not done primarily in Australia, just because of the benefits or the cost of doing stuff in country. It is a matter of how far that goes. Do you want to do your own upgrades? Chances are you do not, because it would not be off the shelf anymore. Do you want to do it unilaterally or do it as a partnership?

Senator FAWCETT: The size of the fleet.

Air Marshal Harvey: Yes. Do you want to do it for a small fleet? Backwards compatibility if we make a change. They are all key considerations.

Senator FAWCETT: A lot of that would probably be for subsequent discussions over the next two days. To get back to the first point about the early engagement with industry, a very clear message we are getting from industry is that for them to be confident to tool up, to go to a venture capitalist and get funding to tool up, the sort of guidance they are looking for is not just 'Yes, we might just be buying object X' but 'The Australian government at a strategic level believes it is important that we have the ability to repair and maintain this item. Therefore, whether it is FMS, MOTS or a bill here, tool up, be positioned to do through-life support but do not think about necessarily buying it.' That kind of very early guidance, which starts bounding the procurement decision, would be very useful. I am sensing that at this point in time there is no trigger, no threshold, in the process that prompts or requires Defence to identify early in the process where industry capability is actually part of our defence capability.

Air Marshal Binskin: I would say by project that that is discussed very early on in the committee process. The two drivers are capability and what we do need in country and what we can actually sustain in country versus the cost of it. Is it the centre of the discussion early on? No, it is not, but it is a major consideration early on in the projects. I will look at some of the aviation ones that we have looked at. With JSF it is a major consideration upfront. With ships it is. Do we want to maintain a shipbuilding industry in Australia—yes or no? The answer is yes. So it is factored in there, but it is on a case-by-case basis, depending on the project.

Air Marshal Harvey: If I understand it as well, the through-life support is an essential consideration throughout the whole process. As I said before, you gradually refine that. But the expectation is that at least a significant amount of the maintenance sustainment will be done in country, so you just have to make sure that you have got those arrangements set up early in the process.

Senator JOHNSTON: But the problem as we perceive it is that the through-life support and sustainment experts, who you usually found in industry, are not involved in the design phase.

Air Marshal Harvey: If it is an off-the-shelf product, chances are it is not, because we tend not to have off-the-shelf military equipment sitting around.

Senator JOHNSTON: Usually it is off the shelf from over the Pacific or in Europe. They are involved, but we have to acquire those sustainment capabilities to replicate what has been proven. But if we are doing a developmental project it seems to me rare that a sustainment through-life support expert or knowledge is involved in the design phase. So in a submarine the removal of important components was never considered when the design was inaugurated. That is an issue that is very seriously on the table for a whole lot of developmental projects in country.

Air Marshal Harvey: One of the important lessons learnt from previous projects is that you do have to think of that very early. That is one of the key factors. I know part of the design concept for JSF was to set it up so that it was maintainable, supportable, throughout life.

Senator JOHNSTON: Everyone else seems to learn those lessons because their mass production capacity is fundamental to their national security, and we leverage off that. But when we are doing things on our own we seem not to have the very important—and the cost of through life support is far and away beyond the acquisition cost.

Air Marshal Binskin: For sure, and it would depend on the sector too.

Senator JOHNSTON: Navy, particularly.

Air Marshal Binskin: Yes and that is an issue we are looking at. I know for *Wedgetail*, for example, it is developmental, but through-life support and maintainability was a key driver up front in the design of that. So I think it does depend on the sector. It may well depend on the expertise within Australian industry as well. We do normally work through a prime.

Senator STEPHENS: Thank you for your submission. We have heard already about the strategic overview of the decision-making process but in your submission, on page 2, you noted that the DSTO and the Capability

Development Group have established the Joint Decision Support Centre. Could you explain why that centre was established, when it gets involved and how it supports the procurement process?

Dr Sare: Yes. The Joint Decision Support Centre was established maybe three or four years ago, as a combined CDG-DSTO initiative, in order to provide a workspace where systematic methodologies could be applied to assist decision makers within Capability Development Group to look at particular concepts or particular options that might arise in a DCP project. So both organisations actually contribute money into this. DSTO provides the staffing for it and it is primarily tasked by CDG desk officers to do particular studies to help them make sound decisions as part of the process, which Air Marshal Harvey described earlier, of preparing the formal documentation for government consideration. It has been a very effective way of trying to apply objective operational analysis-type methodologies to assist decision support.

Senator STEPHENS: What are you working on at the moment, in that regard?

Air Marshal Harvey: I can add that, apart from the general project specific, JDSC has been set up to particularly support the force structure review as well. That is a key analytic activity for the future, so they are gradually ramping up that work there now. We can get you a list of projects they are working on if you like or ones that they have done before and ones that they are currently involved in.

Senator STEPHENS: It would be quite helpful for us—

Air Marshal Harvey: One I know, for example, is the roadmap for helicopter support within Australia, to plot that through time. But we can get a list of projects they have done and are doing.

Senator STEPHENS: Okay. Just going to the other evidence that we had this morning, we had Engineers Australia before us. They talked about the need for strong capability within the defence procurement process. What is your view about the lack of engineers? Do you see that as an issue for defence?

Dr Sare: Within the defence organisation, DSTO combines scientists and technologists with engineers. We are a 2,600-strong organisation. Some 1,800 to 1,900 of those are professional scientists and engineers. Within the DSTO element of the defence department there is, I believe, a very strong base of support to enable us to look at potential acquisitions and to do detailed analyses to understand, in particular, the technical issues associated with those options that might be brought forward for consideration. As part of the implementation of the 2009 white paper, DSTO was given the wherewithal to hire some additional people, specifically to do Defence Capability Plan project support. We have put on almost 300 additional staff over the last 2½ years to enable us to be even more effective as an organisation in providing advice to Capability Development Group in terms of Defence acquisitions.

Senator JOHNSTON: Could you tell us what projects, in the white paper, you were giving that support to?

Dr Sare: There was a very large number of them. I would have to produce a list for you separately.

Senator JOHNSTON: If you could I would really appreciate it.

Mr Smith: We do have some information. Our role is really in supporting pretty much all of the projects that are currently being actively worked through first and second pass. At present we are supporting 94 projects that are before first pass, 48 projects that are between first pass and second pass and 99 projects that are after second pass.

Senator MARK BISHOP: You give the technical advice on the projects.

Mr Smith: We do. And also on equipment, when it is in service.

Senator JOHNSTON: On the white paper projects there are a very large number of acquisitions described. You have provided technical advice on which ones of those?

Air Marshal Binskin: As they go through the process they will provide advice, yes.

Mr Smith: On all of them.

CHAIR: Are you saying that that is on everything?

Air Marshal Binskin: Any project that comes through, DSTO will provide technical advice on.

CHAIR: Are there any that they do not provide advice on?

Dr Sare: As was noted earlier, the Chief Defence Scientist has a formal obligation to certify the technical risk of acquisition projects, and that obligation applies to every project going forward for consideration—to get involved in every project in—

Senator JOHNSTON: That is after the description of the project in the white paper.

Dr Sare: That is correct.

Senator JOHNSTON: So it is in the white paper, and then once it is published and on the table on the record, you do the analysis of it?

Dr Sare: Once projects are identified in the Defence Capability Plan, DSTO stands up a team to provide scientific and technological support to the project desk officers. So we get asked to nominate what is called a project S and T advisor for every project at the early stages of CDG consideration of that project.

Senator JOHNSTON: I think we are all pretty clear on that. But prior to that there is no DSTO involvement?

Dr Sare: Yes, there has been, and still is, involvement by DSTO. We get involved in the needs phase, in doing studies in conjunction with CDG to determine what might or might not be possible. In the force structure review that was conducted in advance of the last white paper we provided some subject matter experts into the team that was doing the force structure options testing, to give them sound methodologies to go through their particular program of work.

Mr Smith: We support the force structure development part of the strategy group, as well.

Senator JOHNSTON: So it is in the force structure review. Can I call it a cell?

Dr Sare: There is currently a force structure development directorate. We have a DSTO officer embedded in that directorate.

Senator JOHNSTON: I am looking at the diagram on page 18 of the strategy framework document. I am sorry to be interrupting the deputy chair, but when I look at this strategy framework document of 2010, the only reference to DSTO is DSTO's experimentation initiative. So when I am looking for your involvement in the inauguration of these ideas, if they are that at this stage, you are contained in the FSR block?

Dr Sare: Yes.

Senator JOHNSTON: Good.

Dr Sare: We are, and as Air Marshal Harvey noted, our engagement in that will increase as part of our work in the Joint Decision Support Centre as the new force structure review process is undertaken.

Senator JOHNSTON: With the deputy chair's consideration, I will ask: what is your involvement? How many personnel? What do you do? How many meetings do you intend? What was your physical engagement in this process?

Dr Sare: In the previous process for the 2009 white paper we had three staff embedded in the force structure review team. In the current process, which is just gearing up, we have one person embedded in the directorate—

Senator JOHNSTON: Can you tell me their disciplines, please?

Dr Sare: The officer embedded in the force structure development directorate is an operational analyst, so she has expertise in doing systematic analyses of options that might be considered.

Senator JOHNSTON: What about the three in the white paper one? What were they?

Dr Sare: In the white paper they were operational analysts from the air, land and maritime domains. We chose one from each of our relevant operations divisions to go into that particular team.

Senator JOHNSTON: Excuse my ignorance. What is the technical qualification of an operations analyst—a bachelor of science?

Dr Sare: It can vary. There are a lot of people who do operations analysis in DSTO whose formal scientific backgrounds have in fact often been in traditional physics or chemistry or mathematics and so on. There is very little formal tertiary training that is given. I do not think there are any degrees specifically given in operational analysis. People acquire the skills and methodologies by applying analytical thinking processes and learn on the job within DSTO in order to be able to do that type of work.

Senator JOHNSTON: Okay and thank you very much.

Senator STEPHENS: You were saying that you had recruited 300 new staff?

Dr Sare: That is correct.

Senator STEPHENS: How many of those would have been chartered engineers?

Dr Sare: I would imagine very few. The people we employed were, by and large, new graduates or newly qualified people with masters or PhD degrees. In order to do the work for the capability development group in project support, we in fact utilised existing staff, by and large, who needed a depth of subject matter expertise that new people coming into the organisation did not have. So we backfilled other activities with the new staff. But overall there is only a very small number of DSTO staff—and I do not have the data in front of me exactly—who

have a chartered professional engineer status within Engineers Australia. That is not generally something that our people seek or feel the need to have in order to be able to do their scientific and technological work within DSTO.

Senator STEPHENS: Some of the submissions that we have received really go to the issue of concern about the dilution of technical expertise within Defence. Is this an issue that you perceive as part of where you sit in the organisation? Is the actual shortage of technical skills a challenge for you?

Dr Sare: Within our own organisation, no it is not a challenge. But we can sometimes, I guess, have a little difficulty in communicating in science-speak and in engineering-speak to others with whom we are dealing in project development. But I think that is really not perhaps in the final analysis such a problem because the objective of having integrated project teams is that one has people with military expertise and operational expertise complemented by people with scientific and technological expertise, so between us I believe we are able to do a good integrated, holistic job in facilitating the preparation of the documentation that then feeds into the two-pass process.

Senator MARK BISHOP: At that stage I see that a set of bodies come together very early on and exchange information and learn from each other and set the direction of a particular idea before it becomes a project. Dr Sare, would you welcome the involvement of industry at that early inception stage? The reason I ask is this: you have the intelligence people, you have the military people, you have the planning people—you have all those bods who provide necessary expertise—but we do not have at this stage the finance people or the commercial people who are going to be heavily involved when it comes to pass the second phase. Is there a role for industry at that level to be consulted at that stage?

Dr Sare: If I look at the type of work that DSTO does in support of acquisition projects, I do not see a particularly strong need for us to be engaging directly on those. Maybe if I can make an important point here: we do talk quite a lot with industry but we do it in two quite distinct ways. If we wish to engage with industry in relation to specific projects, in order to ensure that probity issues do not emerge that could be problematic we will only have that engagement by working through the Capability Development Group team; we will not independently go and talk to industry.

Quite separately though we have strategic alliances with a number of the major—probably all of the primes in Australia—and we engage with them on what is sometimes called pre-competitive research or in areas of technological development that are not project specific. So we have good links with industry and we are able to engage as appropriate if we believe we are missing a bit of knowledge and we know that individuals in companies A, B and C have that we can certainly talk to them. But we are always very careful in the project support space to ensure that we do not have independent engagement that could create problems down the track in a probity sense.

Senator MARK BISHOP: So that engagement you have, is that really professional and informal and the sorts of things that industry bods talk to each other about because it is their field of endeavour?

Dr Sare: A little bit of it is that, but in the strategic alliance arrangements we have with companies like Thales, Boeing, BAE Systems and so on, we have specific programs that we work on with them in an agreed way. For example with Boeing, at their request they sought some of our involvement in aircraft fleet maintenance, so we have worked with Boeing on corrosion issues to do with the FA18 Hornet, with non-destructive testing issues and so on. They are important industry activities that support Defence where we can work with them to help them do what they are doing under their contractual arrangements. But additionally we learn from them about the application of our technologies in the real world. So I think there is a good mutual outcome to those sorts of interactions we have. So there is formalism to it as well as the informal 'engineer to engineer'-type dialogue.

Senator MARK BISHOP: You raised at the outset in response to my question issues of independence and probity, and it is entirely proper that you raise those. As the military people give advice and as the capability managers put a position in the negotiation process and as the scientists and engineers put a position in the negotiation process internally as you bring up an idea from idea to the next stage, is there any strong reason why it would not be appropriate to be having those discussions also with the No. 6 group—that is, with industry?

Air Marshal Harvey: Perhaps it goes beyond DSTO's responsibility and more in the Capability Development Group. There is industry engagement and industry engagement. We engage industry to provide advice to us, but they are generally people that are not directly involved in the process because of probity reasons, as you say.

Senator MARK BISHOP: I understand that and I understand the perspective of CDG and the capability managers, but I am really asking—

Air Marshal Harvey: At strategy level.

Senator MARK BISHOP: at strategy level why wouldn't industry be involved much earlier and formally in the process? I can understand if Defence does not want that, does not like it or does not think it is appropriate; but, with respect, I am asking the head of DSTO.

Dr Sare: If one did not risk getting oneself into hot water by perhaps having very early engagement with people from companies A and B and maybe then their being seen by companies C and D as having an advantage down the track when Defence starts to let tenders and so on, if there were not that problem then I would agree with you that engagement with industry would nicely complement the sort of thinking that we bring to the table in our internal processes.

Senator MARK BISHOP: All right. So probity and bias issues later in terms of tender and contract are very important and Defence holds that view, and they have put that to us. Are they the only reasons you hold that objection, Air Marshal, or are there others?

Air Marshal Harvey: I jumped in before because you mentioned 'at the strategy stage'. You are talking about the very early stage that we were talking about before with Neil Orme.

Senator MARK BISHOP: We are talking way pre-first phase.

Air Marshal Harvey: There are those probity issues. You cannot be seen to have one company have input and influence that others cannot. We engage with industry on an ongoing basis. I met with companies yesterday who came in to say what they were doing lately. That informs us to know what the art of the possible is, what is out there in the world. We will try and take off any company specific element of that. We are informed informally by industry to help shape the strategic framework at the start.

Senator MARK BISHOP: The reason I press is that I do respect your argument about probity issues and I do respect your argument about independent issues, because we have just been through another inquiry with the air service contract where the fundamental issues were probity, independence and knowledge between different industry players. Your comments are serious. I am hearing you say that you are informed by industry and by individual primes and probably by subprimes informally and the people below you, who feed up to you, are probably informed informally. I am really asking: if you can address the probity issues and the independence issues as they are addressed every day in industry, are there other serious grounds you would put to us as to why industry should not be involved at this very early stage?

Air Marshal Harvey: I think generally more engagement is better because the more knowledge we have the better we get. So we want to be unbiased but not ignorant. We want to be informed, but again we cannot show favouritism and we cannot be steered down a particular path. More engagement is better, as long as it is within those probity guidelines.

Senator MARK BISHOP: If probity issues can be addressed, as they are addressed at a whole range of levels, then you do not put to us any serious objection?

Air Marshal Binskin: I think that is not a bad thing if we can get around all of that. With respect to the science side, though, you want to watch out sometimes that if you engage too early they do not stifle innovation that this organisation can bring to this and bring them down to a level here. In fact, DSTO can take us that much further and start to stretch through innovation. So I think there is a balance of that as well. You do get to a point where you say, 'That's not physically possible.'

Senator MARK BISHOP: There is no doubt in my mind that an organisation such as DSTO can provide very, very singular, advanced and different advice to the capability managers that you are not going to get from the primes.

Air Marshal Binskin: Not only that—the potential options.

Senator MARK BISHOP: We are on the same sheet there.

Air Marshal Harvey: There is the technology demonstrator program that DSTO runs in conjunction with us to get ideas in early.

Senator MARK BISHOP: Yes, we are on the same sheet.

Senator JOHNSTON: How is it that the United States manages its probity issues? Let us talk about an example in the white paper of real time communications with all of the bells and whistles that is anticipated by that, without getting into any classified area. When those words went into the document, did DSTO say, 'Yes'? That is a question for the doctor. Do you get involved in that? It is a concept of what we want in terms of our capability. I suspect that you do not. I am hoping you are going to correct me and say, 'Yes, we did a review of what is available and we engaged the manufacturers who are investing largely in North America in that technology.'

Dr Sare: DSTO is not in a position, if you like, to say, 'Yes, that's a good idea or not.' That is not our role. Our role is to provide advice to those who are going to make decisions about a particular area of defence capability. So having—

Senator JOHNSTON: And feasibility?

Dr Sare: We will then frequently do studies and analyses to investigate the feasibility of different options that might then deliver a capability. We will utilise our best knowledge of what is happening in the broader community. We have, for example, very strong international defence science links with the US, the UK, Canada and New Zealand, for example.

Senator JOHNSTON: But often they are corporate entities, aren't they? The cost-plus system has generated massive research and development institutions inside corporate umbrellas—Raytheon, Lockheed Martin et cetera. How do you manage that? We are talking about probity issues. They seem to be able to get away with it over there and their Senate is pretty voracious in its auditing capacity. How do you do it? Do you ring up Raytheon in North America and say, 'What's this I'm hearing?' How do you go about that?

Dr Sare: In the first instance, we would look for publicly available information and we would frequently ask our counterparts in other defence science labs what they know about a particular area of technology.

Senator JOHNSTON: Government to government?

Dr Sare: Government to government. I think I could be stronger than saying 'in general'. I think I could say that I doubt that we would be communicating with a Raytheon or a Northrop Grumman about their particular technologies and so on independently of any formal linkages that the department has with those companies working through our North American contacts in the embassy or whatever. We would not be independently going to the private sector to seek information. I do not think in fact our counterparts, for example, the Air Force Research Laboratory in the US or the Naval Research Laboratory in the US would be doing that either. Perhaps it is fortunate in the US they have got such a big multiheaded system that other parts of the US department of defense organisation are responsible for finding out that sort of information. The research laboratories that are closest to what DSTO is are not engaged in the sort of detailed project support in the way in which we are in Australia. We are inhibited in doing things that others in like organisations are doing overseas.

Senator JOHNSTON: Are you confident that your government-to-government relationships yield accurate understandings of what is in or about to be in the marketplace in terms of capability and technology?

Dr Sare: We are reasonably confident. I put that—

Senator JOHNSTON: Bear in mind, they are pretty secretive about what they are working on sometimes.

Dr Sare: I understand. It sounded like a bit of a weasel word to say 'reasonably confident'. We have, particularly in the US, the issue of ITAR. For information to be exchanged between companies and Australia they have to have a technical assistance agreement approved by the state department and so on. We often do not get access to as much information as we would like to, but we are comfortable with what we do get through government-to-government channels and through the linkages we have both bilaterally with like organisations and in the multilateral fora such as The Technical Cooperation Program or TTGP.

Senator JOHNSTON: Last question: how many personnel do you have in Washington?

Dr Sare: In Washington we have three staff from DSTO embedded in the embassy doing the general work. They work for the head of the Australian defence staff in Washington. We then have a number of other staff embedded in different organisations associated with some acquisition projects. We have staff associated with, for example, the JSF project, the Heavyweight Torpedo project**.** We have some staff on what we call Defence Science Fellowships who go and work in a research environment in another government lab or maybe a university, and they too are able to establish contacts and help draw information back into DSTO.

Senator JOHNSTON: Thank you very much, Doctor, that was very helpful.

Senator FAWCETT: On things like the DCP and some of your other arrangements, in the past that has worked very well for Australia. Things like the NVG and the day HUD in the Chinook in the Middle East is a significant enhancement over what the Americans use. That came about largely through DSTO and Air Force and Army's work in developing and modifying that. As we move down what has been talked about, such as more and more MOTS and COTS and no deviations from baselines and no deviations from what the host program is doing, where do you see DSTO's role and particularly where do you see your ability to grow the skills sets that you need to do your evaluations if we are constrained to going lock, stock and barrel with what someone in another country does?

Dr Sare: If I can just see if I have understood the question, Senator. You are asking: what is our view about where we should be going in a stronger MOTS, COTS environment?

Senator FAWCETT: Yes. As I read through your submission you talk a lot about your fatigue work with the classic Hornet. I know from personal experience your working areas of visionics et cetera that has benefited the force in being. Most of that ends up in deviations from the host country's configuration status, much to our advantage, and much to their advantage I would have to say in a number of areas. However there is a lot of discussion now that we are going to be constrained to no deviations from the configuration status of future weapons systems, particularly in the aerospace world, and assuming across other environments a well. Given that and given that a lot of DSTO's expertise has been developed through working up these capability developments to the force in being, where do you see the future for the organisation and your ability to develop those skill sets if we are essentially being told the following line with what is happening overseas?

Dr Sare: I guess I make a couple of comments there. Firstly, many of the issues that arise with MOTS and COTS acquisitions are in the integration of those into the Australian set of assets, if you like, and those integration issues can be very challenging. So, in an environment where there will be more off-the-shelf systems acquired, we will continue to be exercised significantly in working with DMO and the capability managers in facilitating the integration of those off-the-shelf systems into service.

Secondly, we will continue to develop indigenous technologies where we cannot acquire something overseas to meet our particular needs, or where there are national sovereignty issues that mean we cannot get access to information overseas. One example that comes to mind is, with the future submarine, whatever that turns out to be, whether it is an off-the-shelf acquisition or something else, the anechoic tiles that go on the outside to reduce the signature of the submarine will be something that we will have to develop in this country. DSTO did it for the Collins class submarines and it has been an enormously successful development that went onto those boats. We then, within DSTO, lost that capability. We let it wither because the development work had happened and we did not need it any more. We are now building it up again because we know that we will have to have indigenous technology, which is even better at delivering the signature reduction effect that anechoic tiles can deliver than the ones we have on the Collins. So, there will be a continuing need to develop technologies that are appropriate to Australia's unique circumstances. I am confident that the men and women in DSTO will continue to be intellectually exercised, will do stuff that really 'turns them on' so to speak and excites them, even when there will be further or a greater proportion of off-the-shelf acquisitions. I would also add that military hardware is becoming more and more complex as time goes by. Even just understanding how those off-the-shelf systems really work so that we can get the best out of them, so that appropriate tactics techniques and procedures can be developed to utilise them and so that they can be sustained most cost effectively requires deep S and T work to ensure that Australia's capability is as sharp as it possibly can be.

Senator FAWCETT: So, in summary, even if we buy off the shelf there are still indigenous capabilities—for example, the tiles—that will most likely be applied to make the capability better. So we still need that ability to modify in-country to some extent. What involvement has DSTO had to date specifically with the future submarine. There has been a lot of discussion particularly around why we need to build onshore and that the conventional off-the-shelf products from Europe would not be suitable. Have you been involved in those discussions?

Dr Sare: Yes. We have a team in the order of 28 to 30 FTEs associated with future submarine type work. There is more than that number of people but they are part time. I say that because they are part of the broader group that is also working on Collins issues as well. We have been involved with the project team led by Admiral Moffitt in conducting a number of studies as to what the future submarine might look like and might require. We have looked at, for example, combat systems that might be employed in a future submarine, because a decision about the combat system, which is a very energy hungry part of the boat, will determine some of the early design parameters.

Senator MARK BISHOP: I have a question on those 28 FTEs. Are they people that Admiral Moffitt's group can call upon on a needs basis, or are they part of his group? We had a briefing from Admiral Moffitt and I did not get the impression that his future submarine group was of that size yet.

Dr Sare: No, Senator. These are people sitting in DSTO who are written into the draft S and T plan that will go forward for formal consideration in some forthcoming documentation. They are not physically sitting in Admiral Moffitt's organisation. They are primarily in the maritime platforms and maritime operations divisions of DSTO and are looking at some of the early power and energy requirements, such as what we might require by way of new battery technology. They are looking at air independent propulsion systems, at what the current AIP systems around the world are and at what might be appropriate for us to be exploring further. As I said, we have

looked at the combat systems that are available and what their energy requirements are as well as what capability they deliver. We have looked at alternative propeller materials—for instance, at a composite propeller instead of a metallic propeller. That is something we are doing with the US Navy. So there are a number of very early stage studies we are doing into specific sub-elements of the submarine that will put us in a stronger position to give advice and contribute to the formal paperwork when it is required by Admiral Moffitt's team.

Senator JOHNSTON: Dr Sare, who is paying for that? Is that out of your budget, or do you render an account for those 28 personnel across to the project?

Dr Sare: We do not render an account, exactly.

Senator JOHNSTON: Excuse my commercial inaccuracy.

Dr Sare: An earlier decision gave Admiral Moffitt a quantum of money to embark upon his current work. Part of that was for some agreed S and T activities, so that money is transferred to DSTO.

Senator JOHNSTON: So he is investing in those 28 personnel.

Dr Sare: So he is investing in the work that we are doing. DSTO itself pays for the people. We are funded for all of our staff anyway and, as an adjunct, DSTO also has what we call a corporate enabling research program initiative in future undersea warfare. So again, out of our own resources we are investing in future technologies—looking at new sonar technologies, unmanned underwater system technologies that might be utilised in conjunction with a future submarine and so on. There is a combined investment, if you like, but the bulk of it at the moment is coming from DSTO.

Senator XENOPHON: DSTO, your home page on your website talks about DSTO giving expert impartial advice. So you regard yourselves as independent of Defence in that sense?

Dr Sare: What we are saying is that we do not wish to have any sense of our advice being coloured by particular external commercial interactions. The ultimate measure of that is that the Chief Defence Scientist has to certify the technical risk associated with every option that is considered in an acquisition program, and that, I guess, is the bit of independence that we hold most dearly. In everything else we do, we do not wish to be constrained or ever seen as having done anything inappropriate that would inhibit the independence of advice.

Senator XENOPHON: Because we are over time, I want to ask just one follow-up question in relation to this. The Defence white paper of 2009 at paragraphs 9.19 to 9.22 talks about offshore combatant vehicles. A series of questions was asked by Senator Johnston this morning. This is the all-purpose vehicle that is going to do four things in one—patrol boat, mine countermeasures, hydrographic and oceanographic forces. I think Senator Johnston asked whether there is anything like this anywhere in the world. To what extent does DSTO get involved to give impartial advice saying, 'This thing is potentially a dud' or 'There are significant risks'? Do you see your role being to say, 'This is what DMO wants to do. We will try and facilitate it' or do you actually put a flag up and say, 'Whoa. Hold on. This looks too off with the fairies technologically in terms of something that can be done'?

Dr Sare: What we do, and what we are doing, in that particular project is take it by steps. We have been tasked to do a number of studies to assess the various requirements of mission modules, and their effectiveness, that might go onto these vessels if they have got to do job A versus job B—a conventional patrol boat versus mine countermeasures versus hydrographic. We are looking at the concepts of employment and operation of the vessel. We are looking at the complementary unmanned underwater systems which Air Marshal Harvey mentioned earlier.

Senator XENOPHON: Can someone take this on notice? We are way over time. With the indulgence of the chair, how many times has DSTO said, 'Don't do this. It's a dud'?

Dr Sare: We have not at all, because we are doing the detailed studies to better understand—

Senator XENOPHON: No, generally. Have you ever said, 'Don't do this. It's a dud'?

Dr Sare: No, we do not say that. We put in technical risk advice that ultimately says it is high, it is medium or it is low. We do not have a role to say, 'This is a dud.' We do not operate in that way.

CHAIR: I suppose an answer to Senator Xenophon is: how many have been high risk?

Senator XENOPHON: Yes. Thank you, Chair. That is what it was.

Dr Sare: How many have been high risk?

CHAIR: How many have been high risk, or what percentage roughly?

Dr Sare: I do not have those data in front of me. We could get it. There are several technical risk certifications that had been signed by the Chief Defence Scientist that are high risk.

Senator XENOPHON: Can you provide that on notice?

CHAIR: If you could provide all three categories in terms of a percentage, without necessarily providing details of what the projects were, that would be very helpful.

Mr Smith: I can certainly do that. The point I would make is that you would expect risks to be higher at the first pass through to the decision-making process, and that is what will happen. When we first look at options there is risk reduction work that goes on between first pass and second pass.

CHAIR: That is a very important point. Thank you. We will break now as scheduled. Thank you to all the witnesses.

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

BROWN, Air Marshal Geoffery Charles, Chief of Air Force, Royal Australian Air Force

DERWORT, Air Commodore Noel Gregory, Commander, Aerospace Operational Support Group, Royal Australian Air Force

HARVEY, Air Marshal John, Chief, Capability Development Group, Department of Defence

[14:07]

CHAIR: Welcome. I will ask you to make an opening statement in a minute, but I think Air Marshal Harvey would like to place some responses on record to questions asked this morning.

Air Marshal Harvey: In response to some questions this morning, I can provide the following information. The project on the multirole vessels is project SEA1180, which is referred to as the patrol boat, mine-hunter, coastal and hydrographic ship replacement project; SEA1180 entered the DCP in 2009 as a result of the outcomes of the 2009 white paper. The white paper also referred to the project as the offshore combatant vessel. The SEA1180 project engaged the rapid prototyping development and evaluation team, or RPDE, to address the question: what is industry's ability to support the delivery of the offshore combatant vessel concept and its through-life support? RPDE's quick-look analysis reached seven conclusions, of which the two key ones were: Australian industry has the skills, infrastructure, resources and capacity to build the OCVs in the given time period, and the mine countermeasure role performed within a multirole OCV modular functionality concept is dependent on unmanned systems. These systems are either to be developed or are not currently in service with the RAN. In 2010 a number of related studies were also initiated. These include DSTO studies investigating, amongst other things, deployable mission systems and initial platform systems, the Directorate of Navy platform systems, a concept design study aiming to develop a practical OCV concept solution that meets the white paper intent of cost of ownership reduction through commonality of systems equipment and training, and an invitation to register an ITR. The intent was to gauge the level of industry interest and to categorise services provided into broad strategic groupings. There were a total of 62 responses received for that ITR. We will table a copy of that ITR. There is certainly interest out there in industry to deliver this capability. As a result of the recommendations from these studies, a further RPDE quick look was initiated on 8 August 2011 investing how modular mission systems can provide a multirole capability. We expect that report to be delivered at the end of the year. As I say, the ITR will be lodged here and you can have a look at that if you wish.

The other question we had this morning was about the SM6 missile upgrade for the air warfare destroyer. The upgrade is to be conducted as part of project SEA1360 phase 1, maritime extended range air defence, which will improve the AWD's defence capability against emerging air and antiship missile threats. The project has an initial operational capability of fiscal years 2021-22 to fiscal year 2023-24—so, as I said, post 2020. I also have information here about the joint decision support centre and the activities they have and are conducting. I can table that as well.

CHAIR: Thank you. We are happy to receive that. Coming back to the Aerospace Operational Support Group, would you like to make an opening statement?

Air Marshal Brown: I suppose it is worth giving a quick explanation of how Air Force is structured before we go to the Aerospace Operational Support Group. I will ask Air Commodore Derwort to go through the substructure within Aerospace Operational Support Group. Air Force has a total of six force element groups. They are divided into like capabilities and also some training capabilities. Our Air Combat Group has all the fighter strike aircraft. Our Air Lift Group has all the transport aircraft. Our surveillance and reconnaissance group has the P3s, the OTHR and all our surveillance capabilities like AEW&C. We then have a Combat Support Group that looks after all our bases. Finally we have got Aerospace Operational Support Group, which is a big part of supporting the other force element groups in what they do.

One of the big things they do in terms of support to procurement activities is that we have a development test and evaluation wing inside Aerospace Operational Support Group. That is where all our test pilots and flight test engineers reside. We give pretty critical support to all the DMO projects as they go through their life cycle. I will hand over to Air Commodore Derwort, who can go through it in more detail.

Air Cdre Derwort: As well as being Commander, Aerospace Operational Support Group, I am also the Air Force and Army flight test approval authority, which is a function I fulfil within the flight test arena. AOSG has three key wings: the Air Systems Development and Test Wing, the Information Warfare Wing and Woomera Test Range. All those three have subordinate elements. Within development test wing we have the Aircraft Research and Development Unit—ARDU—the Aircraft Stores Compatibility Squadron, the aircraft stores Systems Engineering Squadron and the Institute of Aviation Medicine.

Under IW Wing, we have Joint Electronic Warfare Operational Support Unit, JEWOSU, Nos 87, 462 and 460 squadrons, which are predominantly intelligence squadrons, and the Aeronautical Information Service, which provides aeronautical product support for aircraft operations. Within the Woomera Test Range we have the headquarters plus the people who manage and run the range out at Woomera, which equates to one-seventh of the land mass of South Australia. There are approximately 900 people in AOSG. They are not spread equally across those wings. Woomera Test Range has about 27; IW Wing has in the order of 600; and the residual in DT Wing and within the headquarters. As the Chief of Air Force has advised, our primary role is in forming the war fighter and providing support to both operations and information to make sure that we can play our role effectively.

Senator FAWCETT: Gentlemen, thank you. Could you talk a little more about your engagement with procurement—from capability development, through DMO, through to introduction into service—from both the platform and the electronic warfare perspective.

Air Cdre Dewort: Within the procurement space we have several aspects, and it comes across all arms of AOSG. In the early phases, in the acquisition phase, there are people who have trained or developed in DT Wing in the flight test compartment who will be resident within project offices, in resident project teams, on programs as we bring an aircraft into service. So they are looking and monitoring the test and evaluation programs for those acquisition elements. When the aircraft then comes into service, we have a role to play in terms of the operational test and evaluation of that asset and making sure that it meets the requirements of the Commonwealth in doing its job. If there is any residual testing that was not accomplished during acquisition, that falls to the test pilots and flight test engineers within AOSG to perform that testing or work with the project office to do so.

Once we have the aircraft in service, depending on the capability, there is residual testing, which is an enduring and ongoing test, depending on the defensive systems, for example. We have specific tests to ensure the reliability and accuracy of the defensive systems within our region, to make sure they are appropriate for the task, so that once again, our people can do the job as required of them. Those tests often take place in Woomera. So you can see that from cradle to grave we have the ability for AOSG to have input into the way we acquire, introduce and maintain aircraft through their life cycle.

Senator FAWCETT: Coming specifically to the MRTT project, the multi-role tanker transport, we had evidence this morning around the fact that DMO is striving to be a more businesslike enterprise and focus very much on contracts and program management. We had evidence from Engineers Australia across a number of spaces, whether it is military or civil, that there is a focus on contract management and program management as opposed to technical management. Often the technical things can be overlooked, left behind or not understood by people in the procurement chain. I wonder if you can comment on AOSG's role in terms of providing the technical people into that program and comment on the make-up of the team, because some of the feedback we have had is that perhaps it was very contract and program heavy initially in that team.

Air Cdre Dewort: With respect to MRTT and AOSG's involvement and the staff who have been involved in the program, there are essentially two core elements to look at. The initial is the provision of flight test support for the resident project team. The AOSG component was really to provide people who are qualified and experienced to perform the role of Commonwealth test pilot, supported by a flight test engineer and a flight test system specialist. So, from the flight test perspective, three personnel were embedded in the resident project team located in Madrid.

On the Australian side of the house within the project office, we had a relationship between the project office and the KC30 transition team, which was the Air Force component that was responsible for the introduction of the service. Through the transition team we reached into AOSG for residual support in those areas where the resident project team test personnel were unable to provide the level of support required based on the complexity of the program. That was dependent and ebbed and flowed based on the requirements at the time, ensuring we had the right level of support for the right period of time.

Once the aircraft comes back into Australia, as it is now, we have oversight requirements as the FTAA for their OT&E component. We also then have residual testing that is required where there is reach-back into AOSG to provide access to flight test engineers and qualified test pilots to provide support to that test program and conduct any residual testing required.

Senator FAWCETT: Can we go back to the procurement phase. Obviously you are describing there that we have technically competent people on the ground who are working with the project team to procure it. We then start seeing a fair delay. When the capability manager had a visit, it became apparent that there were some quite significant technical issues with the aircrafts. So something has gone amiss in the reporting system between the people who are on the ground and the people here in Canberra who are running the whole program. Can you comment? Air Marshal Brown, would you care to comment about that relationship between the capability

manager and DMO in terms of visibility of what is occurring within a project—that there should have been such a rapid catch-up at a point in the life of a significant project?

Air Marshal Brown: To be honest with you, I am not sure that there was. With the majority of Air Force projects, as you have heard, we have a high level of embedding within the project office. So we get a fair degree of visibility of what is going on in those projects.

Some of these things are actually difficult things to do. It is not only defence projects; anytime you start building aeroplanes or modifying aeroplanes, it does not always tend to go to plan. The Boeing 787 is running three years late; that is a commercial program and a lot easier than some of the programs that we take on. I think we had a reasonable view of the delays that were occurring in the program. I am not sure that it was that big a disconnect.

Senator FAWCETT: There was a very large draw, though, on the flight test capability of AOSG once some of those issues became apparent, which goes to some of the evidence we received earlier today that the approach that DMO appears to be taking is very contractual and program heavy as opposed to having the appropriate level of technical skills. Can you comment on whether having more appropriately technically qualified people in the process earlier may have mitigated some of the issues we have now found, particularly with the boom?

Air Marshal Brown: I think that is true, but I also think there was a large degree of underestimation of the complexity of that particular program right from the start. I think everybody viewed it as a much easier program than what it was, and that probably led to the way it was staffed. You have to remember that we ended up being the leading-edge customer on this. We had not intended being the leading-edge customer; the RAF were supposed to be, but they ended up doing a PPP, which delayed them. So the initial acquisition strategy was all about a public-private partnership. They had some significant problems in standing that up. The original strategy was that we were to be second and follow the RAF through it. We ended up being in the lead and taking a lot of the development load.

Senator MARK BISHOP: Like Tiger.

Air Marshal Brown: In a similar sort of fashion.

Senator FAWCETT: So the skill sets in AOSG were the ones needed to recover the capability. We have seen, as mentioned, there have been other programs like this, where the initial sell, if you like, is that this is almost MOTS or COTS, not developmental at all; and yet we see over a number of programs that in the end we often have to do a fair bit of the heavy lifting in that space. What is the future for groups like AOSG in an environment where everyone is talking about driving down more and more MOTS and COTS purchases?

Air Marshal Brown: We have started to have a look at what the implications are for more MOTS and COTS purchases. The reality with military off the shelf is that you still need the sorts of capabilities of a resident in AOSG, especially if we decide that we want to operate it in a slightly differently way from the original certification basis for the aeroplane. So, while acquisition is more straightforward with MOTS and COTS, the actual bringing it up to an operational capability is just as difficult whether it is a development program or a MOTS issue. I think people often write off the difficulty of actually bringing in MOTS products sometimes. I see that we will still have the requirement for long-course flight test pilots and test engineers. There might be a change in quantities, but I still see it as a fundamental skill we will keep into the future—whether we do more MOTS and less development.

Senator FAWCETT: What do you see the role is—we are focusing largely on procurement here. Given they are often the people who have both the engineering and operational experience and feed into the capability development process and follow it through, what is the role within the services' ownership of this group and DMO, who tend to set the guidelines around which project team will be made up, how does that relationship work and where do you see that going?

Air Marshal Brown: I suppose with Air Force, I do not actually view the Air Force part of DMO as a separate organisation. We have continued to invest some of our best engineers and logisticians inside wherever DMO is going, and actually within ASD, Aerospace Systems Division, we have quite a close relationship. If I was to use the AEW&C project as an example, I think the resident project team had about 42 people in there. Some of our best engineers were on that particular program because it was a highly developmental program. We will continue to look at the difficulty of the program and at the skill sets that we need to put into it. If I can go back to MRTT, I think we underestimated the difficulty of that particular project because we thought that we were actually following another major service, and that probably led to some of the delays that we ended up with.

Air Marshal Harvey: If I can add on the capability development side: we rely on the services such as AOSG and their Navy counterparts for developing test concept documents, which are an essential part of the capability

development document suite. So we need the test concept document and the test evaluation master plan after that. And resident within the Capability Development Group we have the Australian Defence Test and Evaluation Office which focuses on the joint capabilities and testing as the equipment comes into service. So again we tap into individual services but then we do a detailed test plan associated with all the major projects as they go through second pass as well.

Senator MARK BISHOP: Congratulations on your appointment, Air Marshal.

Air Marshal Brown: Thank you.

Senator MARK BISHOP: I am sure you are going to be a very capable leader of Air Force over the next few years.

I will ask you this question first and then perhaps Air Marshal Harvey might care to comment at the end. I have been struck in the material that has been provided to us in this inquiry by the difference in achievement by Navy vis-a-vis Air Force vis-a-vis Army, the three different services. Without going into it too deep, your organisation currently seems to be—absent a couple of projects we are all familiar with—very competent at delivering capability on time, on schedule, within specs and there is little criticism of Air Force. There are varying degrees of criticism of the other two services, and we will have that discussion with them later.

Do you mind putting on the record, considering your long experience in Air Force, what you regard as the key attributes of your organisation that lead to that success; if and why it is essential they should be retained; and the consequences of altering from that apparently successful model?

Air Marshal Brown: If I can talk specifically to Air Force.

Senator MARK BISHOP: Yes.

Air Marshal Brown: Air Force's PR that it puts forward in terms of flying aeroplanes and the essential reality of an air force are two different things. I talk in terms of an air force at its heart being a complex engineering, logistics and support organisation, and the quality of that support actually determines the quality of an air force. If you think about it in those terms, Air Force tends to breed a set of specialists, whether it is the engineers, the logisticians or intel specialists, and I think we essentially value the specialist for who and what they are rather than try to produce a generalist. Air forces were essentially put together to manage high technology—that is what we do and that is what we have to do because that is the nature of the beast that we operate. As I look into the future, I actually have a project running at the moment. If I look into the future of Air Force, as we have gone from organic support, where we have largely done it all in blue suit, through to PBLs and then on to total system support—so more contractor involvement through it—one of the things that we are looking at very carefully is how we continue to grow that expertise that we have within the organisation and not lose it. That is a body of work that I hope will be delivered in the next six or seven months, because we have lost or are losing a lot of the organic support that we have done. I do not mind the new models, from performance-based logistics through to total system support. We have some very successful models on how that works, but what it does is actually reduce that engineering and logistics base. So into the future we need to be very careful about how we grow our expertise, and that is one of the fundamental things that I am looking at very closely at the moment. We have to look at some new models so that we can actually continue to produce that expertise and not lose it.

Senator MARK BISHOP: So it is that growth and retention of expertise. You said earlier that you provided that expertise to DMO to assist them at their end of the process. Is that one of several critical factors, or is it the critical factor that makes you different and apparently successful?

Air Marshal Brown: I think that that is the critical factor, because that is all our engineers do. The Air Force is about 14,000-odd people. There are only 700-odd aircrew in it; the rest are engineering and logistics support people that make sure that we can actually get the aeroplanes flying and operating well. So I think Air Force values its specialists and has always valued its specialists.

Senator MARK BISHOP: Your mission, as you say, essentially is to fly a set of high-technology platforms—a bunch of high-technology machines—in the air; that is not to trivialise it. With a lot of this new Navy stuff—Collins, the new-generation subs, the AWDs and even the LHDs—they are just high-technology centres either on or under water, in a lot of respects. I will not take the comparison too far. This may not be a question you care to answer: is that organic growth, development, retention and training of expertise similarly essential in your professional assessment of Navy—or do you not care to comment? I do understand the politics of this.

Air Marshal Brown: There are some comparisons you can draw. Navy's challenges are actually larger than Air Force's in lots of respects, because they operate small numbers of bespoke platforms. As an example of the sorts of fleets that we operate, we operate FA18s; we operate 71 of a fleet of 800 or 900. We have the ability not

only to use our own expertise but to reach back into a bigger pool. The challenge that Navy has is that with Collins you have a one-off; you cannot actually reach back into anybody. So the size of Navy's challenge, compared to our ability to leverage off either the US Air Force or the US Navy, means that the challenge is bigger for them, I think.

Senator MARK BISHOP: That is a very good answer; thank you. Does that then mean that, going forward, if we want to grow and operate a Navy that has similar capabilities to those of your organisation and that built by your predecessors, government needs to direct more attention to that expertise and those specialists in and around Navy?

Air Marshal Brown: Again it is difficult for me, having been in one organisation, to comment on another.

Senator MARK BISHOP: In that case I will flip it to the man on your right. He is the head of the CDG and must have, I think, addressed these issues in the back of his mind on a fairly regular basis. So I will put the question to you, Air Marshall Harvey, and not embarrass your colleague.

Air Marshal Harvey: I will tell you of one of the flow-ons. We talked about the Air Force being a relatively small part of a big global fleet. The other thing is balancing off-the-shelf and built-in-Australia. We have a predominantly off-the-shelf Air Force capability. We accepted quite some time ago that we really cannot build complete aircraft or systems. We will go down a developmental path when we have to, but even with AEW&C and tankers we have seen that you get into issues. That is the risk you take if you want to be the leading edge of something.

Navy is a bit more balanced the other way. There are not that many that are completely off the shelf. Even if they are off the shelf we tend to build them in Australia, and introduce some other risks there. So there is a bit of a difference. I think it is true that Air Force did make a big investment in the technical work force, particularly in the numbers of people they put in the DMO to support Air Force as they went through. So there are a number of factors there playing together.

Senator MARK BISHOP: We heard evidence, and I received a brief some time ago, that back in the middle-to late-eighties, for whatever reason—I think this might also be in the ANAO report—Navy made a decision to outsource a lot of its engineering skill and talent. And some of the problems are now being identified in that ANAO report, in terms of lack of knowledge, lack of expertise and those sorts of things. To have a Navy, even within the constraints that you have just outlined—of indigenous purchasing and manufacturing and the like—does government need to direct Navy to put more resources into developing and retaining expertise at the level and of the quality referred to by Air Marshal Brown?

Air Marshal Harvey: I am not fully across it but I think you would know that the Rizzo review made comments about a technical workforce for Navy. That review has been done and there is action in train to rebuild that technical work force.

Senator MARK BISHOP: You are the head of the CDG. In due course you will be consulted on these issues, if you have not been already. What is your professional assessment in response to that question?

Air Marshal Harvey: Sorry, I thought the question was in terms of building up the technical work force.

Senator MARK BISHOP: It was.

Air Marshal Harvey: That is in train. People have recognised that, through a number of issues. As we saw with the amphibious ships et cetera, work needed to be done to address that issue. The broader Rizzo review looked into that so I think we do see Navy working to build up the technical work force. In my area we are putting additional resources into the maritime development area. Particularly in future projects, getting more people in early to identify the risks early, will be an ongoing part of that. That will reduce risk in the Navy for future systems, as well.

Senator MARK BISHOP: I am not so sure that that scale of damage that has occurred in Navy, for a whole range of reasons over the last 25 to 30 years, is appreciated at more senior levels. I do understand that Rizzo has addressed parts of that. And I do understand that there has been some incremental change. I do understand that there is a set of committees and negotiations going on, but I am really asking, in your professional assessment, do you think there needs to be a much more significant focus on identifying and attending to the whole set of shortages that exist in the technical engineering side of Navy?

Air Marshal Harvey: I believe that issues have been identified. There is work in train to do that. Parallel to that the Air Force has been almost completely turned over in terms of capabilities within a 10-year period. Almost all of the platforms are changing. In the Navy we see the LHDs and AWDs coming in. In the future we will see—we talked about OCVs this morning—the SEA5000 replace the Anzacs as well. So there is a lot of turnover there

already. On the people side the skills are coming up but, as well, the platforms are being replaced. We have seen the challenges in the submarine. They are being worked on to be addressed eventually, or we will step into a future submarine as well. So there is a lot of work to be done but just as in the Air Force, we will eventually see all the platforms turned over.

Senator MARK BISHOP: We will, but just with the list of projects you have outlined there, we are talking about tens and tens of billions of dollars on new capability or replacement capability over the next 15 or 25 years. Arguably that would be hundreds of billions of dollars of capability when you take into account the new subs and the whole of life. At government level, is there sufficient awareness of the shortcomings that currently exist, or are we simply putting bandaids on problems that get attention on the front page of the *Daily Telegraph*?

Air Marshal Harvey: Again, I think the whole reason for the Rizzo review—and I am not the expert on that—was to look into those issues and see what needed to be done to address the shortfalls that government saw at the time.

Senator FAWCETT: Some of the things that led, though, to the Rizzo review, are things like outsourcing, where we have seen a great downsizing of our engineer workforce in Defence. So, given that some of those things are still extant, in your view or even from Air Force's perspective, what are your plans for growing your engineering workforce to be sustainable into the future?

Air Marshal Brown: This is something we are having a fair bit of discussion over at the moment as we look forward. As I said before, we do not have the same opportunities to grow. And I do not think, if I look at the cost basis for operating the Defence Force, that when you do it in blue suits it is generally more expensive to do than sometimes when you contract it out. So I think one of the things that we are looking at is being a little bit more porous in the organisation so that we can actually put our engineers out in the industry for a certain amount of time and bring them back, so that we can skill them in industry. We are actually doing that with some of our maintenance workforce at the moment, swapping in industry, sending some of our guys to do some of the deeper level maintenance so that they can get those sorts of skills and just substituting industry back into our OM. We are looking at the sorts of contractual models as we go forward.

I have heard these procurement arguments a lot of the time. I will just give you an example. There are only so many things you can actually control on the Commonwealth side sometimes. AEW&C is a classic example—and I always go back to probably two core things that were not done correctly on that project. There was a decision taken by the prime at one stage, when we got to the system integration lab, to use emulators instead of real equipment on the systems integration lab. That meant that a lot of the integrations problems, instead of occurring inside the lab, occurred when we built the aeroplane. That decision was objected to by the Commonwealth quite strenuously at the time, but it was taken on a cost basis by the contractor. He decided that that was one way to save money, and they were confident in their design. To look at another aspect of the AEW&C program, it had a six-month development, test and evaluation program. If you benchmark that against any other similar sort of highly developmental program, you will find that most people allow about three years. Guess what? That is about the time that it has taken us to do. So decisions were taken early on. My view of that program is that we have lost time but we are going to end up with the capability we contracted for. So it is not all driven by the DMO or the services; there are decisions taken by the contractors sometimes that have a very big influence on the outcome of the projects.

Senator JOHNSTON: Let us just pause on that. It is very interesting that you raise the fork in the road as to emulators and/or a proper test and evaluation of the system prior to seeking for it to be integrated and put onto the aircraft. How does that occur, and what were the lessons we learned from that? Obviously the contract must have been deficient. The technical advice at the front end must have been deficient. Looking back, we should have said before signing the contract, 'We want to see the systems working in the real, not in the emulation.' It is easy with hindsight, but that is what we should have said.

Air Marshal Brown: With all these contracts, you can never micromanage them down that far. You have to remember that these companies do make commercial decisions. The Commonwealth had no leverage at the time to change that particular decision. You could argue that maybe they should have.

Senator JOHNSTON: That particular project was a leading project that others have followed—the Turks particularly. We were the guinea pig—that is the word I was looking for—and yet we allowed it to unravel. But, really, if you apply a sensible historical analysis, it did not unravel; it just went pretty well according to what was Hoyle in terms of such a technically developmental project. But we were led to anticipate and believe that things would go in a particularly easy way.

Air Marshal Brown: There is always a conspiracy of optimism. Especially when you are dealing with Americans, you are always going to go through that aspect of it—that is the way they do business. Having said that, I was over in Seattle a few weeks ago looking at the P-8, and they have applied a lot of lessons out of the Wedgetail to the P-8 project. They have done 30,000 hours of system integration testing in the lab with all the systems working and no emulation. So they have learned their lesson with that one, and I think that program is going reasonably well at the moment.

Senator JOHNSTON: That is encouraging. So our project has benchmarked and projected lessons learned into a project that is still very important to us—the P-8 project.

Air Marshal Brown: Yes, that is correct.

Senator JOHNSTON: So it is swings and roundabouts—we might make a saving down the track that we probably notionally will not—

Air Marshal Brown: Wedgetail was a fixed-price development test evaluation project. The Commonwealth did not do too badly out of it when you do the final analysis.

Senator JOHNSTON: When you factor in all the things, yes.

Senator LUDLAM: I have some questions to put on notice for these folks.

Senator XENOPHON: I am just wondering whether it would be appropriate to talk about the process involved in the joint strike fighter. Is that something that is within your purview?

Air Marshal Brown: Yes, certainly.

Senator XENOPHON: In terms of what was done previously and in terms of what is being done now, it is my understanding that the normal procurement process was not necessarily followed by the former government in relation to the joint strike fighters because there was some urgency in getting a replacement. Is that correct? Is that a fair—

Air Marshal Brown: No; I think the conclusion was that, if you wanted to operate the best air force in the region, there was no other aeroplane on the drawing board that was going to meet that specification. I think that is probably the fundamental answer rather than any sense of urgency. I think the other thing that drove it—

Senator XENOPHON: Does that mean that the procurement process that was in place on previous purchases did not take place in relation to the joint strike fighter?

Air Marshal Brown: I will hand over to John.

Air Marshal Harvey: The timed element on the JSF was way back in 2002, which was the time limit in joining as a partner in the development of the aircraft. But back in 2002 there was the decision to join as a partner in the development; it was not a selection of the aircraft to purchase. That did not come until about 2006, and that did go through the full first-pass process and then second-pass process.

Senator XENOPHON: Were we already locked into it by virtue of what occurred in 2002?

Air Marshal Harvey: We were not locked in; we paid—I think—$150 million contribution over time to be a partner in the development, which gave us access to information to inform the decision process subsequently.

Senator XENOPHON: But I guess by virtue of being a partner you have a nexus, if you like, in the process. I am not criticising that in itself, but it did mean that there was some significant investment at that stage in that project.

Air Marshal Harvey: It certainly gave an indication that we were looking at potentially going that way, yes.

Senator XENOPHON: I am more interested the whole issue of process. We are getting some Hornets as a transitional aircraft while waiting for the delivery of the F35s. Is that right?

Air Marshal Harvey: Actually, the 24 Super Hornets we have acquired are a bridging capability to the JSF, and they will replace the capability provided by the F-111. The first tranche of JSFs will replace the classic Hornets, and we will replace the Super Hornets later.

Senator XENOPHON: There has been media commentary that has been critical, firstly, of the process and, secondly, whether it is the best fit. How do you respond to that criticism in the sense that there is a concern that the announcement made to buy the F35s and the earlier F35s had some unresolved technical problems? That is one of the assertions made by commentators on the procurement. How do you deal with those risk factors if we are buying something early in a cycle? Just from a process point of view, how do you deal with those sorts of issues in terms of risk assessment when we are buying something that has been relatively unproven?

Air Marshal Harvey: Inherently in any developmental process, yes, there will be risks. One of the mitigations for that was that we are one of nine countries involved, led by the US. It is their largest project ever. Our exposure in terms of costs was fixed in terms of our contribution. Our first two aircraft come in the sixth year of production. So we are a ways down the track in that. We progressively buy aircraft in relatively small numbers. We are looking at buying the least complex variant of the aircraft. We have quite a few mitigators in place for that.

Senator XENOPHON: Finally, what depth of involvement was there with the DSTO in terms of a risk assessment of the technological aspects?

Air Marshal Harvey: One of the benefits of joining as a partner in the project was that we did have DSTO people involved in the project—we did have access to information to do the risk assessment. That informed government at the time it came to make our decisions at first pass and second pass. We mention this morning the discussion with DSTO. There have been two specialists based in Washington that looked just at the JSF, and over time we have averaged about 50 DSTO scientists involved looking at just JSF. It is not risk-free but we have good knowledge of the risks and we are aware of what mitigations are required.

Senator XENOPHON: In terms of the whole issue of how you approach this, earlier in 2010 then US Defence Secretary Robert Gates sacked the F35 program's head and fined the manufacturer Lockheed Martin. What sort of alarm bells does that set off as a partner in the project?

Air Marshal Brown: I think it is actually worth doing just a bit of a historical view of aircraft programs. We now declare the C17 as a very successful program. Back in the early 90s that program went very close to being cancelled by the US Air Force. They have now manufactured over 260. If you have a look back, in 1963, when we first ordered the F111, it certainly had its challenges at the front end. In fact, we parked them for five years before we brought them into service. They subsequently served 37 years. If you are going to have a leading-edge air force, sometimes you have just got to work through some of those discoverables on the way through.

Senator XENOPHON: Because of the nature of the technology involved. But my question was: when Robert Gates back in 2010 as the US Defence Secretary sacked the program's head for the F35 project and fined the manufacturer, what processes does that trigger to further assess the risk?

Air Marshal Brown: John is more expert than I am, but I looked at the guy that they put in to run it and I looked at what he did to the program after it. I think he got rid of the conspiracy of optimism on the program and actually built a schedule that has some slippage involved. Having a chat to him, he has got about a 25 per cent factor of slippage in the program. So things can go wrong with the JSF and he has 25 per cent extra test flies and reflies in there. So a much more realistic program has been put together than was previously the case.

Senator XENOPHON: The previous project head's crime might have been to be too optimistic?

Air Marshal Brown: Definitely.

Air Marshal Harvey: I think the message was that even at the level of the secretary of defence they took this thing very seriously. They sent a strong message to the defence organisation and the company as well to make sure they get this right.

Senator XENOPHON: So pessimism pays sometimes?

Air Marshal Harvey: They say the project manager's job is to balance optimism and pessimism on a daily basis. If you are too pessimistic you would never try and run something that is complex, but you have to get that balance right.

Senator XENOPHON: Thank you for that. Thank you, Chair.

CHAIR: That concludes this session. We thank you for appearing. We now call the capability managers, some of which include yourselves.

BINSKIN, Air Marshal Mark Donald, Vice Chief of the Defence Force, Department of Defence

CALIGARI, Major General John, representing Chief of Army, Australian Army

DAY, Major General Stephen Julian, Capability Manager, Department of Defence

HARVEY, Air Marshal John, Chief, Capability Development Group, Department of Defence

JONES, Rear Admiral Trevor Norman, Acting Chief of Navy, Royal Australian Navy

McKENZIE, Mr Ian Robert, Acting Deputy Secretary, Intelligence and Security, Department of Defence

[14:57]

CHAIR: I now welcome the capability managers. We have seen some of you earlier today. Would you like to make an opening statement in relation to this particular matter?

Air Marshal Binskin: I would like to provide a brief statement to set the context so that you understand the players you have here today. You have me as Vice Chief of the Defence Force. I am the joint capability authority. I make sure that the capabilities as they come together, whether they be new capabilities or standing capabilities, are developed in accordance with the joint concepts and are capable of being interoperable in a joint sense. I sit across all the capabilities. We have capability managers in Defence—we have Chief of Army, Chief of Air Force, Chief of Navy, today represented by General Caligari and Admiral Jones, and the fourth capability manager is Deputy Secretary, Intelligence and Security, represented by Ian down the end.

Underneath those capability managers—and some capability managers may have dual tasks—you will have capability coordinators who are the users of a lot of the equipment. Why aren't they capability managers? Capability managers are responsible for raising, training and sustaining force, so it is quite specific. If they do not do that they will normally be a capability coordinator. CIO is a capability coordinator. While I am the joint capability authority I am also capability coordinator for health, logistics, policing and defence. It is a cascading level of ownership throughout Defence. You have asked for the capability managers, but we can go to capability coordinators if you want to talk to those people as well, but we have the main players here at the table.

CHAIR: Thank you very much, Air Marshal. Has the release of the Defence handbook changed the role and responsibilities of the capability managers in any way?

Air Marshal Binskin: I think it has. I think it far better defined the authority and roles of capability managers. We discussed it this morning. The capability managers have a far greater role right upfront on capability development and a far greater say over the development of those projects as they come into service. At the end of the day a capability manager sits across the capability. The capability development group identify a capability requirement and options. The DMO procure product, as does Defence Support Group and CIO and all that, but the capability manager is the one that ensures that it all comes together as an overall capability. They are responsible to CDF for that.

CHAIR: That is very helpful. Just changing the subject a little bit, is the expertise for naval ship-building design, construction project management and maintenance in the services with CDG, DMO or industry? Who has the expertise for these things?

Rear Adm. Jones: We have some engineering experience within our regulatory domain in terms of mobile architecture and other engineering advisors, both civilian and uniform, particularly in our regulatory domain. The majority of the skill sets that you are talking about rest with the DMO in the sustainment of our capabilities and in commercial industry that supports our capabilities, particularly in the sustainment cell.

CHAIR: Thank you.

Senator HUMPHRIES: What is the process of capability planning and needs assessment is in each of the three services?

Air Marshal Harvey: I lead the capability involvement. We discussed this morning that the needs phase was basically driven by the strategy group in forming the white paper and then informed by what the white paper says about defence planning guidance that identifies the broad needs. We in the capability development group go from the needs to the requirements on behalf of all the capability managers. We do that for all the services and we do that in close conjunction with the services. I have the director-general maritime development, aerospace development, land development and integrated capability development. Typically they are from the services with whom the equipment will be operated. They work closely with their capability manager counterpart and typically with their counterparts, often of the same service plus civilians as well within the DMO, so there is a flow through the chain of the individual service expertise but broken into who has the lead for the responsibility. I have the lead

for the requirements definition for all the capability managers but in close consultation with those capability managers.

Senator HUMPHRIES: Is that process essentially identical in all three services as each need is identified?

Air Marshal Harvey: Yes. It varies a little bit from project to project in terms of the exact requirements but the process is the same. That is one of the reasons the capability development group was stood up give that joint perspective, that common perspective, and have a standard process throughout.

Senator HUMPHRIES: What is the trigger for a capability gap analysis? Specifically, who has the primary responsibility for conducting the capability gap analysis in the needs and requirements phase? Is it the capability managers or is it the capability development group?

Air Marshal Harvey: The very top is treated in the long term. The force structure review would look at what is the long-term strategic requirement and would look at what force structures are required to deliver that. That would then inform the white paper, which would inform the defence capability plan, so the individual projects in the plan are there to either fill a gap or step into a new capability. We will work those individual projects within the DCP. That said, the situation will arise where a new gap is identified and we will work with the services, with strategy group, to develop the high-level needs for a new capability and then we will start back into the formal process of the requirements phase.

There is a long-term picture which fits into the normal white paper force structure review defence capability plan cycle, then on a case-by-case basis something will occur. For example, we recently lost a Chinook helicopter so we will be replacing that. It is not just a matter of buying a Chinook. We go through the whole process of making sure it is of the right standard, has the right modifications and has all the infrastructure that comes with it. We will try to do that initial work out of the normal cycle but then try to plug it into the formal approval committee process as we go through.

Senator HUMPHRIES: It is not a bidding process that is undertaken by individual services. You say force capability initiates that trigger. How do they do that? Do they survey line areas? Do they take bids? Is there a process for them identifying what the capability gaps might me?

Air Marshal Harvey: The individual services have their own responsibilities for providing capabilities to the CDF. If a gap arises for whatever reason, it will flag that and, again, there is a very formal process. A new project is not stood up unless it goes through the Defence Capability and Investment Committee and then only if government would agree to that as well. There is a very formal process. I do not know if the acting CDF wants to add any more.

Air Marshal Binskin: We might go back to Mr Neil Orme and he will explain a bit of the strategy behind this. We now have the capability managers here as well.

Mr Orme: I will reflect back on some of the comments I made this morning about the strategy to capability development process. We have a five-yearly white paper construct. That white paper process is formed by the conduct of a five-yearly forward structure review, a strategic risk assessment and also a budget audit. As I said this morning, if opportunities or threats arise in between cycles, there is an annual process through a document called the *Defence planning guidance* that allows Defence to deal with threats and opportunities as they arise within that five-yearly cycle. That provides an opportunity to have a discussion with government about requirements that might not necessarily have been captured in a white paper. One of the examples I cited this morning, which is quite common, is the lessons that you learn on operations. I used the IED example this morning. You might recall that, following the last white paper, we did conduct a fairly comprehensive force protection review. That reflects the fact that the threat environment, particularly in Afghanistan for example, does change over time and you need to have the flexibility in the system to be able to respond with capabilities that might not necessarily have been extant either in the white paper or in the DCP. I guess it is a dynamic, rolling process. White papers, if you like, are to some extent snapshots in time. They provide the left and right of arc for broad planning guidance but clearly you have to be flexible. From time to time contingencies or exigencies will arise that will require a treatment solution within a five-yearly cycle.

Air Marshal Harvey: In one of those submissions it was mentioned that projects were conceived of by relatively junior desk officers in CDG. That just cannot happen; they are either in the DCP itself, which is agreed in the white paper or a need arises and they have to work their way all the way through the senior committees and get to government. You just cannot have a project unless it is approved in that way.

Senator FAWCETT: In the case of that urgent operational requirement we were just discussing, does the capability manager have more ownership, once it has been approved, of actually driving the schedule, accepting

risk and pushing for an outcome or does it then essentially go into the DMO camp where they then run through their normal processes?

Mr Orme: My stance, looking at it from the strategy perspective, is that it is a partnership all the way along, from inception through to delivery, between the capability manager, the strategy folk, the capability development folk and the procurement folk, particularly in the context of a rapid acquisition, which is most relevant to responding to operational requirements. While the different agencies have different responsibilities for the component parts of the process, it is very much a team effort and very much a partnership. You cannot turn responses around quickly enough in that kind of space unless it is a very joined up process all the way from identifying the strategic requirement, clarifying the capability need and then looking at procurement options to meet a particular need.

Senator FAWCETT: So you would expect the end user, DMO and the industry group providing the solution to be working very much together and sharing information as required?

Mr Orme: Very much so. As I said this morning, if you look at the consultative deliberative processes inside Defence—which start with the senior investment committees, such as the DCIC and the DCC—those committees have at the table all of the relevant representatives from the different parts of the shop, such as the capability manager, the strategists, the capability development group and also the procurement and sustainment group. So it is an integrated approach to the way we do capability planning, both in deliberate planning—the long-term planning that manifests itself in the white paper and the DCP—and also when we have to respond to emerging operational requirements.

Air Marshal Binskin: It does happen. Again, as we discussed this morning, there is a distinct post-2008-09 period and before that. It does happen a lot more post-2008-09. Importantly, where the capability manager has a strong say is against that risk. As you would expect, if you want to get the schedule risk down to a low schedule risk, you make the schedule longer, potentially. That may increase the capability risk because you need this bit of kit in service. That level of discussion and trade-off does occur. What is the best commercial risk against a capability risk? That discussion does happen.

Senator HUMPHRIES: What precisely are the responsibilities of the capability managers for projects on the CDP?

Air Marshal Binskin: Can you say that again?

Senator HUMPHRIES: What are the responsibilities precisely of the capability managers in terms of projects on the capability development plan?

Air Marshal Binskin: The capability managers are in on the discussion on the phase-in of those capabilities as they come in. It may not be the primary driver because, as you know, cash is an issue—the finance side. There is an issue of how much work the DMO can actually put through in the time. There is the ability of the contractor to deliver. So all these things that we have discussed are part of that discussion, but the capability manager signs off very much upfront on the very first set of documentation. It is in that first pass level that this capability will meet the capability intent as flow-down from the strategy that we have got in place and that he or she, in the future, as the capability manager can bring that into service.

Senator HUMPHRIES: Is that it? Have they got ongoing responsibility after that?

Air Marshal Binskin: Oh, no. The capability manager is in all the way on from that as well. So they sign upfront and then has participation at all levels as it goes through.

Senator HUMPHRIES: Until what point?

Air Marshal Binskin: Until it is delivered.

Senator HUMPHRIES: And that is the end of their responsibility?

Air Marshal Binskin: No, not at all, because the capability manager then has to manage it and through a materiel sustainment agreement where the Defence Materiel Organisation agrees on how that is sustained. That is reviewed annually. The capability manager is in pretty much now from cradle to grave.

Senator MARK BISHOP: Is the capability manager the equivalent of the CEO of a corporate entity in terms of those responsibilities from first phase until end?

Air Marshal Binskin: I guess they are. It is hard to bring a corporate sense across to it because it—

Senator MARK BISHOP: I am trying to get a sense of his or her responsibilities and accountabilities.

Air Marshal Brown: Ultimately, as the capability manager, you are accountable. So you will follow the project from start to finish. You might not have all the levers that you would like to be able to do it but you will

push as hard as you can, because ultimately you are going to operate the capability for the joint force. As soon as it starts rolling, you are making sure that the rest of the organisation is doing what it has to do so that you can deliver the capability.

Air Marshal Binskin: If you would allow me to read it out, I can probably provide more detail on the capability manager's roles.

Senator HUMPHRIES: Yes.

Air Marshal Binskin: This is the handbook.

Air Marshal Harvey: The Defence Capability Handbook was tabled on 26 August.

Senator MARK BISHOP: We have got that.

Air Marshal Binskin: You have got that. Okay. If you go to page 18 and 19 of that book, it details what the capability manager is responsible for. I would just be rereading that out. That is the way it is working in practice now.

Air Marshal Harvey: For example, one of the recent developments over the last year or two has been the capability manager being a cosignatory to the Materiel Acquisition Agreement. So it is CDG, DMO and the capability manager for that. The capability roles of the capability manager are explicitly identified in the new joint project directives that CDF and the secretary issue. Throughout the whole thread of the capability life cycle, the capability manager has a key role. The specific level of leadership varies at where you are in it, but he or she has a key role throughout that.

Air Marshal Binskin: Because the capability manager is land, air, maritime and intelligence, they are the primary providers of professional advice in those domains as well.

Senator HUMPHRIES: There are clear distinctions between the roles of the capability managers and CDG?

Air Marshal Binskin: Yes.

Senator HUMPHRIES: Who would you say takes primary responsibility for decision making as that role continues through a project?

Air Marshal Binskin: As the role continues through the project?

Senator HUMPHRIES: Yes.

Air Marshal Binskin: As the role continues through the project—I think the capability manager has a strong say in it but there are different parts of that project. There are the commercial aspects where you would expect CEO DMO to have primacy in that part of the discussion. Capability and the fundamental inputs to capability that go there, the capability manager has a very high say in that. So you cannot say that one has the total primacy in the discussion because the capability manager is not the expert on the commercial side. But what happens in the process at the moment is you do weigh up the commercial aspects, developmental aspects, facilities and the IT—all those factors that the capability manager has to look across the board to make sure that, as it comes together, it will provide the capability the government has signed off on.

Senator HUMPHRIES: It is a little disturbing not to have a clear sense of who is responsible at each stage. I realise that a person might not the expertise in a particular phase—

Air Marshal Binskin: Ultimately it is the secretary and CDF.

Air Marshal Harvey: If I could clarify, if you are talking about up to the point of project approval, the Capability Development Group brings together all the advice so we provide decision quality advice to government, with all the key players in Defence bringing together their individual knowledge, in a cabinet submission or a ministerial submission to make the ultimate decision on investing taxpayer money.

Senator HUMPHRIES: But they are obviously decisions for capability management as the project goes on. We are not referred to that level, are we?

Air Marshal Harvey: We will refer to the capability manager: do you have the manpower to assess this, do you have the sustainment funds to run it, how many hours a year do you want to fly it, do you have the skill levels to do this? We will do the same with the facilities people, with the DMO for their part of it, and with the intel people to support information. So a lot of people come together, and we bring that advice together.

Senator FAWCETT: In terms of accountability what happens if you do get the commercial aspect and the CEO of DMO says, 'Go this way,' and the capability manager says, 'No, I want to go that way,' each for quite valid reasons—what is your process for resolving that? Who do you hold accountable then if it is not actually delivered and they both have valid reasons?

Air Marshal Harvey: We will work this at a number of levels. At the project office level they will try to resolve the issues as best they can. They will raise it to a higher level if they cannot get agreement there. And eventually get to the point where, to the best that I can, I will work with the capability manager or CEO DMO to resolve it. If we cannot resolve it there, we take it to the Defence Capability Investment Committee, and the secretary is the chair of that. But at the end of the day we end up putting advice to government on a preferred way to go.

Senator JOHNSTON: Can you think of an example where we have had legitimate concerns from inside the DMO and from the capability manager that have gone all the way? What is a project that springs to mind in that regard?

Air Marshal Harvey: Many projects come to the Defence Capability Investment Committee to resolve residual issues such as balance of risk or schedule issues, as was mentioned before.

Senator JOHNSTON: But what we are talking about here is the on-ground user saying, 'This is what we need,' and then the Defence Materiel Organisation is saying, 'This is what you are going get.' This is the fundamental issue that we all carry some responsibility for here. If you have an example of legitimate concerns on either way, what is the mechanism for the resolution of this fork in the road, and how do we go forward?

Air Marshal Harvey: I can give you a generic one. For example, you might have one capability that can provide 99 per cent of what you want but it is only available 85 per cent of the time; and then have something else that can provide 85 per cent of the capability but it is available 99 per cent of the time. As best you can you try to quantify that to get a hard fact outcome. At some stage you get to a judgment call. You rely on DMO advice on availability issues and the capability manager will look at capability issues—it is just the role of senior committees to judge those things.

Senator JOHNSTON: What concerns us is the resolution of the money versus the capability, the survivability, the protectability and the applicability of the particular capability, if you follow me. This is the essence of what the battle is all about in terms of the process we go through, and I find it difficult to resolve. For instance, with small things like combat kit, the DMO often says, 'This is what you are getting,' and the man on the ground says, 'This is no bloody good to me,' if you will excuse my French.

Air Marshal Binskin: Senator, I know we have had this discussion in other committees. There is also the issue about what the person on the ground is saying and what the capability manager who that person works for is saying as well.

Senator JOHNSTON: I think that just replicates the problem.

Air Marshal Binskin: But ultimately it is the capability manager that is responsible, not the person on the ground. The person on the ground does literally wear it, depending on what the piece of kit is, but the capability manager takes into account the entire requirements not just that one part that that one person may be focusing on for the whole time. So the capability manager has to bring that all together—whether it is the best overall fit, whether it is sustainable—

Senator JOHNSTON: What is the template he uses? Where is the doctrinal assistance that he looks to to say, 'Here is the way I determine the way we are going forward—either accept this into service or I am very unhappy about it for these legitimate reasons.' What does he look to?

Air Marshal Binskin: That is different from what we were just discussing. How does the capability manager—

Senator JOHNSTON: He is responsible. You have told me he is responsible—

Air Marshal Binskin: He or she is responsible as the capability manager. And again this is where we have to go back—if you want to know how it is working now as opposed to prior to 2008. How we know that the DMO is procuring what the capability manager wants or has agreed is right up front when the capability manager signs off the Materiel Acquisition Agreement, the MAA, so therefore the DMO now deliver to that MAA.

Senator JOHNSTON: Or purport to.

Air Marshal Binskin: Well, they deliver to it. That is what they are reporting to. If they do not, trust me, the capability manager will be the first to flag it as an issue, and then it is an issue that will need to be resolved. You may find as you go down the path that the contractor physically cannot deliver what was signed up for. That comes back. The DMO come to the capability manager and CDG and say, 'Listen, this is the problem we have. We need to have a look at this.' But the DMO in my experience—there may be a couple of smaller issues—in the major capability side of it is not making decisions without consulting the capability manager and CDG.

Senator JOHNSTON: Okay. I have a couple more questions for Major General Caligari.

CHAIR: Go ahead.

Senator JOHNSTON: The microcosm of what we have just been discussing is in a little operation, which I think is a very successful and pleasing operation, called Diggerworks. I would like you to discuss with the committee what Diggerworks does and is intended to do. The bit I am really interested in is that Diggerworks puts forward a host of very well-considered solutions to combat uniforms and combat equipment for the combat soldier. Somewhere along the way I suspect that the DMO takes those and rejigs them into something that is different from what Diggerworks has said. Now Diggerworks engages industry and spends a lot of time doing it. I would like you to tell us a bit more about that organisation, because I had the benefit of Major Khan's presentation yesterday down in Melbourne. Who is ultimately responsible for the choice between what the DMO want to do and when an organisation like Diggerworks says, 'This will work'? If you could answer that for us.

Major Gen. Caligari: Thanks, Senator. Diggerworks actually originated because of some problems we had with equipment two years ago that you would be aware of. The problem is actually that you need to turn over the equipment into theatre much quicker than we were able to do under the current acquisition process. If a soldier identifies a need, the current system was not being responsive enough to be able to deal with that need.

Diggerworks is an MOU that I crafted, along with six other two stars across the Defence Organisation, including two of the divisions inside DMO, CDG and Army. What that does is gives me direct access to Colonel Jason Blain. I had the Chief of Army specifically appoint Colonel Jason Blain to be the director of Diggerworks, because he comes with a significant amount of moral authority, having been the Commander of the 6th Battalion Group in Afghanistan last year and took six casualties. So there are very few people who will argue with him when he says that this is what the soldier needs on the ground. And as the vice chief said, there are circumstances where what a soldier says he needs and actually what the capability manager says he needs can be different.

Senator JOHNSTON: Yes.

Major Gen. Caligari: I take that role for the capability manager. Jason Blain and I work directly to each other, the key being that everyone else steps aside and understands that we are the two primary ones to get the equipment into theatre to solve soldier's problems in the quickest way. He is inside DMO—

Senator JOHNSTON: And you have both been in command in Afghanistan?

Major Gen. Caligari: Correct. He is inside DMO, but actually does not hold any of the acquisition strings. He is an integrated coordinator of capability. He works, for instance—

Senator JOHNSTON: Just go a little bit more slowly. He is a what?

Major Gen. Caligari: His actual title is the Director of Integrated Soldier Systems. Diggerworks is an acronym that we use. We created his organisation out of a directorate, so the head of Land Systems Division, Major-General Cavanagh, and I created an organisation that could serve this purpose. He works with industry and essentially finds what it is that is becoming available. That is the industry connection.

It was an avenue that I discovered where we were getting a lot of people coming to us with good ideas that many of us did not even know existed to solve our problems in Afghanistan. He works with them directly, and what we are working with Diggerworks is to use, firstly, force protection money that is still ongoing for Afghanistan and now connecting it to LAN 1, 2, 5 phase 3 Bravo, which is about survivability—connecting the two of those up.

Senator JOHNSTON: This is MCBASS, TBASS et cetera?

Major Gen. Caligari: Correct. We have moved off MCBASS into TBASS, and TBASS will continue—

Senator JOHNSTON: TBASS tier 3 or something we are on to now?

Major Gen. Caligari: TBASS has three tiers in it. TBASS will continue forever now, but it will be modified on an ongoing basis. It is solving Afghanistan's problems in particular now, but what we are trying to do is institutionalise that process so that even after Afghanistan we are turning over equipment at a rate that solves the soldiers' equipment problems on the ground at the time.

For example, 10 years ago LAN 1, 2, 5 generated enough equipment to outfit the army and no new equipment was seen for some period of time and was not expected for some period of time. As new developments occurred the plan to introduce those was being rolled into the next phase of 1, 2, 5—which for us will be phase 4.

What we intend to do with Diggerworks is to roll this along with the army's force generation cycle, which puts a combat manoeuvre brigade on a ready state each 12 months, rotating through the three combat-ready brigades. We want to inject the newest of the equipment into the readying brigade before it becomes ready for 12 months—

Senator JOHNSTON: So they are wearing it here before they leave?

Major Gen. Caligari: learn from that experience and deploy them; if necessary, learn from that, take into account the timelines it takes to acquire some of the new equipment, get all the good ideas from industry—

Senator JOHNSTON: And what are those time lines?

Major Gen. Caligari: In most cases it is around six months. Sometimes it is longer. If it takes longer then it will take a full 12-month cycle to inject it into the third brigade, rather than the second brigade. But in general it is six months. You can inject it in the following year, and there have been a number of examples in Afghanistan. There is hearing protection: we had a company come to us with exactly what we were after for hearing protection. We were able to buy that and put it straight into theatre.

So we are solving issues. The soldiers in Afghanistan now, as I am sure the reports will come back, are very happy with TBASS and very happy with the way we are generating this new equipment, because Colonel Blain has the money inside DMO and DMO does exactly what he says because he comes with my authority.

Senator JOHNSTON: I congratulate you for that. I think that is very positive and a good example for us of expedient, sensible lesson learning. How is it, though—the downside of my question—that I look at a paper and see torn uniforms on the front page of a newspaper? These are Crye uniforms; these are not standard DPCU. This is not a Diggerworks workup—this is something different, is it?

Major Gen. Caligari: No, that is all Diggerworks.

Senator JOHNSTON: Alright, so why are they torn? How did that happen, and what is the fundamental issue with that problem? What are we doing about it?

Major Gen. Caligari: I think that if you took just what the newspapers said you would recognise it was overdramatised.

Senator JOHNSTON: Okay.

Major Gen. Caligari: There was actually a very small sample of them that were torn.

Senator JOHNSTON: How many?

Major Gen. Caligari: I think there were something like 3½ per cent across the board of the equipment that was torn. You saw on the newspaper the worst of the lot.

Senator JOHNSTON: Three and a half per cent is a good figure.

Major Gen. Caligari: It is actually better than we use with our current DPCUs.

Senator JOHNSTON: Sure. But how many DPCUs are you talking about with 3½ per cent?

Major Gen. Caligari: As a percentage of the force that has disruptive pattern camouflage—the desert-looking one—we have a greater attrition rate that 3½ per cent. What we are talking about—

Senator JOHNSTON: Alright, but are we talking about 1,000 uniforms? Fifteen hundred uniforms?

Major Gen. Caligari: Well there are 1,500 soldiers in Afghanistan, and each of them would have four or five sets on them, so there are many more than there are people. And that is an important statistic, because the soldiers who are wearing the Crye uniform are actually only the ones who are using the hardest of the uniform. So they are all the ones stepping outside the perimeter. There are many soldiers for instance changing brake pads in Tarin Kowt or cooking who are also wearing DPCU and there is still a greater tear rate, so the 3½ per cent is pretty significant. The fact that we have such a small quantity of them—by the way, it is actually still a trial. Part of the information we wanted to find out was whether we could fix it easy enough, whether there was something wrong with the material. It is a trial, to find out the circumstances under which this works before we make a full blown decision on it.

Senator JOHNSTON: I am interested in this, because it is a new uniform. So we have gone outside the standard operating procedure with our DPCU. We have gone to this Crye product. The percentage, you tell me, is low. That is fine. I accept that. How is it, though, that it appears they tear in a similar area, around the crotch area? What do we know about the product? Has it been through the usual process that we put all our other standard products through—the DPCU? What is the difference and what are we doing about it? How did it come to pass that these uniforms tear in the same place ostensibly?

Major Gen. Caligari: This is a classic example of what you were discussing with the VCDF a minute ago. A decision had to be made about whether we would take a risk on that, given that these uniforms are being worn by the United States Army and had been worn in Afghanistan for some period of time before we bought them. So we had a pretty good idea of the rate of tearing was and what the problems with it were. The key decision from a capability manager's point of view was to accept that this was actually the best camouflage uniform we could possibly give our soldiers.

While I was the commander in Afghanistan, one of the problems was that everyone was being issued with a desert uniform—because that was what we configured to go go the Middle East—which was perfect for Iraq, but not so perfect for Afghanistan. In fact, most of the soldiers in Afghanistan who stepped outside the wire were all going back to the DPCU, the green uniform. The problem with that was that now they were stepping out into the green zone with a green uniform, and then every time they stepped into the Dash, which is the desert area just outside the green zone, they become a big target. So, whilst we thought we were being very clever some time ago when we went to a desert uniform, it did not suit Afghanistan. So we now have soldiers who are potentially targets as soon as they step into the green, depending on what they wear.

So the key imperative was to get a camouflage uniform that served both purposes as quickly as possible. That was where this particular camouflage colour came in. We had been watching closely for some time what the Americans have been doing, because they have exactly the same problem. The British Army have exactly the same problem. In fact, the American army went to this system first. The Brits did almost exactly the same thing we did; they changed the colours slightly and the pattern so that at five metres you could tell they were a British soldier as opposed to an Australian or an American. They did exactly the same thing. So we are actually one step behind both the Americans and the British in producing this set of uniforms. We were pretty confident we knew the rate of destruction for Afghanistan and we were giving them a uniform that gave them the best protection in no matter what environment they were working in in Afghanistan.

Senator JOHNSTON: So, as capability manager, you stipulated back down through and into the DMO, 'This is what we want'?

Major Gen. Caligari: Yes.

Senator JOHNSTON: What did they say?

Major Gen. Caligari: We actually started looking at a multicoloured uniform initially—

Senator JOHNSTON: Five colours?

Major Gen. Caligari: We started looking at a blend of our own two camouflages—a desert and a DPCU. In our DSTO trialling, it was proving very difficult to do, so we worked with DMO and Diggerworks and said, 'Go and survey industry and the world, and find out what the best thing to do is.' And Diggerworks came up with this answer.

Senator JOHNSTON: Diggerworks said, 'Let's get the Crye'?

Major Gen. Caligari: Yes.

Senator JOHNSTON: Diggerworks said that; you agreed.

Major Gen. Caligari: Yes.

Senator JOHNSTON: How did you get the DMO to do it? What did you physically have to do?

Major Gen. Caligari: As the capability manager, not much—except make the decision that that is the uniform we wanted. It is now a DMO process to acquire it and get the approvals to acquire it.

Senator JOHNSTON: Right. So they went off and did the licensing agreement and all of the things that are necessary?

Major Gen. Caligari: Yes.

Senator JOHNSTON: From the Diggerworks advice, to your decision, to the arrival of the uniforms, how long did that all take?

Major Gen. Caligari: From memory, from the time at which we identified the Crye uniform was the one we wanted to the time we first put the 5,000 sets I think was between six and eight months.

Senator JOHNSTON: That is pretty good.

Major Gen. Caligari: Very good. In fact, we had them in Afghanistan before the last MTF rotated out of Afghanistan. There was some concern as to why they were not putting it on six weeks before they were due to come home, and that was a commanding officer's decision.

Senator JOHNSTON: Thank you, General, I appreciate all that.

Senator HUMPHRIES: From a project's entry into the DCP and second pass approval, can you tell me how the expertise of individual services is used to develop the requirements documents?

Air Marshal Harvey: From the DCP, as you know, there are two major steps: one is the first pass and then to get the second pass. Getting to first pass is a broad survey of what the capabilities might be and to define specific options that we will be taking to government to progress to the next phase. In that phase we use project

development funds to fund a range of studies. Typically it is capability development personnel, a desk officer—typically a service person, but not always the case, and typically of the same service that are going to use the equipment, so a land development project would have an Army officer. So we take the lead. Often we will form an integrated project team to bring people together from the capability manager, from DSTO, from DMO, maybe CIOG if required, and maybe they might hire contractors to provide some professional support as well. So they come together as an integrated project team. Depending on the size of the project it might be a large, dedicated team but in some cases it is a part-time integrated project team that come together as required. They will work that.

They will go through a number of what we call capability development steering groups that are typically at the one star level, which will have a wide range people from the same group but typically at the one star level, to refine the requirements as we go through. We now have what is called a project initiation board where we get Capability Development Group, the capability manager and DMO together to give basically the project a steer in which is the right way to go. It will then get to what is called an Options Review Committee which will look at: what options are you looking at; and how do we formalise those before taking them to government? So that is the process.

Then parallel with that there is probably in the order of a dozen different documents that are developed to inform and to go through the options for the review committee—sorry, one step before that is what is called the Capability Gate Review Board to see if all the documentation is in place. It will then go to the Options Review Committee and then will go to the Defence Capability Committee, except for the largest projects, and at that meeting we have the representation of all the major elements in Defence. I chair that one. We have mentioned strategy, the capability manager and DMO. We also have DSTO, the facilities people and joint warfare people from VCDF group. So there is probably about a dozen people around the table to review that submission before it goes up to the government for approval at first pass.

Once you get that first pass steer, you sort of replicate that in the next phase but you have bounded decisions and you go out to industry to get solicitations. It is a very formalised process. It is in the *Defence Capability Development Manual* we passed out earlier.

Senator HUMPHRIES: At each of those stages you describe though you have the capability manager from the relevant service, but do you have a lot of input from other areas of the service concerned? Obviously the CM will not necessarily be familiar with that particular area. How are you drawing on expertise within that service as to what is required for that project?

Air Marshal Harvey: Typically our desk officer is chosen because of their connection with the services. They will know where to go to get advice or at least you are only one connection away from the appropriate advice. We will go back to say the service headquarters or the specialist area to get the advice and we will pull people in from the integrate project teams. So we will go as required to get the information.

Senator HUMPHRIES: So the advice is sought from the relevant line area but not necessarily anybody from that area is involved in any of those formal processes you are describing?

Air Marshal Harvey: It depends. Sometimes you have people in there on a full-time basis; sometimes they are part time; and sometimes they attend the meetings only. But with the key documents such as the logistics support concept for an Air Force project, for example, Air Force would sign off on that or the Commander Joint Logistics would sign off on that for a large group project. All the stakeholders get involved in clearing those documents and attending the meetings as well.

Senator HUMPHRIES: You are confident that by the end of all those filters and all those processes the line area concerned will still recognise the project that they originally wanted?

Air Marshal Harvey: Certainly, because, as I say, the service representatives are at all the steering groups meetings, they are all at the committee meetings, and when we get to the level of the submission going to government we have to get all the capability managers from all services to sign off on those and clear them before they go forward. There certainly should be no surprises in the process.

Senator HUMPHRIES: You will be aware of evidence before the committee already that one of the negative consequences of centralisation in relation to Defence acquisition is that some of the technical skills that go with capability development and the overall technical regulatory framework have moved from the service to CDG and the process that you have just been describing. I assume that that is largely undeniable. That has been the product of centralisation of this exercise, hasn't it?

Air Marshal Harvey: That is right. I think with any complex organisation you have to work some form of structure. Any structure you develop breaks some form of synergy, but potentially to the benefit of something

else. So the idea of trying to group them together in Capability Development Group we would see as a benefit as opposed to breaking them between individual services.

Senator HUMPHRIES: Are you confident, personally, that we have not taken too many of those technical skills away from the outlying areas and brought them into the centre?

Air Marshal Harvey: I do not think there is a risk of that. The main way we operate is such that I see my DGs as working as much to the service chiefs as to me, so there is a full and free flow of information to allow that to happen.

Air Marshal Binskin: Also, in each of the three service headquarters—I won't speak for INS, because I am not quite sure there—the capability manager has his own little capability cell that is ensuring that all those FIC elements are being managed as well. But they are plugged into the CDG capability and the DMO as well, to make sure that the capability managers' deeds are being managed and the work being asked for—whether it be out in the field, on the hangar floor or whatever—is actually flowing into the requirements development and then the delivery.

Senator HUMPHRIES: Okay.

Senator MARK BISHOP: So, you say the shift to the more centralised approach that Senator Humphries raised is proving to be beneficial as it is practiced. What do you then say, in that context, to the criticisms that the ANAO had, where Navy has essentially been denuded of the whole range of engineering skills? They have gone elsewhere.

Air Marshal Binskin: I won't speak for Navy, but I think you may have heard it from Chief of Air Force before: the different services, at the end of DRP and some of the reforms that happened around the nineties—there were a couple of others as well—Air Force chose to maintain its investment in engineers. I cannot speak for the other two services. To be honest with you, Air Force did not choose to continue investing in the logistics. We learnt from that mistake, and then reinvested in logistics over the last five years to stand back up the logistics element as well. So I think it is one of those areas: the three services still have to maintain that expertise by being willing to invest in those levels of capabilities. Regardless of whether you are going to centralise, share-service or whatever, you still need to grow that expertise that understands that environment.

Senator MARK BISHOP: Right. So is that really a question better directed to Rear Admiral Jones?

Rear Adm. Jones: Yes, Senator. We are fully seized of the outcomes of the Rizzo report and our need to improve our technical skills base, particularly our engineering strength. That is a focus of the current Chief of Navy, and we continue to work to implement the Rizzo reviews. We are looking very carefully at how we have our resources allocated within Navy at the moment. We are also looking to see where we might be able to get supplementation to improve our engineering base.

Senator MARK BISHOP: It's not the time now, Rear Admiral, but one of the critical issues in this inquiry is what I say is the apparent shortfall in engineering and technical skills in Navy, and the problems that seem to derive from that. I have heard from you now, and I think from Air Marshal Harvey before, say that Navy was seized of the problem, attending to it and implementing change. You might provide us on notice a detailed response to what Navy is doing to implement the shortcomings and deficiencies—if that is the proper description—on the engineering and technical side, so that we do not have those problems that ANAO have going forward.

Rear Adm. Jones: We can take that on notice and give you a response. As I said, I know the chief is working actively to implement as quickly as he can the Rizzo recommendations and he is working through that forum to deliver those.

Senator MARK BISHOP: I am looking for hard data on skills, retention, numbers, levels of expertise that show us that the problems that are now in the public domain are being attended to. That would be useful.

Rear Adm. Jones: A useful document we could give you is a synopsis of the initiatives we have underway now to restore our technical competence.

Senator JOHNSTON: Rear Admiral and VCDF: how is it that aeronautical engineering is perceived as an essential function we cannot let slip or drop—

Air Marshal Binskin: I had better let the Chief of Air Force answer that.

Senator JOHNSTON: CAF, yes, sorry—you can see where I am going here—yet engineering functionality in the maritime space is not perceived as so essential. I find that very difficult to digest. We all use aircraft. We all hope to goodness that someone looked at it before it took off, everything that should have been hanging off it was hanging off it and it is all functioning perfectly, because we do not want it to fall out of the sky. We do not seem

to apply over some 15 or 20 years the same level of concern to the operations in the engine room in a boat. I cannot for the life of me see how we have been suckered into that mental disposition. How did this happen?

Rear Adm. Jones: I think that is a long story, Senator. I think Rizzo gets to the heart of it fairly well in a very pithy way. This had its genesis over many years. I think in fairness you could characterise it in terms of a criticism that was levelled at Navy a while ago about the can-do attitude. I would not want to lose that edge quite frankly, because the can-do attitude is about fighting and winning at sea, but when that is at the expense of due diligence in the attention to maintenance, that is when you know that you have swung too far to the right.

We are aware of that. This first came to light when the former Chief of Navy instituted the Seaworthiness Board construct to mirror in some respects the Air Force initiative of the airworthiness boards. The current Chief of Navy has not only embraced that but further refined it. We realised at that point, even before Rizzo tabled his findings, that we had some challenges we needed to address fairly quickly. Mr Rizzo's report merely reinforced what we had come to conclude through our own analysis. We did not pay enough attention to the importance of our technical engineers as a rider to the maintenance of our capability. There are differences between aircraft and ships, and I think it is important to understand. If people understand the consequence of an aircraft engine failing, it is a bit hard for them to understand the material condition of ship when it is still tied up alongside a wharf and it looks okay. It is about making sure we can manage the aggregated risk in future and know when we need to assess those matters.

Senator JOHNSTON: Are you saying to me that we are going to replicate, in a Seaworthiness Board, the air certification structural system in a seaworthiness structural certification system?

Rear Adm. Jones: Not in its entirety. Those elements that are relevant to the maritime domain, we are incorporating. There are some elements of the Airworthiness Board that we would not see as relevant to the maritime domain. That is ultimately where we are heading. It is about a more appropriate method for providing due diligence that the technical worthiness of our capabilities enables us to meet our obligation to government.

Senator JOHNSTON: Why is that we need Mr Rizzo to tell us all this?

Rear Adm. Jones: As I said to you, we had started to come to that conclusion ourselves based upon the early information we were getting from the initial Seaworthiness Board. You would recall the Seaworthiness Board into the LPAs and what led from that. But it was important to get an independent validation that what we had come to understand in Navy contemporarily was a challenge for us. So I think the Rizzo review was good in that it gave independent verification that we had some issues we needed to work through, and we are now using that as the vehicle by which we can address those matters.

Senator JOHNSTON: So when I want to see the airworthiness and maintenance certificate for an aircraft, which is a pretty important thing to look at—when it was last serviced, how many hours on the motor, all of that sort of stuff—what am I going to be able to look at with respect to a ship?

Rear Adm. Jones: We have no maintenance records at the moment. What we have to do is have better interrogating and auditing of those processes to make sure they are followed appropriately and properly so that the equipment is maintained to the standard. That includes, of course, making sure that the data bases from which the maintenance is conducted are up-to-date and relevant for the equipments fitted to that particular vessel.

Senator JOHNSTON: I would have thought that the systems used in the aeronautical space would have had, with some differences, application in the maritime space. So if I want to see what I want to know about the airworthiness of an aircraft and all of the data that the Air Force has put into that, I should be able to do exactly the same thing with a ship given that the number of passengers is multitudes more than on the aircraft.

Rear Adm Jones: That is true, but with respect to that there are some issues to do with the navy capabilities, and I think the Chief of Air Force touched on this earlier, that makes us different from them in terms of the quality of the data that went into the acquisition of that capability in the first place. We can leverage off a larger organisation that is employing that same capability and has done the engineering quality assessment and put the rigour into building the maintenance databases that support that capability, and I am talking now about military off-the-shelf aircraft from overseas sources, compared with the ability of our navy with a parent navy responsibility, and that means we are the sole operators of a unique piece of equipment from acquisition. If we do not get that piece right in the first place, that is when you start to see long-term impacts as we have started to see. We can look at the Collins class example. If you do not get the database right up front, and you do not get the maintenance data injected in that database and if you do not recapture that fairly quickly then you build a debt that is hard to recover—

Senator JOHNSTON: Collins is a bit of an orphan and I would not want to use that as an example.

Rear Adm Jones: It is not an orphan; it is a parent navy responsibility platform and that brings with it attendant issues that we need to be better at dealing with.

Senator JOHNSTON: But if I want to go and see the seaworthiness of HMAS *Perth*, I need to know that the data that has been put in is reliable, that the data has integrity and has been maintained, and that what I am looking at tells me all of the essential things I need to know to meet a seaworthiness criteria, in line with when I want to turn over the motor and take off on an aircraft, surely.

Rear Adm Jones: We do not do seaworthiness boards on specific ships; we do them on classes, and so in this particular case we would look at the fleet of eight ANZAC class ships to look at the systemic problems that might exist through the seaworthiness board across that class. That is how we deal with it.

Senator JOHNSTON: But if I am taking off an aircraft, I can see exactly what the hours on the airframe are. If a cylinder is blown in one of the motors in a frigate then I need to be able to see that, surely, in some document.

Air Marshall Brown : There is a difference between operating aircrafts and ships. With airplanes you have no choice but to actually put in very high-reliability systems. The consequences of any part in an airplane failing are actually much greater than they are on a ship because fundamentally a lot of the time the ship stays afloat, so you can have equipment failures on ships but they do not have the same sort of consequences that they do on airplanes.

Senator JOHNSTON: I do take issue with that. We are getting two 28-thousand tonne vessels that contain an awful lot of ordnance, people et cetera.

Air Marshall Brown : True, but do you take my point that you can have failures on a ship—

Senator JOHNSTON: Well you can have failures on planes that are not—

Air Marshall Brown : That is true, but—

Senator JOHNSTON: Where we can glide down and hope for the best, but I am just saying there are comparisons that we need to acknowledge.

Rear Adm Jones: Yes, and all I would say is that we are working towards having a better understanding of the material condition of our vessels and the seaworthiness board is one vehicle by which we will do that.

Senator FAWCETT: We have had a lot of assurances today that, post Mortimer, the relationship between the capability manager and DMO as the procurer has become a lot closer and more functional. We are now talking about sustainment, and Rizzo's report written this year and some of his strategic actions. He talks about actually getting closer working arrangements between the capability manager and DMO, and there are a number of actions through here at a tactical and strategic level that basically say that relationship is not functional. In broader comment from the panel, are we looking at two differences between the capability manager's relationship with DMO in the procurement space verses the capability manager and sustainment? Because at the end of the day, it was DMO that was sustaining navy ships, albeit the navy had perhaps lost its ability to know that DMO were not doing their job.

Rear Adm. Jones: That is a good point. We were instructed a little by the Army experience here. Major General Caligari's area, in fact the Deputy Chief of Army, instituted a deep dive process into materiel sustainment agreements. We have adopted a similar approach. Prior to that we were not as rigorous in understanding and asking the DMO what they were doing in terms of the expenditure of what was effectively our money in managing our product schedules or our particular capabilities. This started for Navy in 2010. We had our second major deep dive in February-March this year. We have another one due in November.

That has enabled Navy to be a far better informed customer in terms of the service provision from the DMO. The more you interrogate these materiel sustainment agreements—and for the first time we now have key performance indicators injected into those—one question begets another and you become far more forensic in your analysis of how they are managing a capability. That is actually a constructive process; it is not a destructive one. It builds a better understanding of each other's challenges. Quite frankly, there have been times when we were ignorant of some of the challenges that DMO was confronting in trying to manage our capabilities.

So I think Rizzo is absolutely right. And I am quite happy that we have started that journey because we are more informed as a consequence of it. We are getting a better mutual understanding of the challenges associated with managing some of our capabilities, including what Rizzo highlights in terms of the challenges in managing aged capabilities. So we need to understand what we need to do to support the DMO to manage those aged capabilities, and to lobby on their behalf as well as our own to ensure that they are given the resources to deliver what we expect of them. It is a good process.

Air Marshal Binskin: To build on that, I think we are seeing that capability managers are now a lot more in the process than they were before, but it takes time to change that. Materiel sustainment agreements take a lot of time to develop. Each MSA is very thick, and the various capability managers go through those with the DMO on an annual basis on what is required in a sustainment sense.

Over the years you are also seeing—again, back to Air Force being an engineering logistics organisation—the investment of people in the DMO was about 850 or 900 people and that was Army and Navy combined. The previous two service chiefs in Army and Navy realised, in about the 2009-10 time frame, that it takes time to develop those skills and put them in.

There is another important part here. The capability manager has primacy in capability but he or she cannot discount the needs of the DMO in a sustainment sense. At some stage you get to a point where you have to negotiate with the DMO. There are commercial or sustainment aspects where a ship must go into refit or—I cannot remember the exact term—alongside for maintenance. The capability manager can say: 'Yes, that's okay. Put it off. Put it off. Put it off.' But at the end of the day it gets worse and worse, and at some stage it will be off-line for a while. The capability managers from the chief level down to the environmental commanders—the fleet commander, air commander and forces command—need to weigh up those issues when making their capability decisions. A short-term or short-focus decision may have a long-term impact. They need to understand both those, and you can get that only by working closely with the Defence Materiel Organisation.

Senator FAWCETT: It is no different to 20 years ago when the maintenance people worked for the capability manager. They advised him, as opposed to having a contractual agreement with him around the same things. Has there ever been an analysis of the net cost to Defence of now having all these contractual relationships, sustaining additional organisational structures and having, as you said, MSAs of varying thickness as opposed to having people—whether civilian, APS, military or contractor—working within the chain of command of the military? Has that cost-benefit analysis been done?

Air Marshal Binskin: I do not think that has been done. I will make this comment: the only people who talk about the 'good old days' are the people that were never there. I hear that more and more around the place. The 'good old days' had its own issues. To be quite frank, the last thing I want to put on us is another review—we have got a lot of those.

Senator JOHNSTON: Hear, hear.

Air Marshal Brown: But you have to say that the current organisational construct puts high transactional costs and a lot of communication between the groups. You could look at other constructs that would probably be more effective and efficient than the ones we have at the moment.

Senator FAWCETT: That is the heart of my question. I am not suggesting we go back 20 years. But, as we move forward, the last thing we need is more levels of bureaucracy and more interservice agreements. We need to find a way to streamline and get the continuity of command such that the person we want to hold accountable has a reasonable level of control over all the elements he needs to do his job.

Air Marshal Brown: The thing you need to be careful of is that we have constructed a whole lot of input-focused organisations; that is the way we are at the moment. The reality is that we have an output that we have to produce. It is much better if you can get everybody involved focused on the output rather than what the inputs are.

Senator MARK BISHOP: You made comments about the high transaction costs and the extensive internal consultation. That is a direct consequence of the matrix management system in Defence, isn't it?

Air Marshal Brown: That is true, but we are not too different to a lot of other organisations that wax and wane on organisational constructs a lot of the time. That is one the big disadvantages of a 14-group organisation: to get anything done requires an extraordinary amount of effort across the groups.

Senator FAWCETT: The WA government is in the process of unwinding their shared services. Part of the rationale for shared services was to get commonality of process. For example, all three services are operating aircraft, but they all work to one process, because you have a regulator who stipulates a process and then audits it. There are probably many areas you could move forward by winding back shared services but having common standards.

Air Marshal Brown: That model—having someone set standards and frameworks and letting the output functions look after the whole process—is probably the better way to go.

Senator HUMPHRIES: Can I ask about the role of the Capability Systems Division in bringing a project for consideration of the options review committee. Do capability managers work with the Capability Systems Division? If so, how and when do they get involved?

Air Marshal Harvey: Within Capability Development Group at the moment we have Capability Systems Division—they are basically sponsors of the project—and Capability Investment and Resources, which are the contestability side of the shop for that. In the capability systems side within the individual environments, there will typically be a desk officer, who is the desk officer for the project. They will bring all the inputs together. They will bring that to the capability development steering group. At this point, as I mentioned before, the capability manager representative is there, depending on what level the meeting is. They will then go through the various committees I mentioned before. There are probably in the order of a dozen people sitting around the table, and the capability manager is at least one of the people. There is DSTO, DMO, Defence Support Group and the strategy group. The capability manager is a key player at all those meetings.

Senator HUMPHRIES: It is a sort of continuous involvement with that division.

Air Marshal Harvey: Depending on the size of the project, there might be a standing integrated project team, of which the capability manager would be a part.

Senator HUMPHRIES: What input do capability managers have in the development of the project management plan for a project?

Air Marshal Harvey: A project management plan typically is more a DMO lead because they will become the project managers once we get through project approval. But again, as part of the sign-off from the key stakeholders, they will get a chance to sign off on the key documents as well.

Senator HUMPHRIES: The chance to sign off on key documents as in—

Air Marshal Harvey: I will get back to you as to whether the capability manager signs the project management plan or not. But as part of the capability gate review board they get to review all the key documents. That plan itself will be a DMO lead. I am not sure whether the capability manager signs off on that one, but I will get back to you on that.

Air Marshal Binskin: If he or she has resource implications in that then they should be in the sign-off process. One of them would be AOSG, for example, in a test sense. I am with CCDG; I have to remember whether I signed off on it or at what level we had the coordination. But we can check and get back to you.

Air Marshal Harvey: There are in the order of a dozen documents. A project management plan typically looks at how the project will be managed as such. We have a test concept document as well. There is a test master plan. You have logistic supports concepts. There are a whole range of documents.

Senator HUMPHRIES: Does sign-off mean taking responsibility for what is put forward in the document?

Air Marshal Harvey: Typically you have someone that takes the lead on the document and you get agreement of the stakeholders that they agree with the content of the document. You still have one person who led the development as being responsible for the content.

Senator HUMPHRIES: In what sense are they responsible? If something goes wrong are they the person that you turn to to say, 'What happened here?'

Air Marshal Harvey: If you had made a judgment call—say an acquisition strategy, where DMO typically take the lead, they will provide advice on acquisition strategy. If for some reason it goes wrong we would certainly look at DMO and say: 'What went wrong with that advice? Why did that go that way?' With a test concept document AOSG may provide advice on that. If something does not work out we go back to AOSG and say, 'What went wrong?'

Senator HUMPHRIES: Does the capability management in that process assist in establishing the cost estimates for the project as well as the risk and mitigation strategies that are going to be used?

Air Marshal Harvey: Cost estimates are very complex. We have a very detailed cost modelling approach with multipaged spreadsheets developed for the cost models. People are responsible for individual elements of that. A key driver of cost would be rate of effort. The capability manager is a key player in what the rate of effort will be. They have a key role to play in sustainment.

Air Marshal Binskin: But we will check the cost models as well.

Senator HUMPHRIES: Again, the language is a key player. It does not quite tell me whether he takes responsibility for delivering that plan or whether he supervises somebody else doing it or whether there is a collective responsibility for that.

Air Marshal Binskin: Delivering the plan, delivering the project, is the responsibility of the CEO of the DMO.

Senator HUMPHRIES: I mean delivering the plan up the line.

Air Marshal Harvey: Are we talking about the project management plan in this case?

Senator HUMPHRIES: Yes.

Air Marshal Harvey: It depends. The DMO will have the lead in developing the project management plan. That will call out responsibilities that the capability manager will do. It is just a matter of how you mean 'key role in the plan'. We will check to see if they sign off on the plan, but if there are elements in there they are responsible for, as VCF said, I expect they would sign off that part.

Senator HUMPHRIES: The *Major projects report* has highlighted problems and delays often resulting from shortcomings in product specification in this process. In you view is product specification the responsibility of capability managers? If not, who is responsible or who shares responsibility for that?

Air Marshal Harvey: Prior to project approval, CDG take the lead in that, but in consultation with DMO and the capability mangers. We will do as best a job as we can getting that right, but part of it is judgment calls and the level of specificity of those requirements, what are essential requirements, what are important requirements. We will work together with the manager and the DMO to develop those specifications.

Senator HUMPHRIES: Are you saying CDG is responsible for product specification? It is not the responsibility of capability managers?

Air Marshal Harvey: Capability managers will give advice on what they basically need to deliver capability. It is our job to work largely with DMO and contractors often to turn those into formal specifications that go out to industry. A capability manager will say, 'This is what we need the thing to do, but it is not their job to write the legalistic specification of that.

Senator HUMPHRIES: I realise that, but whose responsibility is it to settle those specifications for proceeding up to first and second pass?

Air Marshal Harvey: We will take the lead in bringing that all together but we would sign that off. Again, that is one of the key documents that has delivered the operational concept document or the performance specification. The key documents that are delivered are the document suite, and the Capability Gate Review Board would clear those documents.

Senator HUMPHRIES: Is the Black review going to lead to changes in any of those processes?

Air Marshal Harvey: It possibly could, based on a number of factors, given that at the high level, the defence level, there was a requirement to review all the committee processes with, say, a sunset of 12 months. Every 12 months there would basically be a review of the requirement for the committee. So it could affect from the top level down. I do not know yet because it has not been considered. But there are a large number of committees, as it identified, so the future of those we do not know. Inside the capability development process, that will be part of the review when the associate secretary takes over as well. It could change; we just do not know.

Senator HUMPHRIES: You would be aware of the views of a number of stakeholders before the committee that industry's input is involved too late in many of these projects. Isn't that input at a stage where it can help shape the product specification or other essential information about defining what project is required or to be delivered? I think you have already commented on this today, Air Marshal Harvey, but are there other comments from the panel here about the validity of that complaint? Are we involving industry at an early enough stage to identify better what it is that we want and how we can get that?

Air Marshal Harvey: Can I add a point to that, and I was going to follow up with the specifications. Often we will put out a draft tender document for industry to comment on as well. We do not want to put it out there absolutely set: 'This is what it has to be.' We will seek industry engagement as well to review a draft document before putting the final out. Otherwise, as I said this morning, we engage at various levels. But that is one of the key parts as well, to make sure we do not put a specification out that is not possible to be delivered. So we seek industry feedback before we put that out formally.

Senator HUMPHRIES: At an early enough stage? Are you confident by the time industry is brought into the room to comment on the specification that it is not so far advanced that it is more a case of shaping its direction rather than determining the overall nature of it?

Air Marshal Harvey: That is what I said—in the early days we talk about the informal engagement so we understand what is out there in the market and get ideas from industry. We go through the environmental working groups to again shape that. We help them to frame the requirements and then the formal engagement is for the draft tender document. As General Caligari said, in things like Diggerworks they engage with industry to understand what the art of the possible is. So it is really a bit of a capability push idea to know what is out there that is available already.

Senator HUMPHRIES: So industry is just whingeing to us there, or they are seeking advantage by being involved earlier in the process and they want to get in on the ground floor to maximise their influence on what happens.

Air Marshal Binskin: I would if I were industry. We talked this morning about the probity issues. It is hard to bring them in early. We talked about the need to bring them in early so there is confidence they will tool up. But they will not tool up until there is a commitment, but you cannot give a commitment until you have been through the proper competition. It is a balance. You also do not necessarily want a particular industry or company to shape the response because there might be other options there as well. I think the balance at the moment is okay. Was it SEA1180 this morning? We can talk to you a bit more about what is going on with industry because that was one of the discussion points, so I will put that to Chief of Navy and he can give you a bit of what is going on there very early on in the process.

Rear Adm. Jones: I heard this morning that you had some interest in SEA1180 and the level of industry engagement. SEA1180 is not due to deliver for a number of years yet, but both the Chief of Navy as the capability manager and Air Marshal Harvey as the chief of the Capability Development Group signed what we call an initial capability description which is an unclassified document—this is specifically in relation to SEA1180 and the OCV. That is the vehicle by which you encourage industry solicitation about the concepts that are envisaged within that project. I have a copy of that here if you wish to see that.

Senator HUMPHRIES: Can you table that?

Rear Adm. Jones: Yes. The conclusion section of that is quite insightful in answering some of those earlier questions that you raised about too much specificity in the solution set. That is not in fact the case. It is quite open if you read the conclusion about what industry could look at. This is not due to deliver for another nearly 10 years and we are already trying to engage with industry on this matter.

Senator HUMPHRIES: And this document went to the relevant industry stakeholders?

Rear Adm. Jones: My understanding is that Capability Development Group use this document to give to industry that shows an interest in that project so that they understand what our capability description requirements are.

Senator HUMPHRIES: In SEA1180?

Rear Adm. Jones: In that particular instance that is specific to SEA1180, the offshore combatant vessel.

Air Marshal Harvey: That is the invitation to register formally. This is informal advice to industry.

Senator HUMPHRIES: Informal advice?

Air Marshal Harvey: Yes.

Senator HUMPHRIES: How long after the capability gap was identified that led to SEA1180 and that document? Was it before that document was issued?

Rear Adm. Jones: At this stage there is no gap. This is part of a defence capability plan project which seeks to replace those capabilities which are approaching their end of life. So this is getting ahead of the game.

Senator JOHNSTON: It is a new approach to maritime capabilities, which modulates a whole lot of existing capability in different FEGS into one type of vessel.

Rear Adm. Jones: Not necessarily. If you read that it says it might be more than one type of vessel. In fact it is very clear in the conclusion. I think it is important to understand in the context of the comments made about this project that the capabilities that are represented by unique platform types at the moment—we are talking about patrol craft, mine hunter coastal vessels for mine warfare operations and hydrographic survey vessels—bring with them an overhead. They are unique individual vessels with different systems that drive up my sustainment costs and my workforce challenges in terms of the training overhead for dissimilar workforce types who cannot be cross-pollinated across a broader range of navy capabilities.

What this seeks to do is get greater commonality against subsystems within the vessels, be it one hull type or perhaps more than one, but it also is reflective of where these warfare fighting techniques are moving into the 2020s. We are seeing a convergence of the hydrographic survey and mine warfare type of work by virtue of the greater use of automated underwater vehicles or unmanned underwater vehicles. So there is a natural synergy to be developed by bringing those together into common systems which plug and play.

This is a challenge for industry—we know that—but it has been done before. If you look at what the Danes have done, with their new arctic patrol vessel they have developed a modular concept in a patrol vessel. They have a modular gun, a modular evolved Sea Sparrow launcher system and a modulised MU90 capability. They

tried this earlier in the 1990s with a patrol boat type, but they abandoned it because it was too much of a technological leap. They have certainly got it going now and I think Australian industry can probably arise to this challenge. We have given them a broad definition of what we think our requirements are so that they can help define what their options to deliver might be.

Senator JOHNSTON: That helps us a lot, Admiral. When we asked this morning for an example of where this has been done before, we did not have one but we now do have one. I am not sure that the full enumerated pockets of capability are in the Danish example, but to us, as casual and slightly educated observers, the combination of several, discrete, important maritime capabilities for an island nation such as ours, laid out in the way it was, has alarm bells ringing, as you would understand.

Rear Adm. Jones: I do, but I would highlight that we are not alone here. There are other western navies who are seeking to move towards modular systems that are adaptable because of those benefits that I outlined earlier—reduced sustainment and training overheads and the convergence of the different war fighting techniques towards common solution sets.

Senator JOHNSTON: You can bet on the fact that we are very supportive of exactly what you have described. We like to see the challenges attacked and innovation put to the fore. But what we are looking for is the confidence that the i's are dotted and the t's are crossed at inception, and that it is not something that is a thought bubble that has come from nowhere.

Rear Adm. Jones: No, I think the capability development group have already done some advanced work on this. One of the capability technology demonstrators looked at unmanned underwater vehicles, and that was a precursor to informing some of the work that we are doing. And so it is a natural evolution of understanding of what we are asking industry to deliver in the technology domain.

Air Marshal Harvey: Not just that, but we are also looking at the US littoral combat ship, because they do have some modular systems in there, to see what lessons we could learn.

Senator JOHNSTON: That is the example I thought you might have given me—a smaller version of the littoral combat ship, with all of its versatility, flexibility and capacity for our littoral environment. But I am told that multihulls are not the flavour of the month inside Navy.

Rear Adm. Jones: When you read that you will see quite clearly that the Chief of Navy, Vice Admiral Griggs, has signed up to the fact that he is not mandating a solution. What he is mandating to a certain extent is commonality of subsystems to drive down his sustainment cost—that is where he wants to go.

Senator JOHNSTON: We relate to that.

Rear Adm. Jones: But if the OCV ultimately becomes a system of ships—some mono-hulled, some tri-hulled—he is not opposed to that. In fact, he is quite open in making the statement that he has signed up to to inform industry.

Senator JOHNSTON: I appreciate those comments. Thank you.

Air Marshal Harvey: In terms of engaging with industry, there is also the land side—the Land 400. As part of the Land Environment Working Group at the Defence and Industry Conference we released the user requirement for the Land 400 as well, to get out there with industry early to say, 'Here's broadly what we want,' to get the ideas.

Senator JOHNSTON: I come back to this issue of probity. It strikes me that we overstate the probity problem. Yes, we are a small market. Yes, we our primes are all foreign owned, but has anyone ever thought of trying to get them together to get their advice?

Air Marshal Harvey: That is what we do in the environment working groups.

Senator JOHNSTON: Yes, but at the environment working groups they are all sitting there together and they are all looking over their shoulders saying, 'I'm not going to tell them about what I've got on my planned list.'

You have a probity officer with you and one-on-one you say, 'Here's our problem; what do you think?'

Air Marshal Harvey: That is what we tend to do. Generally we have a group meeting with all the people in play. You are right; generally there is not that much discussion because they do not want to talk in front of the competitors. It tends to be us talking to them. You will get some discussion on broad common features. The cost of tendering is always a good one that comes up as a cost. You then break out to special group discussions on a topic. Then you have one-on-one meetings. We can do that. It is not a problem having one-on-one discussions as long as we do not go beyond a certain point and as long as you are fair and willing to share the same information with other people and make sure that we do not swap information we get from one company inadvertently to another company.

Senator JOHNSTON: That is important; yes.

Air Marshal Harvey: There is nothing to stop us talking with them. We just have to be disciplined in the way we do it.

Senator JOHNSTON: You have to have a template that is signed off by probity officers who are experienced and know what is a fair thing.

Air Marshal Harvey: Depending on what level we are at. Once in the tender stage I certainly defer to DMO. It is very legalistic. When we are at the early, exploring-concept phase it is not quite as difficult. Again, the challenge is not to flow ideas from one contractor to another inadvertently.

Senator JOHNSTON: It is the big projects we are talking about. It is the big-ticket items which require an amount of work on them before you start to really do anything, to get the concept right.

Air Marshal Binskin: I guess we also get around it in the development phase where we fund, up-front, a number of companies to develop a solution. We have done that with Wedgetail. I think there were three different companies and we put $8 million in each company to develop. We had some skin in the fight; they needed to put money towards it as well.

We do do it. Air warfare destroyer is another model we developed. So for the bigger-ticket items we do do it. But it does add to the process. It does add to the workload, as well.

Senator JOHNSTON: The tendering example I am thinking of is the patrol boat tender that said, 'Here's the maritime environment. Tell us how many boats, how many days and what we need to spend. Just come back with the solution.' It strikes me that industry that has the capacity to do that, and carry that burden, should be utilised, because they do it every day, potentially.

Air Marshal Binskin: And there are some capabilities where that is useful. There are others where it is not. If you do it too much you actually take the capability manager out of the loop so far, because you have given industry the chance to develop the whole—

Senator JOHNSTON: I contrast that with the specification of the tare weight across axels in the Land 121, for instance. Truck manufacturers know what they are doing, pretty well, I think.

Air Marshal Binskin: Yes.

Senator FAWCETT: Speaking of trucks, I move to a slightly different question. In the acquisition phase obviously part of the capability manager's role is to identify all the FIC elements that you need to fund and make sure that they are appropriately provided for in your personnel, training, hanger age for aircraft, shelters to put trucks under, petrols, oils, lubricants et cetera. All of that has to go into the process and go up to government and get approved. How do you cope? What pressure does it put on the capability manager when government turns around and gives you a gift of 101 Bushmasters? How did that go through that process and how do you then cope with the ongoing costs to sustain that capability?

Major Gen. Caligari: Presumably we have no problems with that. It is now just matter of the facilities and all of the FIC elements that go with it. As capability managers we are responsible for a capability realisation plan which ties together all of the fundamental inputs to capability—people, organisation, support, facilities, training, equipment and doctrine. We put all of that together. The Chief of Army is the capability of manager for land capability. Depending on the significance of the capability there could be three-star steering group, right down to something that my one star deals with. Across the board, he keeps his eye on defence support group and the facilities and he coordinates. For us it is not so much 'How do we cope with that?' but a matter of 'How do we integrate that with other things that make it a capability?'. Obviously the vehicle itself does not come as a capability. How do we introduce that into service into an army that is actually busy? These are the main two issues for us.

Air Marshall Harvey : As capability development takes forward the proposals for government approval, we are responsible to identify those FIC elements and make sure they are all covered, and they are addressed in the proposal. As we said then, the capability manager will be responsible for a capability realisation plan to make sure they eventuate, but we have to identify all those requirements as we go forward.

Senator FAWCETT: Do you have the option in a case like that to go back to government and say 'Thank you very much but we are already going through SRP. We are very lean and we need additional funding for certain FIC elements'. Or do you have to take out of hide to absorb that additional capability.

Major Gen Caligari : We asked for these vehicles because they relate to the number that we have lost in Afghanistan and, based on an attrition rate, how many we thought we needed for the time that we are likely to be

in Afghanistan. So the 101 was actually a demand of Army's to replace vehicles that have been destroyed or are likely to be destroyed. We had that all worked out before we asked.

CHAIR: Can I just say, it has been suggested that we have a quick five minute break. Is that something that you would like to do? Okay, we will take a five minute break.

Proceedings suspended from 16:26 to 16:39

CHAIR: I might ask Air Marshal Binskin to make some comments about any changes that might have occurred in the way Defence is handling issues to do with developing equipment and whether there has been a change in approach since 2008, as I gather.

Air Marshal Binskin: Chair, I just wanted to clarify. We are sitting and we are getting the questions, and we are not sure what state of evolution of the capability development system we are talking about. I guess there were different parts or different phases that we have been through. We went through the Defence Acquisition Organisation—the DAO—and then Kinnaird. That was when the sustainment and procurement were all put together, in about 1999 or 2000, from memory. Then we went through the Kinnaird process in about 2003-04, which dictated basically the current process we are in—the two-pass process. Then, in 2008, we had the Mortimer review, which increased the overlay on the process, and that is what we are currently working to. So sometimes we talk about projects that may have actually started—some of the longer ones. Wedgetail is one; it started right about the formation of the DAO, before Kinnaird. For a lot of what Kinnaird brought up, Wedgetail had been the model. Then, post Kinnaird, I think the tanker project—for an aviation example—was post Kinnaird, with some issues. Now we are talking about projects that we are starting to initiate now in the post-Mortimer period. So we would like to think that we are taking the lessons as we go through each of those reviews, and rolling those in. That is where you are starting to see us talk more about the primacy of capability managers, or the capability managers coming up to the fore now and having equal say in these capabilities.

One thing I would say—I think Chief of Air Force alluded to this—is that each one of these reviews has increased the transactional costs; it has added to the process, not necessarily streamlined. So that is an issue that we do work with day in and day out. But at the end of the day, from what I can see at the moment post the 2008 review—the Mortimer review—it is a better process that we now have in place. It does balance the requirements far better than what we had previously. The commercial capability requirements and the risk are better articulated. It is hard at the moment: because we are answering questions on the current process, it does not necessarily overlay to some of those earlier projects that we are talking about—some of the problem children there. I think that when the CEO of DMO comes in he will be able to give you statistics on how we are actually tracking post Kinnaird in costs, schedule and the capability side. So I think that, if you wait till Friday, he will be able to give you an idea pre and post on that.

Senator MARK BISHOP: Air Marshal, thank you for that information. I do understand that this discussion has really been a continuum of 10 or 15 years, and I do understand that a lot of questions that you are answering today are post Mortimer and post 2008. I think the context of a lot of questions that individuals are asking is really that we are trying to be satisfied that, with a lot of the lessons that were learnt from all of those legacy projects and all of those ones that had a lot of notoriety, say, pre 2008 and 2009 and are confirmed by more recent ANAO reports, the lessons learnt are lessons learnt and are being implemented as we go forward. That is the focus, I think, of where the committee wants to go. It is no good hanging people out to dry for bad decisions that were made in 1998. That is done; I accept that. But I want to make sure that the bad decisions made in 1998 are not going to be replicated as we go forward. If you are asking for the context or a focus of, I think, the majority of people here, that is the focus.

Air Marshal Binskin: I agree with you. It is only a lesson learnt if you do not repeat it; otherwise it is just a lesson identified and it is useless. Our aim is to try to learn.

CHAIR: Thank you very much; that is very important clarification for us to have, I think.

Senator HUMPHRIES: I want to clarify the situation with the materiel acquisition agreements. You said that the capability managers have input into those agreements. Is the capability manager actually responsible for the agreement? Does he deliver the agreement? What is his authority over the agreement?

Air Marshal Harvey: They are a cosignatory. It is the capability manager, Chief of Capability Development Group and the CEO of DMO. It is basically the vehicle by which we transfer money from the unapproved project to the approved project for DMO, primarily, to deliver that. We give them the funds and they deliver the materiel capability.

Senator HUMPHRIES: I suppose no-one is the purchaser or the provider in that model; it constitutes an agreement between those three parties, effectively, for the delivery of the project.

Air Marshal Harvey: It is essentially a contract project. We transfer the money, potentially billions of dollars, across to DMO to deliver the materiel parts of the capability, whereas the capability manager has the rest of the FIC, the fundamental input capability elements.

Senator HUMPHRIES: The MAA specifies the scope, schedule, price and milestone criteria for the work assigned to DMO. The capability manager is responsible to ensure that the capability is brought into service—that is still his responsibility. What is the role for CDG in all of that? Why is CDG a party?

Air Marshal Harvey: At the point of second pass, we have been responsible for getting the project approved. We hold the money in the unapproved project—so we are transferring money across to DMO at that point. We basically hold the contract in terms of what was agreed by government, what was agreed on cost schedule capability and all the details that go there. Effectively, while the capability manager is the ultimate customer, we are the ones developing the contract for DMO to deliver at that stage. We are the keepers of the requirements agreed by government.

Senator HUMPHRIES: That is not DMO because it is providing to the requirements—okay.

Senator FAWCETT: If, for example, there is an enhancement to a capability and the capability in question is deployed, and there is a change in circumstances such that you need to adapt or change the scope of what you are procuring, do you then go back and actually sign a new MAA? Who drives that transfer process? If it is urgent, is the role of capability manager enhanced and is he able to drive schedules, accept risk and make decisions over that when it is already in that process?

Air Marshal Harvey: Initially, we go through a materiality assessment: is materiel enough to have to change that agreement in the first place? If not, we basically go ahead. If it is, yes, we would have to come back and change the MAA. But before changing that, we would have to change the agreement from government as well. So we have to go back to government to change the scope or the schedule or the cost to allow that to happen.

Senator FAWCETT: In regard to putting options to government, if the capability manager says, 'I think this option is critical,' but DMO, for whatever reason, says, 'We're not happy with the contractual side of it,' how is that resolved? Is that what you were discussing previously where it goes back up to you—

Air Marshal Harvey: Yes, we try to resolve it at the lowest level we can and get to an agreed position to go forward. If we cannot get it at the lower level, we work at a three-star level and if not there we go to the DCIC, and then CDF and Sec would make a call. That would be the process. It gets back into the original approval process then; you get back to providing options to government, cost it and then get the government to agree.

Senator FAWCETT: Once it has gone through that process and you have put it up to government, do you then have any control? Is there any accountability for the time frame within which government should respond to Defence over a UOR?

Air Marshal Harvey: We do not control it, but we try to influence it. Our job is to get it to the government as soon as possible and to get it to government in as good shape as possible, and to work with the central agencies, who clear it. So there is a lot of scrutiny by central agencies before it gets to the minister or the secretary of the committee on national security, and then to NSC. We have to do everything we can to make the document as well argued as possible to get the right decision. If required, our Chief of Defence Force would talk to the minister to get a faster consideration. We work that process to try to get it through.

Senator HUMPHRIES: The Auditor-General told the committee previously that the effect of centralisation of the acquisition process in organisations, including DMO, is that the responsibilities that rested previously with the service chiefs are now DMO responsibilities. Do you agree with that assessment and what are the implications for the service chiefs if that is the case, particularly regarding the accountability of the process?

Air Marshal Binskin: What was the question again?

Senator HUMPHRIES: The Auditor-General says that the effect of this new arrangement is that whereas previously responsibility rested with service chiefs they now rest, more or less, with the DMO. I think that is a fair summary of what he had to say.

Air Marshal Binskin: It depends on which process we are talking about, because if we went back in fact to the Defence Acquisition Organisation days back in 2000 and then when the logistics areas were brought in it became the DMO and then we had Kinnaird. I actually missed out a step. We are looking back to that process way back then when the DAO and the DMO were responsible for the procurement of the product—bringing those specialisations together to be able to do that. It is not a recent thing; that was a fair way back. What we have had on top of that are a number of reviews—Kinnaird and Mortimer—which have tried to tighten up processes around that to get the best advice to government for decisions. That was Kinnaird. Then Mortimer brought the capability management back into play as a far more important component. But as Chief of Air Force said before, what we have had is an increase in the transactional side of doing that. Prior to the DAO days, back in the nineties, they were large organisations that the services had doing the procurement. If you think about it, it is not just procurement of the product; it is the facilities, the IT systems and everything that would go with it that you would

be looking at doing today and replicating that across three or four organisations within Defence. So, as CCDG said before, what looks like a simple change to go back to the way it was is probably not simple to put in place and you are going to create tensions in other areas.

Senator HUMPHRIES: You would have heard it said by various people that the service chiefs ought to be the primary clients and not CDG, for example, in the sense that you have described the process, Air Marshall Harvey. So you do not think there is any basis for that suggestion?

Air Marshal Binskin: I would like to see the post Mortimer period and what we have put in place as part of the capability development stream and the Mortimer stream as part of the strategic reform program go for a year or two to see what lessons we get out of it and develop on that. The problem we have sometimes is that we are changing every five years but the projects take eight years to deliver. We are inside our own decision loop sometimes with the reviews rather than letting them mature for a little bit and refine the processes that you need to be able to run that system.

Senator HUMPHRIES: So you are flagging the possibility that we could go back to that system in the future.

Air Marshal Binskin: Everyone would like to own everything that they have. Let me move away from just the pure product of aircraft. If you took it to the next degree, if I were chief of one of the services, capability management, I would need to set up my own IT organisation and facilities organisation as well. Again, it gets back to what were the good old days and whether they are actually practical or not. The biggest problem with the process at the moment is, as you have heard couple of times, the transactional side of it. If that could be refined—and that is what we are working to try and do—we would be in a better space.

Air Marshal Brown: You always end up with a problem with large shared services. The output of any organisation depends on the lowest level they focus their enthusiasm. I just fundamentally believe that they are much better if they are output focused. So if you build large input organisations you will always have difficulties in getting them to relate to what their actual output is sometimes.

Rear Adm. Jones: There are other reasons why you would want to centralise some of those functions. It is about the joint nature of the war fighting and where we are going to. We rely heavily on the fact that we do have some of those centralised functions so that they take into account all of those inputs from the services to ensure we can talk to each other when we are out there in a joint environment. We are seeing this unfold with the landing helicopter dock ships, where that is very much a joint effort between all three services. We rely upon those central groupings, particularly in the communications and information domain in terms of data links, to make sure that we are moving together in a joined up manner. It is very important for us.

Senator HUMPHRIES: There are still cases, though, where products from DMO are rejected by the capability managers as the service chiefs, aren't there? The FFGs, for example. How does that come about in this model?

Rear Adm Jones: Which specific element of the FFG operation are you talking about?

Senator HUMPHRIES: Take that question on notice. I assume that in all three services there are situations where a capability manager will reach a point where he or she will reject a product from DMO. That has happened in the past.

Rear Adm Jones: I think the upgrade is a legacy program though. It is a bit like the ones that we mentioned earlier—it had its genesis a number of years ago, so it needs to be seen through that lens in terms of the situation we find ourselves in when using that as an example.

Senator MARK BISHOP: Let me ask the question in a different way then, because we all went through the energy upgrade program ad nauseum and we understand the problems of communications and the underwater stuff and the upgrades. Thales reminded us of it again this morning. In the new regime, post 2008, do you conceive that it is possible for a capability manager at the end, when he has to sign the capability into service for his respective say 'no, that's not what I wanted, and I'm not taking it'?

Air Marshall Binskin : If the DMO was delivering what he or she had signed off on right back at the start of the project, I cannot see why they would do it. If the current process in place breaks down you may end up in that situation, but, if the current process works the way it is supposed to, I do not see that being the case, because—

Senator MARK BISHOP: Is it really possible with all these lessons learnt and reforms that are part and fully implemented, for a service chief in any of the services to say at the end of the line, when the DMO wants to sign the final cheque, 'no, I don't like that capability' or 'I don't want that capability' or 'it doesn't do what it says it should' or ' I don't understand it—nick it off'? Is that possible?

Air Marshall Binskin : I see a point where a contractor fails to deliver what has been contracted and where you end up with a couple of options. One is to terminate at great cost. Or you can accept what the contractor can deliver with a bunch of liquidated damages. So there may be a point down the track where, although the contractor signed up to deliver something, they physically cannot do it. That has happened in the past.

Senator MARK BISHOP: Seasprite.

Air Marshal Binskin: Seasprite is a classic example. As long as, early on, the capability manager comes in on that and the discussion happens very early on, you may choose to terminate early. You may choose to have to accept a lesser capability and look at what you need to do to remediate that through other means if you have made a fairly large commercial commitment at that stage. That would be an area to consider if a contractor just does not deliver.

Senator MARK BISHOP: But presumably the capability manager, through the process, would have become alert to the fact that the contractor was not likely to deliver at the end

Air Marshall Binskin : With the proper DMO monitoring of projects, which has evolved very well over time, you should have early indicators of that.

Senator MARK BISHOP: So is it right to say that should not occur? Except for the instance you have just mentioned, you cannot conceive of that occurring again into the future?

Air Marshall Binskin : Never say never—but I think the processes are better. I will give you an example of where quite early on in the newer process the capability manager got in with delivering a project that was of concern: the Wedgetail. We are at a point where we are in a contractual cornice with Wedgetail, but we brought the capability manager in and developed a plan with the capability manager. This meant a longer delivery time but in fact allowed that capability to be phased in over time. That worked well for the contractor, well for the DMO and well for the capability manager, and we ended up through a partnership bringing that capability in. I think it is about to hit IOC, isn't it?

Air Marshal Brown: Yes.

Air Marshal Binskin: It is a fantastic capability, but it had troubles as it went through. If you took the direct line, 'No, sorry—I'm not going to accept that because it doesn't deliver what I want,' we would still be there now fighting that. So there is a give-and-take as long as you have that conversation going well between the capability manager and the DMO and CDG and the contractor and you work in partnership.

Senator XENOPHON: I have one question of Mr Orme, who has been neglected for the last couple of hours. It relates, Mr Orme, to when you gave evidence earlier today about your role in terms of strategy. You may be familiar with the paper delivered by U.S. Army Colonel John Angevine to the Lowy Institute in the middle of this year called *Dangerous luxuries*. He was quite scathing. He says that the white paper prepares:

… for contingencies that are least likely to happen, and—

Dedicates—

large portions of the nation's limited resources to missions that exceed the ADF's capability.

He goes on to say that our tasks are:

… more likely to be humanitarian, peacekeeping, nation building, capacity building, support to civil domestic authorities, and other operations on middle and lower levels of the military continuum of operations.

He also says that the Australian planners:

… create potential capability gaps in the very mission areas that Australia would most commonly offer as its principal contribution to a U.S.-Australian alliance.

That is quite a scathing critique of the white paper. Is that taken into account when we undertake our long-term planning with respect to defence and procurement?

Mr Orme: I am aware of that report. I cannot say that I have total recall of the content. As a general comment I can say that there are a wide range of views about matters to do with Australia's strategic planning and national security. That is one particular view; there would be a wide range of views. Clearly, in the process of assembling strategic guidance documents such as white papers, we look at a whole range of views from different commentators. The process these days tends to be a little bit more open than it used to be. That is one perspective from one individual, and there is a wide and rich tapestry of use that contribute to our thinking in this particular space.

Senator XENOPHON: If you could just take on notice some of those matters that I have raised in the paper *Dangerous luxuries*, and, if you are in a position to comment further, I would appreciate that.

Mr Orme: Okay.

Senator XENOPHON: Thank you.

Senator STEPHENS: As Senator Bishop flagged before, we are quite interested in the response to the ANAO report and the submission. I wonder if you have had the opportunity to read the submission to this inquiry.

Air Marshal Binskin: No.

Senator STEPHENS: There are several issues raised. Perhaps if we put them on notice it will give you an opportunity to respond to the areas of concern.

CHAIR: This hearing is concluded. Thank you very much for appearing today.

Committee adjourned at 17:03