

Part V

Training, skills and experience

The committee has considered risk management, responsibility, accountability, contestability and independent advice. If people are to carry out their responsibilities of analysing, considering, reviewing and providing advice, they need the training, experience, skills and support to do so. This part of the report concerns Defence's skill base and level of competence in capability development and procurement. It is based on the premise that Defence can have all the correct manuals and guidelines, best practices and procedures in place, but if it does not have the personnel with the right skills, experience and appropriate level of authority, then its acquisition project will stumble at the first hurdle.

In this part of the report, the committee is concerned with Defence as a knowledge-based organisation. It examines:

- the extent to which Defence is an informed buyer and the factors that support or undermine Defence's ability to manage its procurement programs; and
- the quality of analysis that underpins decision-making, with a focus on the skills set required to obtain relevant information (eg: test and evaluation).

As part of this consideration, the committee looks at the resources that Defence allocates to the main agencies responsible for contributing to an acquisition project.

Chapter 11

Knowledge-based organisation

11.1 Defence relies on highly sophisticated technology to meet Australia's capability needs. This technology is expensive, complex and constantly undergoing improvements. In order to procure equipment that will meet Australia's strategic needs, Defence must be a knowledge-based organisation. It needs to have a deep understanding of the capability it intends to acquire—the costs involved, the time and technical challenges required to bring the capability into service and to sustain it for decades in many cases. In this chapter, the committee's main focus is on Defence as an informed buyer.

The right people

11.2 According to the GAO 'at the heart of a business case is a knowledge-based approach to product development that demonstrates high levels of knowledge before significant commitments are made.'¹ In 2010, it noted:

...no reform will be successful [in breaking the cycle of poor acquisition outcomes] without having the right people with the right skills to carry out and manage an acquisition program throughout the entire acquisition process.²

11.3 The RAND study, *Learning from Experience*, similarly turned its focus on people rather than process and noted:

Large complex design and construction programs demand personnel with unique skills and capabilities supplemented with practical experiences in their areas of expertise.³

11.4 The message coming out of experiences with major defence acquisition projects is clear—when defence organisations are seeking to improve their performance they must turn their attention to the suitability and quality of the groups or people who propose, evaluate, select and manage their acquisition programs. Consistent with this observation, evidence presented to the committee was concerned with the people involved in procurement, rather than the process itself: that is getting the right people into the right positions so they can drive necessary change or simply

1 See for example, Paul Francis, Michael Golden and William Woods, Statement before the Subcommittee on Defense, Committee on Appropriations, House of Representatives, 'Defense Acquisitions: Managing Risk to Achieve Better Outcomes', 20 January 2010, p. 3.

2 Paul Francis, Michael Golden and William Woods, Statement before the Subcommittee on Defense, Committee on Appropriations, House of Representatives, 'Defense Acquisitions: Managing Risk to Achieve Better Outcomes', 20 January 2010, p. 1.

3 RAND National Defense Research Institute, *Learning from Experience*, vol. I, Lessons from the Submarine Programs of the United States, United Kingdom, and Australia, 2011, p. iii.

implement existing process in an intelligent way.⁴ For example, Air Commodore (retired) Bushell argued that the addition of more process to an already 'process-bound organisation' is not the answer.⁵ In support of this view, one industry representative observed:

...Organisational structures only go part way towards solving performance issues...I could have any organisation structure I like that aids communication and interaction. If [we] do not have the right people with the right competencies and the right way of behaviours, then the organisational structure is worth nothing.⁶

11.5 In a similar vein, Dr Davies noted that when things go wrong there is a tendency to assume that if only there had been more process, more information, then better decisions would have been made. He argued, however, that:

...there is no substitute for improving the quality of analysis. And often, rather than adding to the amount of information by collecting more and having more processes and more committees and more paper circulated, actually getting the few right people in the room with the key information they need and the ability to think about it and make a clear recommendation is actually much better than layering over more processes.⁷

11.6 The Royal Institution of Naval Architects also noted that concentrating on trying to improve the situation by imposing more systems or procedures or changing these will not work by itself. In its view, 'systems are not going to overcome basic inabilities'. It suggested that the spotlight needs to be on having 'good-quality, appropriately qualified and current...staff in the correct positions to influence the procurement process'.⁸

Smart customer

11.7 A number of witnesses referred to the need for Defence to be an intelligent or smart customer. In particular, industry argued that Defence needs a very deep understanding of anything that it buys from offshore.⁹ This requires having both a research and development capability and a science and technology capability which can support the development of the skills and experience required to have the ability to question and analyse what is offered by a manufacturer. According to the ANAO, the key challenge for DMO and Defence is to improve the project management,

4 *Committee Hansard*, in camera.

5 *Submission 3*, Annex A, p. 1.

6 *Committee Hansard*, in camera.

7 *Committee Hansard*, 12 August 2011, p. 14.

8 Professor Martin Renilson, Royal Institution of Naval Architects, *Committee Hansard*, 12 August 2011, p. 23. See also comments by The Australian Association for Maritime Affairs, *Supplementary Submission 17*, p. 3.

9 *Committee Hansard*, in camera.

logistics, procurement and engineering services provided to the government, within current and future workforce constraints.¹⁰ It underscored the view that 'knowledgeable people need to be in a position at the right time, to give proper consideration to each system-under-development's functional, physical and regulatory requirements.' In this regard, Dr David Robinson, Engineers Australia, highlighted the central importance of having the expert knowledge to be able to specify requirements. He argued that if 'we have wrong decisions made at the beginning, inappropriate technical decisions, the best management may well deliver a lemon...'¹¹ Such informed people are also needed to verify and validate whether requirements have been met. The overall aim of having skilled and experienced people is 'to ensure that projects move smoothly forward in the clear knowledge of the risks and issues that need to be managed at each point in time'.¹²

11.8 During its site visit to South Australia and Western Australia, the committee also heard similar suggestions about the need for Defence to have the required body of knowledge and experience to manage large and complex acquisitions effectively. Both industry and Defence personnel noted that successful projects rely on understanding design and having personnel with high level expertise engaged, especially at the early phase to avoid serious mismatches and misunderstandings about what is expected.¹³ The committee notes the frequent concern expressed that the opportunities to grow such expertise is diminishing as the government and Defence favour an increasing number of OTS acquisitions and global support arrangements.

11.9 The committee understands some of the concern that OTS and associated outsourcing of design and maintenance has for the development and retention of skills in some areas. At the same time, however, it cannot be expected that as a small buyer in a large international market, Australia can either efficiently or effectively build and retain those very technical skills across the whole gamut of capability. The committee believes this judgement is an important part of initial risk assessment and should be managed on a case by case basis. Regardless of the means of purchase, whether OTS or otherwise, the need for Defence to have far better technical skill at the initial capability assessment phase of the highest possible calibre than is currently the case, goes without saying.

11.10 Indeed, a number of officers emphasised the diligence that Defence must exercise when acquiring a capability. This care extended to OTS purchases, where it is assumed that risk is reduced. They stressed the need for Defence to be in a position where it can, with justification, be confident in the results of the tests and evaluation carried out overseas. To their mind, it was imperative for Defence to know and

10 *Submission 22*, p. 6.

11 *Committee Hansard*, 5 October 2011, p. 6.

12 ANAO Audit Report No. 57 2010–11, *Acceptance into Service of Navy Capability*, paragraph 29.

13 Information obtained during site visit to South Australia and Western Australia.

understand what it was accepting, particularly with regard to the regulatory and certification regime of overseas countries and its applicability to Australian standards and conditions. In their view, Defence must be aware of the different approaches taken, or standards applied, when purchasing from overseas. For example, another country or organisation may have a different appetite for risk, or a less stringent regulatory and certification regime.

11.11 In this regard, Dr Davies was similarly concerned about Defence's ability to assess dispassionately the veracity of the information provided by potential suppliers. In his view, one of the ways to filter out over optimistic assurances was to have 'a level of expertise within the Commonwealth to be able to evaluate those promises.' He argued that Defence needs to look at what is realistic and to know from experience what could or could not be done. He recalled from his own project management experience within the Defence intelligence world that:

If Defence does not have the engineering capability to make that assessment then it is very hard to be a smart buyer.¹⁴

11.12 This implies that while Defence may not have to conduct design engineering or developmental T&E in support of any given project, it must have experienced people competent to witness or review what is being done on behalf of the Commonwealth to be able to make informed recommendations to CDG, DMO or the capability manager. The committee has been presented with numerous examples where this has not held true, especially for projects that have been presented to government as OTS.

11.13 Finally, Defence needs informed experts strong on industry knowhow to protect Defence's interests when contracting.¹⁵ One witness suggested that being a knowledgeable buyer demands 'a mix of experienced commercial and contracting staff with a sufficiently large cadre of domain experts'.¹⁶ Thus, the procurement of major defence capital equipment draws on a range of specialist activities and clearly requires the correct level of skills and expertise to match the complexity of the acquisition including scientific, engineering, test and evaluation, contracting and project management. Highly specialised knowledge is required across all these activities.

11.14 For many years, however, there has been much criticism about the inadequacies of Defence as a buyer of major capital equipment. These include: under-estimation of cost and scheduling, the failure to have the required technical personnel in place to execute Defence's policies and procedures, poor specifications in contracts, and lack of industry, business and engineering expertise.¹⁷ For example, it was

14 *Committee Hansard*, 12 August 2011, p. 11.

15 *Confidential Submission*.

16 *Confidential Submission*.

17 See for example, Mr Innes Willox, Australian Industry Group Defence Council, *Committee Hansard*, 11 August 2011, p. 3. Also see chapter 2 of the report.

apparent to Kinnaird that the failures in the purchase of major defence equipment were due to poor analysis and planning before tenders were sought.¹⁸

11.15 In 2008, the Mortimer Review similarly raised concerns about the quality of analysis and poor capability definition. The Pappas Report also referred to the need to provide a more informed basis by which government could choose where and when to spend money to provide the most effective capability to defend Australia. It observed that there was 'often little critical analysis presented with the sponsor's paper' and it was unclear whether committee documentation was sufficient for high quality decisions.¹⁹

11.16 Witnesses to the inquiry gave added force to these observations about poor decision-making or performance, suggesting that some people engaged in major acquisition projects may not be suitable for their tasks—too junior, inexperienced, unskilled or poorly trained. For example, Air Commodore (retired) Bushell noted that analyses of Defence's major projects 'show that the vast majority of project difficulties stem from an inadequate understanding of the operational and technical requirements of the capability, and poor project management. He argued:

CDG is the focal point, but despite drawing heavily upon the Services for the specialist knowledge required, it is unable to get capability requirements properly identified, scoped, costed and risk assessed as they pass through. This is because the Services no longer possess the operational or technical skills and competencies that existed before DRP [Defence Reform Program] and CSP [the Commercial Support Program] 'reforms' and so cannot analyse and provide the baseline capability requirements information required.²⁰

11.17 A sound indication of the level of understanding of a capability requirement is reflected in the quality of product specification and the ability to verify tenderers' claims. As an example of Defence's weakness in the area, Mr Matt Cahill, ANAO cited the Lightweight Torpedo, which was 'originally presented as an in-service solution'.²¹ Likewise, the committee was told during its visit to South Australia that Defence needs a more robust and questioning approach, so that if someone comes to the market with bullish assertions, its personnel can assess the assertions confidently and properly. One officer pointed out that Australia needs to ensure that it is provided with all the facts, citing cases where it has purchased an 'export version' from another country and then needed to minimise the gap between the export version and the capability that the Service wanted.

18 *Defence Procurement Review 2003*, August 2003, pp. 2 and 9–10.

19 Department of Defence, *2008 Audit of the Defence Budget*, 3 April 2009, p. 51.

20 *Supplementary Submission 3C*, p. 12.

21 *Committee Hansard*, 11 August 2011, p. 38.

11.18 According to some officers, Defence has not always fully appreciated the differences in certification requirements in such cases, and has been 'a victim of its own decision'. The message was clear—with procurement 'you get what you ask for and not necessarily what you want'. The Association of Professional Engineers, Scientists and Managers Australia issued the following caution:

There is a fear amongst our broader membership that Defence is either losing, or in some cases has lost, the capacity to ask the right questions through a combination of a lack of appropriate resources and skills and that the consequences for the appropriate management of risk are potentially catastrophic.²²

11.19 Other witnesses have referred to Defence's difficulties coming to grips with the commercial and contractual complexities of major projects.²³ In essence, the evidence underscored the importance of having personnel with the necessary skills, experience and continuity of engagement to ensure that Defence is a smart customer. In their view, there was a clear need to build skills—technical, engineering and business. Submissions to the inquiry, however, highlighted Defence's difficulties in maintaining the currently required skilled workforce.²⁴

Specialist skills in Defence

11.20 Air Marshal Harvey explained that capability managers 'will give advice on what they basically need to deliver capability' and the CDG work largely with DMO and contractors 'often to turn those into formal specifications that go out to industry'. He noted that:

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.'²⁵

11.21 Thus, capability managers need to be certain and explicit about what they want, CDG needs to be accurate in defining the requirements and DMO able to ensure that the contractors deliver to specifications. Even so, the committee gained the strong impression that at the moment this is not always done well.²⁶ In the following section, the committee looks at the steps Defence is taking to build the required skill base in CDG, DMO and through the capability managers—Chief of Navy, Chief of Army and Chief of Air Force.

22 *Submission 36*, paragraph 13.

23 Dr Thomson, *Committee Hansard*, 12 August 2011, p. 9.

24 See for example, Association of Professional Engineers, Scientists and Managers Australia, *Submission 36*, p. 2.

25 *Committee Hansard*, 5 October 2011, p. 51.

26 See for example, Mr Bond, *Committee Hansard*, 11 August 2011, p. 34.

Capability Development Group and Defence Materiel Organisation

11.22 CDG is responsible for developing and gaining government approval for future defence capabilities and, as noted earlier, works closely on drawing up product specifications.²⁷ CDG, along with DMO, is made up partly of military personnel on short-term postings from their Service. ANAO found that military personnel in CDG bring their military experience and expertise to the technical aspects of the proposals. It noted, however, that the bulk of their day-to-day work comprised general project management and administrative tasks. It found:

This lack of training and management support particularly hampered their ability to undertake complex cost and schedule estimations for the capability proposals.²⁸

11.23 For example, based on the findings of a previous audit, Ms Holbert, ANAO, informed the committee that project managers felt under-trained because they were doing a lot of work in the costing of proposals, and on the project management for the capability projects as they went through first-pass and second-pass. She explained:

They felt that in those areas they had gaps in their training and knowledge, yet they had been brought into Capability Development Group for their war-fighters skills and knowledge to inform the identification of options for consideration by government. So, some of it will be how they are being used...Some of it is about how you choose to organise the structure to use the skills of the people you have to get the outcomes that you want.²⁹

11.24 The contribution of highly-performing ADF personnel with operational expertise is undoubtedly helpful to the capability development and procurement processes. Dr Thomson suggested, however, that this needs to be balanced 'by people who have enough experience in the field to understand the commercial realities of the people they are dealing with'.³⁰ ADF people may also lack the qualifications and experience with regard to identifying and quantifying risk—technical, integration, capability and certification. The committee notes that the majority of the Service personnel in CDG and DMO are operators, maintenance engineers or technicians who work predominantly with mature systems. They are drawn from a culture that requires compliance with a manufacturer's instructions rather than one that is experienced in questioning and verifying in a quantifiable manner risks or deficiencies in what the manufacturer is presenting. Thus, a key issue for both CDG and DMO is building and retaining the skilled workforce that will be needed in coming decades. Air Marshal Harvey outlined the challenges for Defence:

27 Department of Defence, Capability Development Group, 'Welcome to CDG', http://defence.gov.au/capability/_home/Default.asp (accessed 4 January 2012).

28 *Submission 22*, paragraph 21.

29 *Committee Hansard*, 11 August 2011, pp. 30–31.

30 Mark Thomson, private capacity, *Committee Hansard*, 12 August 2011, p. 13.

Like many other organisations, Defence and DMO face the challenge of attracting and retaining qualified and skilled staff to progress this large number of projects throughout the capability life cycle.³¹

11.25 Another complication for CDG is that many of their personnel do not spend enough time in the group to develop expertise and experience.

Staff turnover

11.26 While the ADF posting policy aims to achieve minimum three-year postings, the length of a standard posting can often be shorter than three years, after which some military personnel posted to CDG or DMO may return to their Service. The Mortimer Review found that many of the core staff in CDG were military personnel on short-term postings to CDG, and that the average length of tenure in CDG was only 18 months.³²

11.27 In their submission, Dr Davies and Dr Thomson supported this finding, suggesting that employing junior military officers on short-term postings contributes to poor outcomes for CDG.³³ In its submission, Sonartech Atlas also highlighted CDG staff tenure as a potential issue, noting that projects can take up to ten years to reach second pass from the time of inclusion in the DCP. As a result, the ability for an ADF officer on an 18 month posting in CDG to have any significant effect on the outcome of a project is limited, and may be further diminished as a result of an officer's limited experience.³⁴ Defence informed the committee that the current average tenure of Service personnel in CDG was above three years.³⁵

11.28 The length of tenure for the CCDG was specified in the Kinnaird Review recommendation that led to the creation of the position—the Review recommended a defined tenure of at least five years.³⁶ In the eight years since the creation of the position, there have been four different individuals appointed to the position, all of whom have been ADF officers. No appointee has yet held the position for the minimum five years recommended by the Kinnaird Review. Indeed, the length of tenure has decreased with each subsequent appointment, with Air Marshal Harvey's recent tenure as CCDG lasting only 13 months.

11.29 The minister has recognised that skilling remained a major challenge for the CDG. In August 2011, he noted that there was 'a very heavy emphasis on improving project management skills' and announced that Defence would embark on a program

31 Air Marshal John Harvey, Department of Defence, *Committee Hansard*, 7 October 2011, p. 3.

32 David Mortimer, *Going to the next level: the report of the Defence Procurement and Sustainment Review*, 2008, p. 24.

33 Andrew Davies and Mark Thomson, *Submission 8*, p. 2.

34 Sonartech Atlas, *Submission 13*, pp. 3–4.

35 Answer to written question on notice no. 1.

36 *Defence Procurement Review 2003*, August 2003, p. v.

to ensure that members of the ADF posted to the capability section would, in general, 'have three year terms of office'. He conceded that the proposal could not be 'an absolute rule, because people will come up for command postings and command positions'. Even so, he stated that a three-year tenure for personnel appointed to the capability area would help instil greater expertise, experience and capacity in those appointed to that area.³⁷

11.30 The constant rotation of Service personnel also seriously compromises the need for strong internal contestability. This is especially so between the technical and operational arms of the Services, and the central and strategic planning groups, where despite the obvious and necessary tension, all proposals should be tested for their consistency with the Defence White Paper, as well as for practicability and cost.

11.31 The committee is not convinced that bringing uniformed people into CDG to assist in project management is the most appropriate use of their skills and operational experience. They may be better suited to the role of sponsor rather than manager. Also, the committee has referred to the timeframe involved in procuring a major capital asset and although a three-year tenure is an improvement it still means a high turnover in a job that requires continuity. Moreover, the posting cycle of a uniformed officer and operational imperatives adds further to tenure insecurity. This means that the organisation does not have the opportunity to build up the intrinsic skills it needs, to retain knowledge and to develop long-term maturity to be able to use that knowledge effectively.

11.32 The minister also indicated that Defence would give priority to developing career streams for both ADF and civilian staff in capability development and acquisition and develop employment incentives to retain key civilian staff.³⁸ In October 2011, Air Marshal Harvey explained that shortfalls in capability and capacity of personnel in the CDG and DMO were being progressively addressed through the implementation of a range of professionalisation and collaborative specialisation. Several skilling and professionalisation strategies have been implemented including:

- a structured CDG desk officer skilling program to address core capability development skilling—provides an annual induction course and then a flexible, progressive skilling program to address project and individual needs;
- targeted recruitment and employment schemes;
- above-the-line contractor support, when necessary; and

37 Stephen Smith MP, Minister for Defence, 'Minister for Defence—Press Conference—Black Review', 9 August 2011, <http://www.minister.defence.gov.au/2011/08/09/minister-for-defence-press-conference-black-review-9-august-2011/> (accessed 24 April 2012).

38 Stephen Smith MP, Minister for Defence, 'Improving personal and institutional accountability in Defence', 9 August 2011, <http://www.minister.defence.gov.au/2011/08/09/improving-personal-and-institutional-accountability-in-defence/> (accessed 24 April 2012).

- the delivery of structured overview and detail-level training courses for CDG desk officers to address skills shortages in cost estimation.³⁹

11.33 Overall, he suggested that CDG managers 'currently deem 90 per cent of the desk officers to be sufficiently skilled to perform the full range of assigned duties without additional support'.⁴⁰ Finally, Air Marshal Harvey told the committee that the CDG had been allocated additional resources to address the high workload and has expanded its skilling program. CDG is also investigating an industry partnership arrangement where Defence skills are boosted by industry.⁴¹ On retaining critical staff in CDG, Air Marshal Harvey noted that currently Defence was looking at higher pay for 'specific individuals who are particularly valued by the organisation'.⁴² The committee notes that none of these measures such as certification frameworks or even higher pay will compensate for the diminishing opportunities to provide hands-on experience for future specialists such as design engineers.

Defence Materiel Organisation

11.34 DMO is responsible for acquiring and sustaining equipment for the ADF. DMO currently has approximately 5,500 civilian staff and, according to Defence, 528 military personnel working in DMO on projects—Navy, 74; Army, 229; and Air Force 225.⁴³ The average length of tenure for military personnel in DMO estimated in 2008 was under two years—lower than the average for all DMO staff.⁴⁴

11.35 As one of DMO's primary functions is procurement and contracting, it is important for the organisation to deal effectively with industry and negotiate value for money for the Commonwealth. Additionally, DMO's Systems Program Offices (SPOs), responsible for sustainment of major platforms, require a mixture of engineering, logistics, and contract management expertise. As a result, skills development in DMO includes the need for skilled negotiators, commercial, project management and logistics expertise and also skilled engineers.

Commercial and contracting competence

11.36 Industry representatives expressed frustration regarding a perceived lack of commercial awareness on the part of DMO and Defence. One witness recognised the

39 *Committee Hansard*, 7 October 2011, pp. 2–3.

40 *Committee Hansard*, 7 October 2011, p. 3.

41 *Committee Hansard*, 7 October 2011, p. 4.

42 *Committee Hansard*, 7 October 2011, p. 35.

43 *Defence Annual Report 2010–2011*, vol. 1, p. 44, records that DMO had 5,526 APS staff for 2009–10. Defence indicated that DMO's staffing level stood at 7,200.

44 David Mortimer, *Going to the next level: the report of the Defence Procurement and Sustainment Review*, 2008, p. 48. Defence informed the committee that 'the expected posting tenure for military personnel in DMO was three years.' See Defence's answer to written question on notice no. 1.

need for DMO to be 'a very high performing commercial execution and implementation Agency...concentrating on program management, engineering, contractual excellence, logistics and productive engagement with industry'. In his view it 'must be able to manage its resources to recruit and retain the skilled, experienced staff it needs'.⁴⁵ Mr Tonkin, Australian Industry and Defence Network, made clear, however, that from their perspective:

...when we talk about having a commercially aware and commercially sensitive DMO, we are not talking about a commercial structure; we are talking about...an awareness and understanding of the pressures, demands, costs et cetera that relate to industry's engagement with government in these activities.⁴⁶

11.37 Due to fluctuating periods of downturns and upturns, maintaining a skilled workforce able to meet Defence's demands in periods of high workloads can be difficult for industry. Mr Willox stated that while showing some improvement, those in DMO do not have a commercial background or commercial experience or commercial awareness of how the business world operates. He said:

There is a perception or a belief by some within DMO and the defence establishment that a switch can be flicked, skilled workers can be found, projects can be delivered miraculously on time and on budget from a very low starting point. The time pressures get compressed or you have changes made to specifications which are sometimes questionable and sometimes leave industry waiting for months or years for projects to be delivered from the time they were first announced. In the meantime, industry has had to pick up and operate project management teams to run this, then let them go and pick them up again. So it is that awareness of how business operates.⁴⁷

11.38 Dr Davies and Dr Thomson argued that the DMO, in particular, needs to attract and retain individuals with commercial acumen and technical knowledge, including by paying private sector salaries where necessary.⁴⁸

11.39 The need for experienced and skilled personnel was also evident in the field of contracting and commercial negotiations. For example, the author of a confidential submission who has had extensive involvement as a senior legal adviser on DMO projects was highly critical of the institutional lack of competence in contracting. In his experience, most of the people in Defence were not adequately trained to be, and many did not want to be, procurement and contracting experts. According to the lawyer, the people were:

45 *Confidential submission.*

46 *Committee Hansard*, 11 August 2011, p. 6.

47 *Committee Hansard*, 11 August 2011, pp. 4–5.

48 *Submission 8*, p. 2.

...generally well-meaning, hard working and trustworthy people who were, nonetheless dangerously naïve and inexperienced when it came to matters commercial.⁴⁹

11.40 He contrasted their commercial skills with those of negotiators from industry:

The people whom Defence faces across the negotiation and contract progress meeting tables are almost invariably procurement and contracting experts, and are almost invariably good at pretending not to be.⁵⁰

11.41 With respect to the actual procurement of a major capital asset, Mr King told the committee that it was DMO's negotiating skills that 'let them down'—business acumen. He explained that he would like to develop 'an acquisition community' whereby military people, public servants and external people in DMO were exposed very early to how business operates:

We do run these courses at the moment, but we need more of it—business acumen, how business operates, what you can negotiate and what you cannot.⁵¹

Project management

11.42 A number of witnesses were concerned about Defence's ability to manage the acquisition of major defence capital assets. The Defence Teaming Centre told the committee of a perception that DMO 'lacks and is unlikely to ever be able to secure appropriately qualified personnel to adequately project manage every project in the CDP'.⁵² It stated:

Rather than personnel shortages, industry suggests a skills shortage within the current DMO personnel.⁵³

11.43 Air Commodore (retired) Bushell argued that until the DMO returns 'to sound project/system and engineering management methodologies, and is manned with the required skills and competencies, it will continue to fail to deliver'.⁵⁴ Dr Davies stressed the importance of professional expertise in managing major projects, suggesting that Defence should be contracting in the necessary expertise to manage

49 *Confidential Submission*.

50 *Confidential Submission*.

51 *Committee Hansard*, 7 October 2011, pp. 9–10. Mr King explained further, 'as both public servants and as military folk, we do not really understand the drivers of industry as well as we might—cash flow; indeed, the need to make a profit. Too often, I think our interactions with industry oscillate between being in love with them or being at combat with them instead of just engaging in business with them.'

52 *Submission 16*, p. 2.

53 *Submission 16*, p. 4.

54 *Submission 3*, p. 14.

projects if it did not have the in-house capability rather than using personnel with insufficient expertise.⁵⁵

11.44 One industry representative told the committee that DMO's project teams must be managed by people with real experience in the field of the products of which they are managing. In his opinion, it was 'nonsense to claim that because someone has a formal project management qualification that they can suddenly manage the acquisition of a product in a field in which they have no experience'. From his experience, quite a few of the DMO project managers he had worked with were 'no doubt good people but way out of their depth trying to manage a project of which they have little experience and this is a recipe for failure'.⁵⁶

11.45 The six independent members of the gate review boards also drew attention to inexperienced and inadequately skilled project managers. Dr Neumann observed that there are 'quite inexperienced people who are managing what in other organisations would be really big things, but in DMO are the minnows'. The ANAO also noted that compared to the rest of the APS, Defence has relatively junior people running very large complex projects.⁵⁷ While highlighting the importance of project management experience, Mr Gallacher observed that DMO probably do not have enough of the right people 'in the right slot' with the teams to support them.⁵⁸ His colleague, Mr Irving noted further that people need not just the skills but the experience as well.⁵⁹ He mentioned the work that the independent members of the gate reviews were doing to mentor people in DMO.

11.46 Other submissions to this inquiry also cited DMO's 'generalist' approach as insufficient for the complexities of capability development and acquisition.⁶⁰

Skilling initiatives

11.47 Defence has acknowledged the need to address shortfalls in both the quantity of available staff, and the skills and expertise of staff. Mr King indicated that he would like to see DMO well staffed, well trained, well resourced and for business acumen to become part of its core skilling. He wants to develop an acquisition community that provides for military people, public servants and external people to be exposed early to how business operates. According to Mr King, DMO is very engaged

55 Dr Andrew Davies, *Committee Hansard*, 12 August 2011, p. 15.

56 *Confidential, Submission*.

57 *Committee Hansard*, 12 June 2012, p. 12.

58 *Committee Hansard*, 13 June 2012, p. 10.

59 *Committee Hansard*, 13 June 2012, p. 10.

60 Air Commodore (Retired) Bushell, *Submission 3*, p. 14; Attachment, 'The Decline in the Management of Defence and Defence Capability Development, Acquisition, Preparedness, and Sustainment', Air Power Australia Analysis 2009–05, 5 September, 2009, pp. 2–3; *Supplementary Submission 3A*, Annex A, pp. 5–6 and Australian National Audit Office, *Submission 22*, p. 6.

on the issue of business thinking and practice and upskilling its people in understanding how to deal with industry.⁶¹

11.48 The committee remains concerned at the viability of this aspiration in practice. The poor standard of contract negotiation, for example, was highlighted by a number of witnesses. Given that a defence project may run for many years, most uniformed or civilian members in DMO may be involved in one or perhaps two significant contract negotiations. The industry participant will generally be a specialist in this area and have experience on a number of contract negotiations in any given year. Industry has expressed the view that both the Commonwealth and industry would benefit from having better matched contract negotiation skills.

11.49 Defence should consider a small team, highly skilled in these key areas, that could work across all projects when required. These skillsets could be contracted from an industry panel. The committee understands that the DMO already use a panel of legal practitioners skilled in this area and recommends the increased use of this arrangement.

11.50 According to Air Marshal Harvey, over recent years DMO has maintained a strong focus on professionalisation and upskilling of both its staff and those of industry and is working towards an integrated professional workforce with vocational, university and professional accreditation. He also noted that as part of Defence's commitment to improve its acquisition performance, Defence and the DMO had introduced a professional industry standards certification framework for procurement and contracting staff. The Directorate of Professionalisation and Staff Development has been developing certification programs focused on DMO-specific competencies and gaining professional qualifications for various technical and management streams.⁶² As a result of these initiatives, over 1400 staff have now been certified or are enrolled in a certification program—previously only 153 staff were certified in areas of project management, engineering and accounting in 2005.⁶³ DMO has also completed work with Government Skills Australia and other government agencies on the redevelopment of Australian vocational procurement and contracting competencies and qualifications.⁶⁴

11.51 While recognising that DMO had serious deficiencies in some areas in particular skillsets, the Commonwealth Auditor-General referred to the work that DMO has put in to improve their project management skills. In its submission, the ANAO again mentioned that in recent years, DMO had aimed to professionalise and upskill its workforce.⁶⁵ Mr Michael White, ANAO, noted that Dr Gumley was

61 *Committee Hansard*, 7 October 2011, p. 9.

62 ANAO, *Submission 22*, p. 6.

63 ANAO Audit Report No. 20 2011–12, *2010–11 Major Projects Report*, paragraph 3.38, p. 90.

64 *Committee Hansard*, 7 October 2011, p. 3.

65 *Submission 22*, p. 6.

convinced that certification measures were 'showing improvement'.⁶⁶ Dr Thomson mentioned the good things that DMO has done, such as pursuing professionalisation of its workforce, and requiring people to become members of professional organisations. He suggested that DMO should be encouraged to 'push harder to improve the skills and the commercial, business and technical acumen' of its people.⁶⁷

Turnover

11.52 DMO relies significantly on short-term military appointments to bolster its skill base. As Dr Thomson explained, an ADF officer with an engineering degree and some operational experience is often the best person DMO can get for the job, even if they only have the person for a short period of time.⁶⁸ However, postings into DMO or CDG for ADF officers are not necessarily beneficial for their careers: such postings can take the officer out of the operational field and temporarily off their career track,⁶⁹ which reduces the appeal of DMO and CDG to potential candidates. Dr Davies and Dr Thomson suggested that reliance on short-term military appointments to DMO projects should be minimised.⁷⁰ With regard to Navy, industry representatives expressed the view that it is up to Navy to promote procurement and ship building postings as advantageous to an officer's career; the current understanding was that these postings were not seen to be advantageous.⁷¹

11.53 In relation to its civilian staff, DMO is taking measures to retain some of these skilled personnel who are seen to be critical to the organisation. Mr King explained some of the incentives being offered to public service staff in the executive levels 1–2 range:

...we have introduced a building defence capability plan, which allows some flexibility to add increased base salary payments and retention payments for a commitment to stay three years or something like that. They are proving quite successful in retaining skills.⁷²

11.54 However, the Rizzo Review found that the provisions in the Defence Enterprise Collective Agreement to allow DMO flexibility to pay market salaries

66 *Committee Hansard*, 11 August 2011, p. 31.

67 *Committee Hansard*, 12 August 2011, p. 8.

68 Dr Mark Thomson, *Committee Hansard*, 12 August 2011, p. 18.

69 Richard Griffiths, Australian Association for Maritime Affairs, *Committee Hansard*, 12 August 2011, p. 23.

70 Andrew Davies and Mark Thomson, *Submission 8*, p. 2.

71 Richard Griffiths, Australian Association for Maritime Affairs, *Committee Hansard*, 12 August 2011, p. 26.

72 *Committee Hansard*, 7 October 2011, p. 35.

where necessary—particularly for staff at SPOs in major capital cities—were 'not well known and the current approval mechanisms seem overly bureaucratic'.⁷³

Skilled people not more people

11.55 Industry representatives suggested that DMO has attempted to compensate for a lack of skills through additional personnel. One industry representative was of the view that there were 'way too many people in DMO'. He surmised that DMO had generated this number to 'compensate for some of the shortfalls in competencies and expertise'—it was throwing more people at the problem rather than getting the right people with the right levels of expertise and retaining them.⁷⁴ In evidence, industry representatives referred to the tendency in DMO, as well as CDG, to look to process to improve performance and not outcomes.⁷⁵ Similarly, during its visit to Western Australia, industry representatives told the committee that less focus should be on process and more attention given to having appropriately qualified, experienced and senior people engaged up front to sign off on risk.

11.56 Clearly, the need is not for more staff but for people with the appropriate skills, experience and authority. An industry representative in Perth cited the FFG upgrade project as an example of where higher-level personnel from both Thales and DMO were applied to the project once it ran into problems—having the right people in place with decision-making powers helped the project recover.

11.57 The committee notes Defence's use of professional service providers as a means to obtain support for projects where there are no available APS or uniformed members qualified and experienced to fulfil the role. The committee supports this approach and is concerned that due to financial considerations, Defence appears to be under pressure to replace such expert contracted support with APS staff regardless of their suitability for the role.

Engineering and high technical skills

11.58 This report has commented on the need for Defence to be able to identify and assess project risk accurately during the early stages of a project, and to manage risk throughout the process, especially technical risk. Again the committee notes that the need is for knowledgeable and experienced people. For example, the Royal Institute of Naval Architects noted that it was essential for Defence to have an adequate number of appropriately qualified and trained engineers, with up-to-date experience who are in the correct position to influence the procurement process.⁷⁶ It noted further that mechanisms must be in place to ensure that those at the procurement end of the

73 Paul Rizzo, *Plan to Reform Support Ship Repair and Management Practices*, July 2011, p. 63.

74 *Committee Hansard*, in camera.

75 *Committee Hansard*, in camera.

76 *Submission 18*, pp. 2 and 3–4.

process are able to benefit from those with experience at the operational end.⁷⁷ The Association of Professional Engineers, Scientists and Managers Australia argued, however, that Defence is in danger of losing its ability to weigh up and manage risk adequately due to a lack of technical competence.⁷⁸ It argued:

To be blunt the Defence organisation is struggling to maintain the technical professional workforce it requires for current materiel let alone address the skill requirements demanded by the forward agenda to meet Force 2030.⁷⁹

11.59 For example, at the time ANAO published its audit report on acceptance into Service of Navy Capability, the ANAO found that Navy had filled only two-thirds of its own engineering positions, 72 per cent of the Navy engineer positions in DMO and only about one-third of Navy engineer positions in CDG.⁸⁰ In its view:

This limits the availability of Navy engineers to perform the vitally important role of bringing their knowledge of the operating environment into the capability definition and acquisition stages of the capability life-cycle.⁸¹

11.60 DSTO and industry representatives who briefed the committee in Perth and Adelaide highlighted the difficulties faced by Defence in retaining and growing its engineering skills base. While integration and interoperability are recognised as central to Defence's capability development, attracting and retaining systems engineers able to master these tasks will continue to present difficulties for both Defence and industry. DSTO explained that there was a critical shortage of systems engineers and long-term planning was required to 'grow' them. Noting that a systems engineer requires a technical degree and up to ten years experience, DSTO indicated that Defence needs time to build its skilled workforce. Again, the committee notes that such rebuilding requires both time and opportunity which the current procurement and sustainment approach expected by government (and many commentators) does not appear to encourage.

11.61 As repeated throughout this report, the emphasis is on having the right people working in their field of expertise and not on more process.

Incentives

11.62 In terms of attracting recently-graduated engineers, DMO faces significant barriers in a highly competitive market. The work that DMO is able to offer graduate

77 *Submission 18*, p. 3.

78 *Submission 36*, p. 3.

79 *Submission 36*, paragraph 8.

80 ANAO Audit Report No. 57 2010-11, *Acceptance into Service of Navy Capability*, paragraph 71.

81 ANAO Audit Report No. 57 2010-11, *Acceptance into Service of Navy Capability*, paragraph 71.

engineers—contract management, project management and personnel management—is often not the engineering experience that young engineers seek to advance their careers. Instead, young engineers are more likely to pursue careers at the big engineering companies where they are able to do core engineering roles. Dr David Robinson of Engineers Australia suggested that the problem is due to DMO and Defence having outsourced much of the core engineering functions:

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.⁸²

11.63 The support arrangements for MOTS projects, such as the Super Hornet and C17, where much of the design engineering remains off-shore in the US, is an example of the lack of opportunities in Defence to grow engineering and allied technical skills. Even so, as noted previously, OTS is required only as a benchmark with regard to capability and cost comparability and each acquisition should be assessed on a case by case basis taking into account the importance of sustaining skilled workforce in areas deemed to be of critical need for Australia's national security.

11.64 Air Marshal Harvey told the committee that DMO uses the materiel TAFE employment scheme, materiel graduate scheme, materiel undergraduate scheme and the engineering undergraduate scholarships at the Australian Defence Force Academy to attract and retain engineers and technical staff. DMO has also entered into memoranda of agreement with Engineers Australia and the Australian Maritime College in an effort to secure high-quality engineers and technical staff.⁸³ Successfully putting young people through training courses is only the first step. The real challenge is providing them with a career path that allows them to use and build on their qualifications in such a way that they develop engineering competence across a range of activities from design through to certification.

The Services

11.65 As the users of the equipment procured by DMO, the Services require a level of technical competence in order to understand the feasibility and suitability of proposed capabilities and to specify their requirements accurately. This includes knowing what is required to satisfy the capability manager that the product is fit-for-purpose, and what is needed to operate and maintain complex equipment.

82 Dr David Robinson, Engineers Australia, *Committee Hansard*, 5 October 2011, p. 7.

83 DMO is also continuing to support the Australasian Procurement and Construction Council initiative to develop strategic procurement courses at Australian Technology Network universities and the University of Canberra. *Committee Hansard*, 7 October 2011, p. 3.

11.66 Reforms initiated in the 1990s have had significant effects on the ability of the Services to sustain complex military systems as their level of technical expertise has eroded over time. Under the Tange Review, the Defence Reform Program (DRP) and the Commercial Support Program (CSP), the technical and engineering capabilities of the Services were downsized and many of their functions were outsourced to industry. The resultant gap in technical expertise and experience in the Services has reduced their ability to define their operational requirements for future capability. The effects of the reforms are now coming under increasing criticism as the need for technologically competent workers in both Defence and the Services becomes apparent. Air Commodore (retired) Bushell outlined an issue with the original reforms:

...the premise that technologically skilled engineering professionals may be replaced with technologically unskilled generalists, and that process takes precedence over management, have been shown not to work, and indeed cannot be made to work.⁸⁴

11.67 The transfer of some resources from the Services—particularly Navy—to DMO, CDG, or the private sector has potentially limited the ability of the Service Chiefs to obtain guidance and assistance about requirements determination and developing new capability.⁸⁵ According to Mr Bond from ANAO, these transfers can also disrupt the development of specialisations within the Services as key personnel move around inside the Defence organisation.⁸⁶ Changes in the procurement process that have resulted in personnel moving from Defence into the private sector have further reduced the skills and expertise available within all areas of Defence.

11.68 Notably, this shift is important for Air Force and Navy, the two high-technology Services operating equipment such as fighter jets and submarines. The Air Force in particular has a long history as a maintenance-based Service, stemming from the need to maintain its aircraft with varying amounts of industry support. Because of the relatively small size of the Air Force's fleet, an unserviceable aircraft represented a significant loss to capability, leading to the establishment of higher maintenance standards than larger forces such as the US Air Force.⁸⁷ Air Marshal Geoff Brown, Chief of Air Force, cited the retention of some of Air Force's engineering and logistics expertise as the critical factor to the successful operation of the Air Force.⁸⁸ Similarly, Dr Davies informed the committee that while Air Force had done a very good job of dealing with the situation post the 1990s reforms, Navy had suffered from the downsizing of their engineering capacity.⁸⁹ Nonetheless, the committee notes that Air

84 Air Commodore (retired) Bushell, *Submission 3*, Annex A, p. 4.

85 Fran Holbert, ANAO, *Committee Hansard*, 11 August 2011, p. 27.

86 *Committee Hansard*, 11 August 2011, p. 28.

87 Air Commodore (retired) Bushell, *Supplementary Submission 3C*, p. 21.

88 *Committee Hansard*, 5 October 2011, p. 32.

89 *Committee Hansard*, 12 August 2011, p. 6.

Force, as with the other Services, is also under stress as evidenced by difficulty in filling all design engineering appointments within SPOs.

11.69 The Rizzo Report referred to, among other things, a 'hollowed-out' Navy engineering function and made several recommendations in relation to Navy's workforce requirements, including the need for adequate resourcing, building engineering talent, and the need for workforce planning.⁹⁰ As Dr Thomson informed the committee, the Rizzo Report suggested that 'if Navy is going to operate complex vessels, it needs to have engineers that can advise it about how to operate' them.⁹¹

11.70 According to Air Commodore (retired) Bushell, Defence is 'now working from the lowest base of technical skills that any of the three Services have ever faced since their formation'. He described the skills base as 'brittle'.⁹² Indeed, as noted above, the dearth of skilled and experienced engineers is evident most markedly in Navy. The committee and various recent reviews such as the Rizzo Review and ANAO audit report, *Acceptance into Service of Navy Capability*, have identified the decision to outsource much of Navy's engineering expertise some time ago as problematic. The decisions to outsource key enabling functions, such as training, logistics and maintenance, were in large measure caused by government directives stemming from the Wrigley Review (1990) and the Force Structure Review (1991). While well intended, they have had serious long term deleterious effects on the Services technical capability.

11.71 For example, Air Commodore (retired) Bushell cited a November 2009 Strategic Review of Naval Engineering, which was conducted by Chief of Navy, leaked to the *Australian*. It highlighted:

- a critical shortage of engineers;
- 'cancerous' morale problems, including a negative attitude;
- a massive shortfall in Navy numbers;
- a broken management system; and
- a poor state of engineering policy.⁹³

11.72 In his view, two decades of multiple reforms and efficiency and cost-savings initiatives imposed by government have 'diluted and fragmented Navy engineering resources'.⁹⁴ Indeed, the recent problems in naval sustainment have been partly

90 Paul Rizzo, *Plan to Reform Support Ship Repair and Management Practices*, July 2011, p. 9 and recommendations 9, 10, 17, 19, 20, 23. Rizzo stated 'In addition to being fragmented, it [Navy engineering workforce] has been "hollowed-out" over many years as a result of change upon change in Defence and an undue focus on short-term operational demands'.

91 *Committee Hansard*, 12 August 2011, p. 3.

92 *Committee Hansard*, 12 June 2012, p. 21.

93 *Submission 3*, p. 2.

94 *Submission 3*, p. 2.

attributed to the outsourcing of Navy's engineering expertise. This has also placed more pressure on DMO as many of the Services' sustainment responsibilities have been shifted across to that organisation.⁹⁵ According to Air Commodore (retired) Bushell, capability managers no longer possess 'the organisation or the skills and competencies base required to discharge their responsibilities'. In his view, they 'can be organised, manned and skilled to do it, but until then the function cannot be done satisfactorily'.⁹⁶

11.73 In regards to the shift of some engineering functions from Navy to DMO, the Rizzo Review found that the DMO SPO responsible for Amphibious and Afloat sustainment activities—four classes of vessels—was significantly underresourced.⁹⁷ It also highlighted the recruitment difficulties facing some SPOs, particularly those situated in competitive labour markets. As noted earlier, despite this shift of skills to DMO, it also has difficulties retaining personnel with technical expertise.

11.74 Indeed, respondents to a survey of defence industry capabilities had formed a strong view that Defence had been 'de-engineered over the last 15 years or so' and that SPOs were often run by generalist project managers with limited systems engineering and systems integration skills. According to the respondents, the Australian Defence sector values systems engineering and systems integration expertise 'far less than general management skills resulting in a skills re-profiling to the latter'. The authors of the survey surmised that one reason industry does not regard DMO as a mature client in the systems engineering and systems integration sense was that this expertise 'does not feature as prominently as might be expected from international practice in the early stages of projects'.⁹⁸

Rebuilding Defence's engineering base

11.75 Industry representatives pointed out that the recent problems encountered by Navy were similar to many other problems within Australia. Dr Robinson defined the problem as a loss of institutional knowledge, where there is now an absence of experienced workers with an understanding of the systems:

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.⁹⁹

95 Air Commodore (retired) Bushell, *Supplementary Submission 3C*, p. 10 and Ian McPhee, Australian National Audit Office, *Committee Hansard*, 11 August 2011, p. 25.

96 *Supplementary Submission 3C*, p. 10.

97 Paul Rizzo, *Plan to Reform Support Ship Repair and Management Practices*, July 2011, p. 63.

98 Professor Stephen Cook and Dr Mark Unewisse, 'A Survey of Defence Industry Systems Engineering and Systems Integration Capability: Part 2: Qualitative Results and Survey Findings', Paper prepared for Systems Engineering and T&E in the Next Decade, May 2011.

99 *Committee Hansard*, 5 October, p. 5.

11.76 Many witnesses also highlighted the importance of continuous work to keep Navy, Defence and industry's technical staff skilled, regardless of whether they are employed by Defence or by contractors. Professor Martin Renilson, Royal Institution of Naval Architects, noted:

...not only do you need to have these staff but also they need to be kept current by continually doing things, a little bit like how the military staff are kept current by continually exercising. If you stop having these people doing the exercises then you are in the position where, even if they were well qualified in the initial state, they will still become non-current and therefore unable to advise in that manner.¹⁰⁰

11.77 Speaking as an engineer in project management, Mr King stated that in a broader sense, he was 'absolutely certain that development enhancement of engineering skills has to take place'.¹⁰¹ He noted that it was not simply a matter of recruiting people and training people but about 'making sure that the input of the engineering community is taken seriously and treated with due regard'. His view about the undervaluing of engineering advice is consistent with that expressed by respondents to the survey of defence capability cited above. Mr King explained:

So part of the rebuilding of the engineering base, both in Navy and in DMO, is making sure that the inputs from engineers are well considered, well structured and well regarded by the community in which we operate.¹⁰²

11.78 Rear Admiral Jones told the committee that Navy leadership was 'fully seized of the outcomes of the Rizzo report' and of Navy's need to improve its technical skills base, particularly its engineering strength. He suggested that the Chief of Navy was working actively to implement Mr Rizzo's recommendations quickly and that Navy was also looking to see where it 'might be able to get supplementation' to improve its engineering base.¹⁰³

Solutions

11.79 The skills shortage in Defence's acquisition program is not new. Indeed, in its 2006 report on Naval shipbuilding, the committee noted the observations of a number of witnesses who were concerned that the deterioration in Defence's design and engineering skills meant that the organisation was no longer an intelligent customer. One referred to over 15 years of outsourcing which had placed Defence in a 'fairly precarious position with regard to its ability to operate as an informed customer'.¹⁰⁴

100 *Committee Hansard*, 12 August 2011, p. 24.

101 *Committee Hansard*, 7 October 2011, p. 5.

102 *Committee Hansard*, 7 October 2011, p. 5.

103 *Committee Hansard*, 5 October 2011, p. 46.

104 Standing Committee on Foreign Affairs, Defence and Trade, *Blue water ships: consolidating past achievements*, December 2006, paragraphs 16.7–16.18.

Another feared that Defence was coming close to a time when it could 'not warrant the safety' of its own ships.¹⁰⁵

11.80 Six years on the problem remains. Many witnesses indicated this shortage must be addressed as a priority: that 'the work on retaining and attracting key personnel cannot wait until tomorrow'.¹⁰⁶ In the committee's view, Defence requires a far more targeted and concerted effort to build up a core of critical skills within its major acquisition groups and agencies. This also requires the creation of opportunities to gain and maintain relevant experience. Defence must be allowed to have a sustainable base of development engineering and test capability. This will require commitment from government.

11.81 One witness recommended the establishment of a 'specialist tri-service ADF Acquisition Core' comprising officers and experienced non-commissioned officers. He stated:

Suitably degree qualified professionals and specialists in engineering, communications, information technology, logistics, test and evaluation, and program and fleet management will stream into the Core at the appropriate time in their career...and undertake further professional post-graduate studies with return of service obligations.

They will then accept longer term assignments (typically four or five years) in CDG, DMO or perhaps DSTO, CIO, or DSG (who also need a cadre of experienced project managers) they might rotate into Sustainment roles so they understand the whole-of-life effects their acquisition decisions can make. And they would staff the crucial Capability management and monitoring function for each of the three Service Chiefs, thereby putting experienced uniformed people on longer term assignments into these critical areas.¹⁰⁷

In his view the continuity of experience would 'increase corporate memory, make Defence a more informed customer, and raise the quality of project planning and delivery'.

11.82 Looking specifically at DMO, Mr King, CEO DMO, would like to be able to attract, and pay more for, people with business and commercial skills, but accepted that he had to be realistic. Mr King noted that it would be difficult 'to isolate out DMO to be able to offer significantly higher salaries or significantly greater benefits than the rest of the Public Service or the rest of the military enjoy, to deliver those outcomes'. To his mind, the best thing DMO could do was aim to be 'a very attractive organisation'—'an organisation that attracts people from industry'.

105 Standing Committee on Foreign Affairs, Defence and Trade, *Blue water ships: consolidating past achievements*, December 2006, paragraph 16.8.

106 The Association of Professional Engineers, Scientists and Managers Australia, *Submission 36*, paragraph 8.

107 *Confidential Submission*.

11.83 The committee also notes that it is important when seconding military people to DMO, that they are placed where their skills and experience can be best utilised. A three-year posting, or less, in a managerial position for uniformed personnel is an inefficient use of otherwise very skilled and experienced people. The emphasis must be on finding the right people and placing them in the right position.

11.84 There is also the concern that the various agencies involved in procurement and sustainment activities are competing for the same skilled personnel. In considering the restructuring of the organisation, Defence must look closely at the skills required by the respective agencies and while maintaining strong contestability, ensure that specialists are located where they are most needed and not unnecessarily duplicated or spread too thinly throughout the organisation.

Conclusion

11.85 Having adequately skilled personnel is critical to enabling Defence to define capability requirements accurately, achieve value for money and to manage complex projects. Based on the evidence, however, the committee finds that currently the ability of Defence to mount a successful major defence equipment acquisition is thwarted by a shortfall in essential technical, engineering, project management and commercial capability. Indeed, the committee keeps returning to the view that, to ensure the success of an acquisition project, the right people are needed to be in the right place at the right time. This observation applies particularly to capability managers who need highly trained and experienced personnel who can: clearly articulate the requirements to be included in tender and contract documents; verify contractors' technical claims; and determine the necessary technical and regulatory requirements for accepting an asset into service.

11.86 The critical shortage of engineers and allied technical skills is a matter that requires immediate and serious attention. While there are many external forces undermining Defence's efforts to attract and retain skilled engineers and technicians, the committee is of the view that it is imperative for Defence to grow its engineering and allied skills base. Otherwise, its in-house knowledge will struggle to identify thoroughly future capability needs, to test and evaluate it against all other options, and advise government fully, accurately and objectively. The inadequacy of in-house knowledge will also make it difficult for Defence to oversee the project management once decisions are made, let alone operate it successfully and sustain it through life. This level of expertise is needed regardless of whether it is OTS or outsourced in any aspect.

11.87 As is explained in chapter 15, and suggested right throughout this report, the committee does not believe that the matrix management model currently in place for Defence can be supported any longer. As discussed above, one of the key reasons for that is the sheer waste of highly skilled technical resources engaged by each of the services, the DMO, DSG and CDG, often on the same project. Further, as also referred to, it not just dilutes the skill base, but undermines any concept of the internal separateness needed for genuine contestability.

11.88 The committee has heard extensive evidence from defence officials in both the Services, CDG and DMO, about their increased investments in skills, individual efforts to raise skill levels and better recruitment. It has heard of the lack of continuity and waste of skills from rotation of staff whereby their skills are not properly utilised as they are more consumed by clerical process. All this in the face of competing demands for the same skill sets in industry and right across the economy where technical skill is generally in chronically short supply. However, the committee does not believe the situation has changed one bit from its last substantial report in 2006 where skill shortages were also considered by the committee to be the critical flaw in the system.

11.89 Hence the committee's proposal for the consolidation of technical skills into each of the Services in a new organisational arrangement. Under this model, detailed in chapter 15, capability managers will be responsible for the primary technical input to all capability proposals, test and evaluation, in line with central policy, and all operational and sustainment management, especially with respect to large and complex single service capability, most notably in Air Force and Navy. Through this new management structure, the committee also seeks to strengthen contestability. The committee believes that through its proposed restructure it should be possible to :

- minimise the wastage caused by intra-organisational rotations;
- enable capability managers to rebuild their former technical skill base from the most sophisticated levels of modern defence technology through to operational and sustainment management;
- provide meaningful and rewarding skill paths for technically skilled personnel whether they be uniform or civilian, adding that stability and continuity of skill may be more available from the latter;
- provide complementarity of skills rather than the current internal competition;
- retain skilled staff on long term projects from conceptual development through to sustainment and disposal from within one organisation, fully and singly accountable;
- provide a stronger technical counter to industry in contract negotiations and management; and
- establish greater permanence to Defence's capacity to follow rapidly escalating technical complexity of defence capabilities around the world.

11.90 Equally, DMO with its reduced size and changed role should be better able to concentrate on becoming a centre of excellence for the high level skills needed in the processes of tendering, contracting and project management. Rather than capability managers posting people to DMO to conduct acquisition on their behalf, the DMO will post (or contract in) suitably qualified and experienced people to conduct relevant aspects of each acquisition project undertaken by the capability manager.

11.91 Accepting DMO's reduced and changed role and also the need to strictly sustain DMO and DSTO's independence, the committee also recognises the

implications this model has for the more civilian side of capability planning in DSG and CDG. The committee believes that DSG and CDG should have more strategic analytical skills to test the capability managers' development of Defence White Paper capability elements rigorously and independently, restoring the creative tension but free of competition for skills.

11.92 The committee is of the view that in considering the restructuring of the organisation, Defence must look closely at the skills required by the respective agencies and while maintaining strong contestability, ensure that specialists are located where they are most needed. As explained in chapter 15, the committee's main recommendations are intended to

- return responsibility to capability managers and make them accountable for decision-making and performance under their areas of authority;
- make DMO a streamlined and specialist acquisition agency;
- ensure that Defence's focus is on obtaining the right people with the right skills and experience and matching their skills with the right job; and
- ensure that Defence manages its skills base in such a way that agencies complement their skill requirements and do not compete for skills from the same pool of specialists.

Under the preferred model, capability managers are to be largely responsible for technical input before and after contract—that is at the heart of the new accountability the committee seeks to achieve.

Recommendation

11.93 The committee recommends that Strategic Policy Group and CDG should have more strategic analytical skills to test rigorously and independently the capability managers' development of the Defence White Paper capability elements, restoring the creative tension but free of competition for skills.

Recommendation

11.94 The committee recommends that, after second pass, capability managers have sole responsibility for acquisition projects, supported by staff seconded through the DMO, as well as maintaining relationships with contractor and sub-contractors.

Recommendation

11.95 The committee recommends that the government ensure that the DMO has the funds, means and government support necessary to consolidate and build on the efforts already underway to develop its multidiscipline skills base with the ultimate goal of achieving a world-class acquisition community.

Recommendation

11.96 The committee recommends most strongly that the organisational changes specified in the recommendations dealing with skills be adopted, and that the streamlining and consolidation of skills identified be the primary focus and outcome in securing that change.