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Joint capability and procurement

2.1 The Committee is aware that current conditions are challenging for Defence procurement. On one hand, the Australian Defence Force (ADF) is engaged in a higher tempo of operations than has been the case for some considerable time. On the other, significant elements of capability are due for renewal and replacement in the near and mid-term. In addition, the Global Financial Crisis will place pressure on all government expenditure. This *Review of the Defence Annual Report 2007-08* represents an important opportunity to reflect on key areas of Defence procurement.

2.2 The 'joint' projects considered here are those areas of procurement intended to link different arms of the services, leading to higher capability. The High Frequency (HF) Modernisation and Airborne Surveillance for Land Operations projects reflect this, influencing force effectiveness across the ADF by increasing the information available to them. Increasing cooperation between elements of the ADF makes this type of capability especially important.

HF Modernisation Project - JP 2043

Introduction

2.3 This project, JP 2043, 'provides for the procurement of a Modernised HF Communications System for Defence long–range communications'.[1] The role of the system is to provide a further element of communications capability across the ADF, supplementing the main satellite communications system with an alternative HF network for 'Satellite

1 ANAO, *DMO Major Projects Report 2007–08*, p.136.

communications fitted platforms' and a 'primary long–range communication capability for platforms not Satellite communications fitted'.[2]

2.4 The initial phase of the project, completed in 2004, encompassed five main fixed sites in: the Riverina, Townsville, Darwin, North West Cape, and a primary Canberra site with backup facilities.[3]

2.5 The current, second, phase of the project has two components. The first is intended to provide enhancements to the system already installed: for 'increased levels of automation, improved capability, enhanced security and survivability, [and] reduced reliance on staff'.[4]

2.6 The second is to upgrade communications for selected mobile platforms across Defence.[5] This includes Chinook and Black Hawk helicopters, Coastal Mine Hunters, Armidale Class Patrol Boats, Hydrographic Ships, Army Land Strategic HF communications facilities, and facilities at RAAF No. 1 Combat Communications Squadron, and Defence Force School of Signals Watsonia (Simpson Barracks).[6]

2.7 The project has been subject to significant delays. The ASPI *2008-09 mid-year Defence budget update* quotes a delay of 57 months for this project.[7] The Australian National Audit Office (ANAO) *Major Projects* report shows higher variations for some project milestones, including a projected 127 month variation for 'Final Operational Capability–Mobiles'.[8]

2.8 The ANAO *Major Projects report* attributes delays to 'requirements instability': that Defence continued to change specifications well into the project time-line.[9] They are also attributed to 'contractor delays with software development and system instability'.[10]

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2 ANAO, *DMO Major Projects Report 2007–08*, p.135.

3 ANAO, *DMO Major Projects Report 2007–08*, p.134.

4 *Defence Annual Report 2007-08*, Vol 2, p.30.

5 ANAO, *DMO Major Projects Report 2007–08*, p.134.

6 ANAO, *DMO Major Projects Report 2007–08*, p.135.

7 Thomson, Mark 2009, *2008–09 mid-year Defence budget update*, ASPI, viewed 23/02/09 http://www.aspi.org.au/publications/publication_details.aspx?ContentID=199&pubtype=-1, p.8.

8 ANAO, *Defence Materiel Organisation Major Projects Report 2007–08*, p.142.

9 ANAO, *Defence Materiel Organisation Major Projects Report 2007–08*, p.141.

10 ANAO, *Defence Materiel Organisation Major Projects Report 2007–08*, pp.141-142.

2.9 The ANAO *Major Projects* report observes that this project is:

> …a complex software intensive and high risk project involving geographically diverse sites at five major locations across Australia. Implementation of the Fixed Network has involved civil infrastructure development, electrical power generation and transmission, telecommunications infrastructure extension, communications system hardware and antenna installation. It has involved the engineering disciplines of systems engineering, software development, system design and integration, system test and evaluation.[11]

2.10 In addition, the ANAO *Major Projects* report notes specific risks for the upgrade of mobile platforms, which is yet to be delivered:

> Platform availability will be an issue for all Mobiles upgrades. The upgrade schedules need to be coordinated with the maintenance schedules and operational requirements of the platforms. Other risk factors related to Mobiles upgrades include the complex task of integrating High Frequency upgrade equipment with existing communications systems of varying levels of maturity and sophistication, and of accommodating the new equipment within the spaces available.[12]

Current status

2.11 Defence advised the Committee of the project's current status. The Core System, completed in 2004, 'provides the fundamental heart of the overall HF communication network' providing the 'ability to send HF signals out to ships and aircraft as well as vehicles'.[13]

2.12 Defence advised the Committee that 'the final capability', which is 'currently in delay', will:

> …deliver additional functionality to the standard capability that we have at the moment. It will provide automatic link establishment and those sorts of facilities that will reduce the level of operator input required to establish and maintain calls.[14]

11 ANAO, *DMO Major Projects Report 2007–08*, p.136.
12 ANAO, *DMO Major Projects Report 2007–08*, p.136.
13 Ms McKinnie, *Transcript,* Thursday 16 April 2009, p.38.
14 Ms McKinnie, *Transcript,* Thursday 16 April 2009, p.38.

Causes of delay

2.13 Defence told the Committee that project delays were due to a:

> …process of refining the requirements and ensuring that as they were decomposed into lower level requirements and they were understood by Boeing that raised some issues with definition of requirements. There were some delays as a result of that.[15]

2.14 Some delays were directly attributable to the prime contractor:

> Boeing admits that it underestimated the time it would take in terms of the amount of software that was to be developed and also the time it would take to develop that software. They indicated that their metrics of how long it took versus what they initially estimated were about two to two and a half times out early in the piece.[16]

2.15 In Defence's view, the contractor's response to these time over-runs compounded problems:

> As a part of the program to try to catch up time, they cut corners on their systems engineering process. The cutting of corners and then led to rework. It takes you longer to rework stuff than it does to do it right in the first place.[17]

2.16 As a result of these difficulties, Defence told the Committee, Boeing had given for this final component of the project:

> … a commitment date to deliver final system capability by December 2009. Currently their schedule indicates that final systems acceptance would be March 2011 with contract completion around May 2012.[18]

Responses to delay

2.17 In the face of these problems, Defence told the Committee that it had recourse to two avenues through which to engage the contractor and restore progress. One was 'rebaselining', in which client and contractor negotiated new time-lines they considered achievable. This was seen as an alternative to persisting with schedules no longer considered practicable.[19]

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15 Ms McKinnie, *Transcript,* Thursday 16 April 2009, p.40.
16 Ms McKinnie, *Transcript,* Thursday 16 April 2009, p.40.
17 Ms McKinnie, *Transcript,* Thursday 16 April 2009, pp.40-41.
18 Ms McKinnie, *Transcript,* Thursday 16 April 2009, p.38.
19 Ms McKinnie, *Transcript,* Thursday 16 April 2009, p.39.

2.18 A second avenue lay in 'adjustments to capability', where elements of contractual requirement were lessened or removed. Defence told the Committee that these negotiations allowed Boeing 'some waivers from requirements'. For 'requirements that are on contract' but not provided, Defence would otherwise have sought compensation.[20]

2.19 Defence told the Committee that it was most likely to provide waivers to the contractor for the elements of capability which now proved to be unnecessary:

> Some of the requirements when they were initially specified where required and highly desirable. They are no longer as essential as what was originally thought because there are other systems being introduced that provide that capability in a better way. For example, email over HF was a requirement, but it is no longer a key requirement for the ADF.[21]

2.20 Defence told the Committee that these were effective ways to re-start stalled procurement projects, and that the HF Modernisation Project was in better shape due to these measures having been taken.

Lessons learned

2.21 Defence told the Committee that the HF Modernisation Project was an example of how Defence procurement was done prior to the 2003 *Defence Procurement Review,* known as the 'Kinnaird report'.[22]

2.22 In Defence's view, the fortunes of JP 2043—a project started well before the implementation of the Kinnaird report's recommendations—show why change in procurement was necessary. They also show the usefulness of subsequent reforms: in particular the move to assign greater resources to earlier stages of projects so that their practicability can be more thoroughly tested:

> … while this was going on of course Malcolm Kinnaird was doing his pivotal Kinnaird study. It really has reinforced the things that Kinnaird identified. That is, before you go to government on the eve of a contract you should truly understand what the specifications are and how you should express them, truly engage much more deeply with industry and, as he said, pay for it between the first and second parts to get the quality of information

20 Ms McKinnie, *Transcript,* Thursday 16 April 2009, p.39.

21 Ms McKinnie, *Transcript,* Thursda, 16 April 2009, p.39.

22 Vice Admiral Tripovich, *Transcript,* Thursday 16 April 2009, p.41.

> you need. I think we are much wiser now about finding out what are the drivers of cost schedule and capability in that first and second part. When we enter into a contract we have a much better understanding of those and therefore a contract has sufficient provision for cost schedule and capability risks. I think that is the big lesson.[23]

2.23 Defence also told the Committee that post-Kinnaird reforms gave Defence a greater flexibility to alter project deliverables, along the lines described above, where it proved necessary:

> This is a good example of as time goes by, where it is sensible and pragmatic to do so, we should shift the goal posts … [f]or example, if we do not need to pursue that anymore because there are other means of delivering capability we would be wasting money, effort and time if we persisted. Similarly, as we said before, where threats change it is very appropriate that we shift the goal posts before we sign a contract. That is what the Kinnaird process allows us to do.[24]

2.24 Further, Defence told the Committee that hardware procurement was just one part of the capability equation. Post-Kinnaird, Defence was in a better position to respond to eventualities over the life of contracts:

> Where we do need to change the capability, we go through the process to say how will we fulfil capability requirement? Sometimes it is done by altering our tactics and procedures to deal with a shortfall. Where perhaps we buy a thing that does not go as fast or as far we change our tactics and procedures. The combination of all of the fundamental inputs to capability, as we call them, which includes the training we give people, the quality of our people, the way we fight the battle, that gives the whole capability. The hardware is just one part of it. It is an important part, but just one part.[25]

2.25 Defence told the Committee, JP 2043 demonstrated: that there had been a need for change; that change had occurred; and that it had been effective. Although this project continued to suffer problems as a legacy of earlier procurement practices, the adoption of Kinnaird reforms made similar problems less likely in the future.[26]

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23 Vice Admiral Tripovich, *Transcript,* Thursday 16 April 2009, p.41.
24 Vice Admiral Tripovich, *Transcript,* Thursday 16 April 2009, p.40.
25 Vice Admiral Tripovich, *Transcript,* Thursday 16 April 2009, p.40.
26 Vice Admiral Tripovich, *Transcript,* Thursday 16 April 2009, p.41.

Committee comment

2.26 The Committee takes a keen interest in the ability of Defence to meet time-lines and complete this project.

2.27 Defence will still need to demonstrate that the post-Kinnaird reforms are sufficient and have been well-implemented delivering projects on time, on budget, and with required levels of capability.

Airborne Surveillance for Land Operations - JP 129

Introduction

2.28 This project is to acquire an Unmanned Aerial Vehicle (UAV) capability for the ADF.

2.29 Current military UAVs are most often fixed-wing pilot-less aircraft used for Intelligence, Surveillance, and Reconnaissance (ISR) tasks, although some are rotary aircraft,[27] and increasingly UAVs are being used as weapons platforms.[28] UAVs vary in size and mission, ranging from small battle-field UAVs that carry a payload of less than 1 Kg to long-range, high altitude reconnaissance craft.[29]

2.30 Interest in and use of UAVs has increased as a result of 'asymmetric' campaigns currently underway. Israel has used UAVs extensively in recent campaigns in Gaza,[30] and the US employs a considerable number its current campaigns: in 2006 it was using 1500 UAVs in Iraq alone.[31]

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27 David, Alon Ben, Robert Hewson, Damian Kemp & Stephen Trimble 2006, 'Special Report: UAVs - Frontline Flyers', *Janes Defence Weekly* - May 10, 2006, viewed 23/03/09 http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/mags/jdw/history/jdw2006/jdw14152.htm@current&pageSelected=allJanes&keyword=UAV&backPath=http://search.janes.com/Search&Prod_Name=JDW&.

28 'UAVs hit Gaza-bound weapons convoys', 2009, *Jerusalem Post*, Mar 29, 2009, viewed 31/03/09 http://www.jpost.com/servlet/Satellite?cid=1237727564938&pagename=JPost%2FJPArticle%2FShowFull.

29 David et al, 2006, '*Special Report UAVs*';

30 David et al, 2006, '*Special Report UAVs*';

31 David et al, 2006, '*Special Report UAVs*';

2.31 Australian Defence personnel currently operate leased ScanEagle UAVs in Afghanistan as part of Operation Slipper.[32] They also operate Skylark UAVs.[33]

2.32 The ADF had planned to acquire other UAVs under project JP 129 - Airborne Surveillance for Land Operations, signed with Boeing in 2006 and based on an Israeli aircraft, but this was cancelled in late 2008.[34] Another UAV project (Australia's involvement in the US Broad Areas Maritime Surveillance, or 'BAMS' program) which entailed acquisition of the Global Hawk, was until recently being considered by the ADF, but was cancelled early this year.[35] Currently, Defence is considering 'alternative capabilities' for future UAV acquisitions.[36]

2.33 As for a number of Defence acquisitions projects, plans to acquire UAVs are integral to aspirations to enhance capacity for Network Centric Warfare (NCW). The 'technical difficulties' cited by the Defence Material Organisation (DMO) as the cause of the cancellation of JP 129 reflect the challenges experienced in other projects pertinent to NCW. Such projects entail considerable levels of software development and system integration, both of which increase risk for project outcomes.

Current Status

2.34 Defence informed the Committee about current operations in which the ADF was employing leased UAVs, and progress on the procurement of a UAV capability on behalf of the ADF itself.

2.35 In relation to current operations in Afghanistan, Defence told the Committee that:

> The UAV is applying a very important role at the moment and we are operating with and using and accessing some ally resources in

32 Department of Defence 2009, *Operation SLIPPER*, viewed 31/03/09 http://www.defence.gov.au/opEx/global/opslipper/index.htm.

33 Khosa, Raspal 2008, *Australian defence almanac 2008-2009*, ASPI, viewed 23/02/09 http://www.aspi.org.au/publications/publication_details.aspx?ContentID=196&pubtype=-1, p.39.

34 Defence Material Organisation 2009, *JP 129 - Airborne Surveillance for Land Operations*, viewed 31/03/09 http://www.defence.gov.au/dmo/asd/jp129/jp129.cfm.

35 David et al, 2006, '*Special Report UAVs*'; AAP 2009, 'Opposition slams drones cancellation', *Sydney Morning Herald*, March 3, 2009, viewed 11/03/09 http://news.smh.com.au/breaking-news-national/opposition-slams-drones-cancellation-20090303-8n44.html.

36 Defence Material Organisation 2009, *JP 129 - Airborne Surveillance for Land Operations*, viewed 31/03/09 http://www.defence.gov.au/dmo/asd/jp129/jp129.cfm.

> the UAV. They provide intelligence surveillance and reconnaissance in the battlefield.[37]

2.36 In relation to procurement and contractual matters for UAV capability for the ADF, Defence told the Committee that:

> The reason for contract termination really had to do with lack of performance on the part of the contractor and the subcontractor. We have not terminated the project; we have just terminated the contract. At the moment we are attempting to restart that contract. We are looking at what our contemporary requirements are for that project and whether there is any adjustment needed. Fundamentally, we were reaching a point where the company, Boeing Australia Ltd at the time, and its subcontractor IAI MALAT of Israel were not converging to a solution and we were falling behind at a rate greater than we were progressing.[38]

2.37 Defence assured the Committee:

> …we are taking a very pragmatic approach to our requirements now, having learned a lot through that first contract. We have agreed the requirements now and are working closely with the DMO to be able to get a request to tender out to the industry again, to start the process. I might say that we are working at an accelerated process so that we can get quickly back into contract with the appropriate solution and getting into service.[39]

2.38 This represented progress on previous procurement projects where contractors had failed to perform to Defence's requirements. Defence also assured the Committee that:

> In the meantime we have UAVs in service but on lease and those that we own in the field and so there is no loss of capability, if you like, for current operations.[40]

2.39 In effect, Defence told the Committee, management of JP 129 was a confirmation of the principles of the post-Kinnaird procurement process, which provides greater flexibility for Defence to respond when procurement projects are not running to plan:

> Government has given a second pass for a particular solution at a particular cost. That solution was not successful, so we will have

37 Vice Admiral Tripovich, *Transcript,* Thursday 16 April 2009, p.7.
38 Air Vice-Marshal Thorne, *Transcript,* Thursday 16 April 2009, p.7.
39 Vice Admiral Tripovich, *Transcript,* Thursday 16 April 2009, p.7.
40 Vice Admiral Tripovich, *Transcript,* Thursday 16 April 2009, p.7.

> to come back to government with a new solution and a new cost to get them to give us a new second pass approval, if you like, then go on to contract for a new UAV. [41]

2.40 Defence suggested to the Committee that the way that JP 129 had progressed was a sign of Defence 'having learned lessons' on procurement. Defence's present approach to procurement involves 'doing internal reviews to make sure programs are keeping track'. In this case, such reviews

> … highlighted that there were difficulties early. In fact, when we looked deeply they would not have been overcome. So, instead of inheriting a program that may be around three, four or five years and then find we had troubles and leave the ADF short of capability, our new processes actually found that there were difficulties. We took proactive action with capability development, the Chief of Army, terminated the contract early and are now moving outside. I think we would like to use that to highlight the fact that we are learning lessons and we are addressing programs' difficulties early.[42]

Committee comment

2.41 In the Committee's view it is encouraging to hear that Defence have been able to terminate relationships with contractors where there is a lack of performance. The Committee is mindful of other projects, and other times, when earlier decisions such as this would have been desirable.

2.42 However, the Committee is also concerned about the effects on the ADF of an absence of capability. In view of the steep rise in the use of UAVs by coalition partners in theatres in which the ADF now operates, notably Afghanistan, this could amount to a significant shortfall in capability. Whilst noting the leasing and other arrangements in place the Committee is concerned that delays in the program could have the effect of increasing risk to Australian military personnel.

2.43 In the Committee's view, there is a balance to be achieved between Defence as a critical consumer and its ability to field appropriate capability. The history of JP 129 reflects Defence's increasing ability to respond where contracts are not progressing according to plan. It also

41 Vice Admiral Tripovich, *Transcript,* Thursday 16 April 2009, p.7.

42 Mr King, *Transcript,* Thursday 16 April 2009, p.7.

exemplifies the challenges Defence faces in getting the right equipment to Australia's armed forces, on time.

2.44 In the Committee's view, the question of whether the adoption of the Kinnaird process for JP129 has been beneficial for national security is yet to be answered. The success of the project hinges, as for all other procurement projects, on the ability to deliver the materiel with full capability, on time and within budget. There is some further effort needed before Defence and major contractors can say they do this reliably.

Conclusion

2.45 A factor increasing risk in procurement is the increasing complexity of military equipment overall. This is part of the developing Defence landscape, which no single country can influence in any other direction. The inevitable imperative is to seek to adopt military technologies at a commensurate level of sophistication, in order to provide superior military capabilities, deterrents and war-fighting ability.