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Assurance Report

2008–09 Major Projects Report

Defence Materiel Organisation

Australian National Audit Office

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Australian National Audit Office

Canberra ACT
24 November 2009

Dear Mr President
Dear Mr Speaker

In accordance with the authority contained in the *Auditor-General Act 1997*, the Australian National Audit Office has undertaken a review of the status of selected Defence equipment acquisition projects as at 30 June 2009 as presented by the Defence Materiel Organisation. I present the report of this review to the Parliament. The report is titled *2008–09 Major Projects Report.*

Following its tabling in Parliament, the report will be placed on the Australian National Audit Office's Homepage—http://www.anao.gov.au.

Yours sincerely

Ian McPhee
Auditor-General

The Honourable the President of the Senate
The Honourable the Speaker of the House of Representatives
Parliament House
Canberra ACT

AUDITING FOR AUSTRALIA

The Auditor–General is head of the Australian National Audit Office. The ANAO assists the Auditor–General to carry out his duties under the *Auditor–General Act 1997* to undertake performance audits, assurance reviews and financial statement audits of Commonwealth public sector bodies and to provide independent reports and advice for the Parliament, the Government and the community. The aim is to improve Commonwealth public sector administration and accountability.

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Abbreviations

ACAT	Acquisition Category
ACPB	Armidale Class Patrol Boat
ADF	Australian Defence Force
AEW&C	Airborne Early Warning and Control
AIR	Air Force (project)
ANAO	Australian National Audit Office
ARH	Armed Reconnaissance Helicopter
ASAE	Australian Standard on Assurance Engagements
ASC	ASC AWD Shipbuilder Pty Ltd
ASDEFCON	AUStralian DEFence CONtracting templates
ASPI	Australian Strategic Policy Institute
AWD	Air Warfare Destroyer
C–17	Boeing C–17 Globemaster III aircraft
CAE	Chief Audit Executive
CCP	Contract Change Proposal
CDG	Capability Development Group
CDR	Critical Design Review
CEO	Chief Executive Officer
COTS	Commercial–Off–The–Shelf
DCP	Defence Capability Plan
DEFMIS	Defence Financial Management Information System
DMO	Defence Materiel Organisation
DMS	Defence Maritime Services
DSG	Defence Support Group
DSTO	Defence Science and Technology Organisation
DT&E	Developmental Test and Evaluation
ESSM	Evolved Sea Sparrow Missile
FFG	Guided Missile Frigate
FIC	Fundamental Inputs to Capability
FMS	Foreign Military Sales
FOC	Final Operational Capability
FPS	Function and Performance Specification
HF	High Frequency
HMA	Her Majesty's Australian
HMAS	Her Majesty's Australian Ship
HUG	F/A–18 Hornet Upgrade

IOC	Initial Operational Capability
IPT	Integrated Product Teams
ISD	In–Service Date
IT	Information Technology
JCPAA	Joint Committee of Public Accounts and Audit
JP	Joint Project
LAND	Army (Project)
LHD	Landing Helicopter Dock
MAA	Materiel Acquisition Agreement
MOE	Measure of Effectiveness
MOTS	Military–Off–The–Shelf
MPR	Major Projects Report
MRH	Multi–Role Helicopter
MRTT	A330 Multi–Role Tanker Transport
NSW	New South Wales
OCD	Operational Concept Document
OTS	Off–The–Shelf
PAE	Portfolio Additional Estimates
PBS	Portfolio Budget Statements
PDR	Preliminary Design Review
PDSS	Project Data Summary Sheets
QLD	Queensland
QTR	Quarter
RAAF	Royal Australian Air Force
RAN	Royal Australian Navy
RCI	Real Cost Increase
RCS	Collins Class Submarine Replacement Combat System
RIMPAC	Rim of the Pacific Navy Exercises off Hawaii
ROMAN	Resource and Output Management and Accounting Network
SADI	Skilling Australia's Defence Industry
SEA	Navy (project)
SES	Senior Executive Service
SPO	System Program Office
TCD	Test Concept Document
UK	United Kingdom
US	United States
USA	United States of America
WA	Western Australia

Part 1: ANAO Overview

Auditor-General's Foreword

This second review of the status of selected Defence acquisition projects continues to build on the work undertaken by the Defence Materiel Organisation (DMO) and the Australian National Audit Office (ANAO) to improve the transparency and public accountability for these major Defence acquisitions.

Managing major Defence equipment acquisitions that successfully deliver front line capability for the Australian Defence Force represents a significant challenge. With Defence equipment often expensive and technically complex, there are generally significant risks in delivering the required capability on schedule and within budget.

In this environment, increased transparency and accountability on progress with major Defence acquisitions has been a focus of Parliamentary interest for some time. The Joint Committee of Public Accounts and Audit (JCPAA) has been active and influential in progressing the issue of an annual report on the status of progress with major Defence capital acquisition projects. This Parliamentary focus has been reinforced by the work of the Joint Standing Committee on Foreign Affairs, Defence and Trade. Following feedback from the JCPAA on the 2007–08 Major Projects Report (MPR), some elements of this year's report have been enhanced.

The 2008–09 MPR includes more data analysis when compared to last year, and provides a basis for longitudinal analysis of project performance for future years. Additional information in the Project Data Summary Sheets has been provided to meet stakeholder requirements, including enhancements proposed by the JCPAA. Further, the 2008–09 MPR covers an additional six projects compared to last year bringing the total number of projects to 15 in this year's MPR.

In looking forward, the program is well placed to incorporate eight new projects in the 2009–10 MPR, and the DMO and the ANAO will be working with the JCPAA to further enhance the value of the report as it continues to evolve.

This year's review built on the effective working relationship established last year between the DMO and the ANAO, and was conducted in a cooperative manner. Defence and industry stakeholders also provided valuable input to assist ANAO with its review of DMO information.

I would like to thank the Chief Executive Officer of the DMO, Dr Stephen Gumley, and his staff at the corporate and project levels for their considerable work on the second report, and the high level of assistance provided to the ANAO staff in conducting the project reviews.

Ian McPhee
Auditor–General

13 November 2009

Summary

Introduction

1. The Defence Materiel Organisation (DMO), which is responsible for developing and sustaining capability for the Australian Defence Force (ADF) in support of Australia's national security, expended some $4.8 billion in 2008–09 on major and minor capital acquisition projects.[1]

2. Defence acquisition projects are the subject of considerable Parliamentary and public interest, in view of their planned contribution to national security and the challenges in bringing major projects in on time, within budget and with the required capability.

3. Various Parliamentary committees, in particular the Joint Committee of Public Accounts and Audit (JCPAA) and the Joint Standing Committee on Foreign Affairs, Defence and Trade, have supported the development of an annual report on the progress of major Defence acquisition projects to improve transparency and accountability. Following consultation with key stakeholders, the Auditor-General agreed to perform a review and report yearly to the Parliament on major Defence acquisition projects. Government funding to the ANAO in the May 2008 Budget enabled the establishment of a Major Projects Report (MPR) program, with the first report tabled by the ANAO in November 2008 (2007–08 MPR).

4. This second report covers 15 projects, an increase of six projects on the first report. The approved budget for the 15 projects totals $37.8 billion, as at 30 June 2009 (Table 1).

5. The 2009–10 MPR is scheduled to report on the progress of 23 major projects, with up to 30 projects in future years. The ANAO's review of these projects will be additional to its regular program of performance audits and financial statement audit work conducted in the Defence portfolio.

[1] Department of Defence, *Defence Annual Report 2008–09*, Volume 2, p.28.

Table 1

2008–09 MPR Projects and Approved Budgets at 30 June 2009

Project	Project No.	DMO Abbreviation	Approved Budget $m
Air Warfare Destroyer Build	SEA 4000 Ph 3	AWD Ships	8 261
Bridging Air Combat Capability	AIR 5349 Ph 1	Super Hornet	4 310
Multi-Role Helicopter	AIR 9000 Ph 2, 4 and 6	MRH90	4 199
Airborne Early Warning and Control Aircraft*	AIR 5077 Ph 3	Wedgetail	4 154
Amphibious Deployment and Support	JP 2048 Ph 4A/4B	LHD Ships	3 542
Armed Reconnaissance Helicopter*	AIR 87 Ph 2	ARH Tiger	2 101
Air to Air Refuelling Capability	AIR 5402	Air to Air Refuel	2 088
C-17 Globemaster III Heavy Airlifter*	AIR 8000 Ph 3	C-17 Heavy Airlift	2 055
F/A-18 Hornet Upgrade*	AIR 5376 Ph 2	Hornet Upgrade	2 042
Guided Missile Frigate Upgrade Implementation*	SEA 1390 Ph 2.1	FFG Upgrade	1 537
F/A-18 Hornet Upgrade Structural Refurbishment	AIR 5376 Ph 3.2	Hornet Refurb	938
Bushmaster Protected Mobility Vehicle*	LAND 116 Ph 3	Bushranger	931
High Frequency Modernisation*	JP 2043 Ph 3A	HF Modernisation	661
Armidale Class Patrol Boat*	SEA 1444 Ph 1	Armidales	535
Collins Replacement Combat System*	SEA 1439 Ph 4A	Collins RCS	459
Total			**37 813**

Source: 2008–09 MPR, Part 2.

Note 1: *Indicates the project was included in the 2007–08 MPR. The 2007–08 MPR covered Hornet Upgrade Phase 2.2; the 2008–09 MPR covers all Phase 2.

Note 2: Approved Budget figures have been rounded to nearest $ million.

Note 3: The Bushmaster Protected Mobility Vehicle is also known as ‘Project Bushranger’.

6. The complexity of projects in the report range from military-off-the-shelf (MOTS) capability solutions, such as the purchase of the C-17 Heavy Airlift project, to highly developmental projects such as the Wedgetail aircraft.

A useful way to grade the complexity of projects is DMO's Acquisition Category framework, as set out in Table 2, which categorises projects according to their nature, schedule management complexity and technical difficulty.

Table 2

Project Complexity at 30 June 2009

Acquisition Category	Projects
ACAT I Extensive project and schedule management complexity and very high levels of technical difficulty.	AWD Ships, Wedgetail, LHD Ships
ACAT II Significant project and schedule management complexity and high levels of technical difficulty.	Super Hornet, MRH90, ARH Tiger, Air to Air Refuel, C-17 Heavy Airlift, Hornet Upgrade, FFG Upgrade, Hornet Refurb, HF Modernisation, Collins RCS
ACAT III Traditional project and schedule management techniques and moderate levels of technical difficulty.	Bushranger, Armidales
ACAT IV Traditional project and schedule management requirements and low levels of technical difficulty.	

Source: 2008–09 MPR, Part 2.

Note: The complexity of a project will vary over its life-cycle. A project's Acquisition Category is reviewed by DMO at key stages of procurement.

7. The more complex the project, the greater the risk in delivering within budget, on schedule and to the required capability.[2] DMO's experience supports the view that the more developmental in nature a project, the more susceptible a project is to schedule delays compared to MOTS solutions. DMO

[2] The 2009 review by The Helmsman Institute, commissioned by the DMO, comparing project complexity between Defence and other sectors, found that Defence projects are more complex than private sector projects, and that current levels of project complexity are likely to continue and may increase. However, the review also noted that some of the causes for complexity were driven by the Australian Defence Force requirements such as decisions made by Defence, Government policy and sector approaches.

has provided further analysis on schedule performance in the DMO section of the report.[3]

8. Chapter 1 contains further analysis of project performance in terms of budgeted cost, schedule and capability.

Report objective

9. The objective of this report is to provide information, prepared by both the ANAO and DMO, on the performance of major projects as well as providing the Auditor-General's formal conclusion on the review of the Project Data Summary Sheets (PDSSs) prepared by DMO and contained in this report.

10. This report, which builds on the 2007–08 MPR, is designed to provide improved transparency and public accountability for these major acquisition projects through the presentation of clear and consistent information on the status of projects. Following discussion with the JCPAA, this year's report includes a further six projects and additional information in the PDSSs.

11. Over time, this report will allow the development of a wider view of DMO's performance in major Defence acquisitions.

Role of the JCPAA

12. The JCPAA has been influential in establishing support for the MPR and has taken an active role in the development of this report. Following tabling of the 2007–08 MPR in November last year, the JCPAA conducted a hearing in March 2009 into that report and has provided further feedback and suggestions regarding their information needs in future reports. This has included commentary by DMO on major lessons learned on each project; a breakdown by DMO of project maturity scores against their constituent elements, including the benchmark score; information concerning project performance against the measures of effectiveness (MOE) identified in each materiel acquisition agreement (MAA); and an analysis by the ANAO of project performance for the 15 projects in the 2008–09 MPR, both in-year and across years. Further commentary by the ANAO on these matters has been included in this report.

[3] See Part 2, paragraphs 3.12 to 3.14.

Overall conclusion

13. This second MPR has progressed the development of an annual report program focused on improved transparency and accountability for performance relating to cost and schedule, and capability being delivered for major Defence capital acquisition projects. The report includes more data analysis when compared to last year, and provides a basis for longitudinal analysis of project performance in future years. The PDSSs within the report have been developed to meet DMO and stakeholder needs, with the incorporation of additional project maturity score data, compared to last year.

14. The conclusion of the formal review of the PDSSs was that except for the non-inclusion of prime contract price for three projects and expenditure at base date prices for 11 projects (as explained in paragraph 26 below), nothing has come to the attention of the ANAO that causes us to believe that the information in the PDSSs, within the scope of our review, has not been prepared in all material aspects, in accordance with the PDSS Guidelines.

15. The program is now well placed to incorporate a further eight new projects in the 2009–10 MPR to bring the total number of projects reported to 23. The goal is to eventually report on up to 30 projects.

Projects' Performance

16. The ANAO's analysis indicates that maintaining major acquisition projects on schedule remains a major challenge for the DMO and industry contractors, affecting when the capability is made available to the ADF as the end user.

17. In analysing the history of the 15 projects covered in the 2008–09 MPR, eight project schedules slipped by a total of 378 months against original dates for achieving final operational capability (FOC).[4] The main projects to experience significant schedule slippage are HF Modernisation (74 months), Collins RCS (72 months), FFG Upgrade (65 months), Wedgetail (48 months), ARH Tiger (42 months), Armidales (33 months) and Bushranger (26 months).

[4] FOC is the point in time at which the final subset of a capability system that can be operationally employed is realised. FOC is a capability state endorsed by Government at Second Pass Approval and reported as having been reached by the capability manager. Major capital equipment can be in Defence service use before formally achieving FOC.

Across the 15 major projects, on average, this results in a slippage of just over two years against original target dates for achieving FOC.[5]

18. In analysing the in-year (2008–09) changes to the status of the 15 projects in this report, seven projects have experienced in-year schedule slippage totalling 119 months or an average seven per cent increase in the FOC schedule across the 15 projects.[6] This slippage in turn affects budget performance, related projects and other administrative processes, for example, the timing of ADF training programs.

19. The ANAO analysis underlines the importance of the focus applied to schedule performance by DMO as an effective means of managing schedule and budget performance within the control of DMO.

20. The main drivers for budget supplementation during 2008–09 have been the impact of price indexation for material and labour, and movements in foreign exchange rates. As Defence projects can extend over a number of years, supplementation to project budgets to deal with labour and material price changes and foreign exchange variations are generally a standard budget feature. Across the life of 13 projects[7] in the 2008–09 MPR, as at 30 June 2009, price and exchange variations comprised 52 per cent ($3.7 billion) and 21 per cent ($1.5 billion) respectively of the variation to the original approved budgets. The real variations to the project budgets amounted to 27 per cent ($2 billion).[8]

21. In terms of real budget increases, a significant proportion is related to Government decisions to acquire additional quantities of equipment after initial approvals or the merging of a previously separate project into another, resulting in increases to project budgets.[9]

22. The third major dimension in assessing DMO's performance with major acquisitions is the extent to which capability is delivered in accordance

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5 In the case of the eight projects which have experienced slippage to their FOC dates, this represents an average delay of just under four years.

6 See Part 1, Figure 7.

7 This data does not include the MRH90 and LHD Ships projects as the acquisition strategies involved a small initial budget approval. In the case of MRH90, the project's approved budget at the Government's Second Pass Approval stage was just under $1 billion, and in the case of LHD Ships, almost $3 billion.

8 An explanation of the definition of real variations is included at Part 1, paragraph 1.6.

9 See Part 2, Table 3.2.

with requirements specified by the ADF. The 2008–09 MPR provides limited data in this area, partly reflecting DMO concerns with the security implications of providing capability progress information across all projects in a public report. Nevertheless, data included in the 2008–09 MPR involving traffic light (green, amber and red) indicators about DMO's level of confidence with achieving the key capability attributes of a project show that for the nine projects in the 2007–08 MPR, there has been a slight increase (three per cent), to 83 per cent, in the percentage of key capability attributes DMO has a high level of confidence in meeting, as at September 2009.[10]

23. DMO has agreed to explore the options of enhancing disclosures in relation to capability for future MPRs in the light of JCPAA interest in this key area of project performance.

Acquisition Governance Issues Arising From the Review

24. Similar to last year, the ANAO has agreed to review the information disclosed in the PDSSs. For most of the information presented, the ANAO was able to obtain sufficient and appropriate evidence to support our review conclusion. Much of that information reflects past transactions and events.

25. However, the data in PDSSs covering major challenges, risks and issues and the achievement of future dates involve uncertainty because they relate to events and depend on circumstances that may or may not occur. Further our review of the maturity of the systems and processes utilised to populate these elements of the PDSSs brought to attention opportunities for improvement by the DMO. Accordingly these aspects of the PDSSs have not been included within the scope of our review.

26. In addition, the non-inclusion of prime contract price for three projects and expenditure at base date prices for 11 projects represents a departure from the Guidelines and constitutes the basis for our qualified conclusion. DMO did not include this information, as in its view the figures are difficult to obtain without a significant investment to present these figures at a level of accuracy that DMO can be assured of.

[10] For the 2008–09 MPR, DMO decided not to include capability data in the PDSSs, for ANAO review. Instead, DMO decided to provide a capability section in its report (Part 2), which is outside the scope of the ANAO's assurance review.

27. The significant issues arising from our review are discussed in Chapter 2.

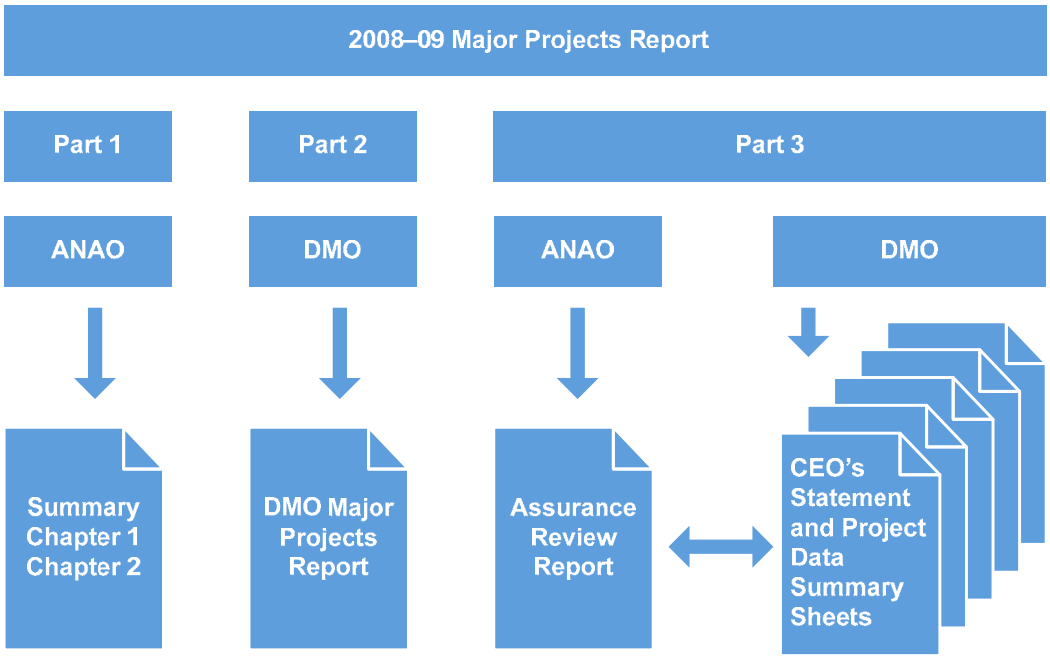
Report structure

28. This report is organised into three parts as shown in Figure 1:

- Part 1 comprises this Summary as well as Chapter 1 *Projects' Performance* and Chapter 2 *Acquisition Governance Issues Arising from the Review*;
- Part 2 comprises the DMO's commentary and analysis on major projects and is not included within the scope of the Auditor-General's review, and
- Part 3 incorporates the Auditor-General's assurance review report; a statement by the CEO DMO, and the 15 PDSSs prepared by the DMO and provided to the ANAO as part of the assurance review process.

Figure 1

Report Structure



29. The PDSSs describe each project and contain information on each project's performance compared to the approved budget, schedule, and development of specified capability. This information has been prepared by DMO having regard to the Guidelines that were developed in consultation with the ANAO. Each PDSS comprises:

- Section 1 – a summary of the project, including management details, project context, industry suppliers, unique project features and major challenges;
- Section 2 – an outline of the project budget and variances that have occurred over the life of the project to date, as well as major contracts in place;
- Section 3 – information on the project's design development and test and evaluation status, and when the project is forecast to achieve initial and final operational capability;
- Section 4 – an outline of the major risks and issues faced by the project, and reference to other projects that depend on the reported project to achieve their objectives;
- Section 5 – an outline of the key lessons that have been identified; and
- Section 6 – a statement on material events post 30 June 2009 to 30 September 2009 that have had an impact on the status of the project.

30. Consistent with the Guidelines, information of a classified or commercial-in-confidence nature has been excluded from the PDSSs.

Review approach

31. The ANAO's review of the individual PDSSs contained in Part 3 of this report has been conducted in accordance with the Australian Standard on Assurance Engagements (ASAE) 3000 *Assurance Engagements other than Audits or Reviews of Historical Financial Information* issued by the Australian Auditing and Assurance Standards Board.

32. Our review of the information presented in the individual PDSSs included:

- an examination of each PDSS;
- a review of relevant procedures and Guidelines used by DMO to prepare the PDSSs;

- a review of documents and information relevant to the PDSSs;
- interviews with persons responsible for the preparation of the PDSSs and those responsible for the management of the 15 projects; and
- an examination of the statements and management representations by the CEO DMO and senior DMO managers, and confirmations from the three ADF Service Chiefs concerning the overall accuracy and completeness of the PDSSs, including the status of initial and final operational capability.

33. While our work is appropriate for the purpose of providing a review report in accordance with ASAE 3000, our review is not as extensive as individual project performance audits conducted by the ANAO, in terms of the nature and scope of project issues covered, and the extent to which evidence is required by the ANAO. Consequently, the level of assurance provided by this review in relation to the 15 projects is less than that typically provided by our performance audits. The review was conducted at a cost to the ANAO of $1 085 000.

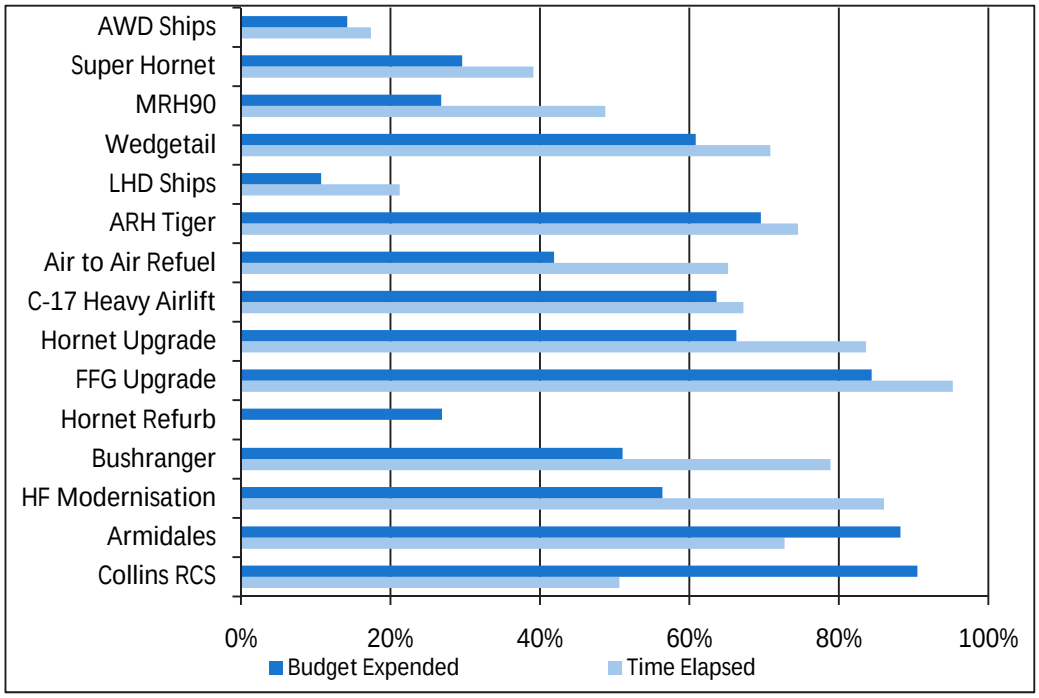
1. Projects' Performance

Introduction

1.1 This Introduction provides a snapshot at 30 June 2009 of the status of each project included in this report against budget (percentage of current approved budget expended) and schedule (percentage of months elapsed from original project approval date to forecast final operational capability (FOC)). This is presented in Figure 2.

Figure 2

Project Snapshot – Budget Expended and Time Elapsed (in percentage)



Source: 2008–09 MPR and ANAO analysis.

Note 1: Hornet Refurb project does not have a FOC date as it does not introduce new capability to the Hornet aircraft fleet.

Note 2: For Bushranger and Hornet Upgrade, FOC dates used for calculating time elapsed are when the last sub-set of the capability is scheduled, to compare total budget and time elapsed. This differs from FOC data used elsewhere in the report, where the purpose is to enable comparison of FOC data from the 2008–09 MPR with the 2007–08 MPR.

Note 3: In future years, it is intended to include capability progress in this project snapshot.

1.2 While it is reasonable to expect a broad correlation between the project's budgeted expenditure and the time elapsed, project unique factors often mean that the extent of this correlation will diverge. Nevertheless, Figure 2 provides a useful starting point for further analysis of projects' progress in this chapter.

Budget performance

Original and 30 June 2009 Approved Budgets

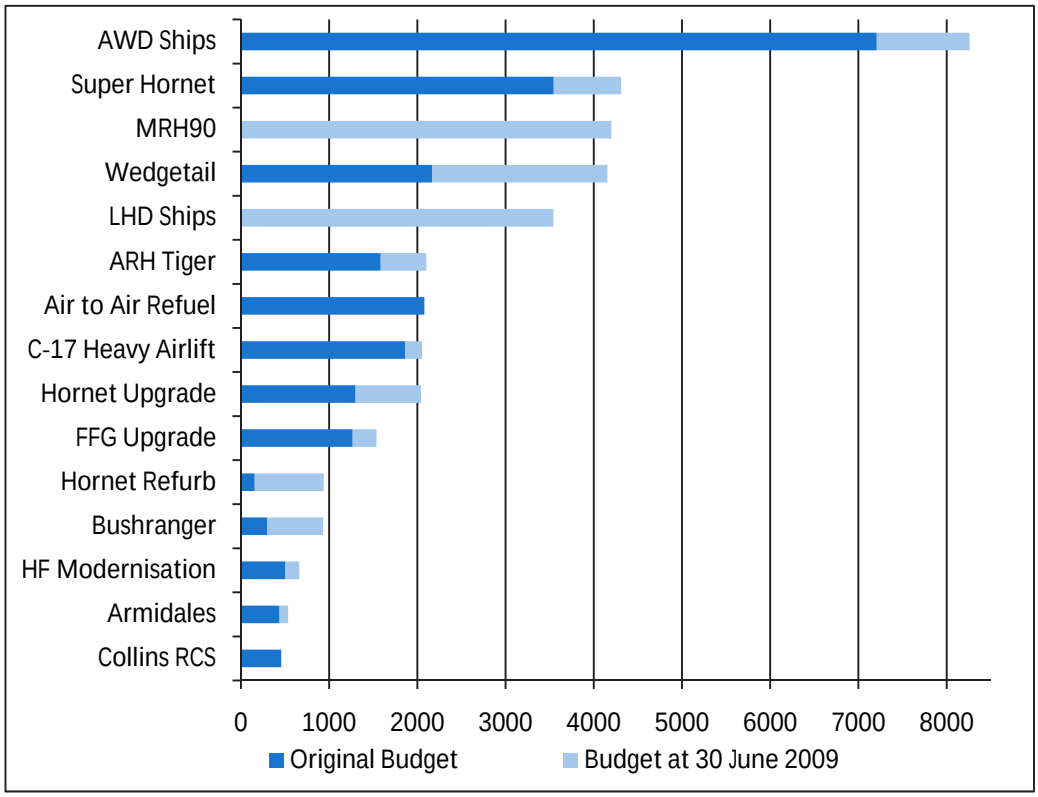
1.3 For the 15 projects covered in the 2008–09 MPR, Figure 3 compares each project's original approved budget with its approved budget at 30 June 2009. Total value of the approved budgets for the 15 projects at 30 June 2009 was $37.8 billion, an increase of $14.9 billion compared to their first approved budget. Real variations in project budgets account for $8.3 billion of this increase, with the balance due to price variation and foreign exchange rate movements.[11] [12]

[11] Two projects, MRH90 and LHD Ships, used an acquisition strategy involving only a small initial budget approval ($3.3 million and $3.1 million respectively), and together accounted for $6.3 billion of the $8.3 billion real variations to project budgets as at 30 June 2009. In the case of the Wedgetail project, a real variation was recorded under the project's budget approval history in July 2008 to fund price and exchange variations.

[12] Further, DMO have advised that of the $14.9 billion budget increase, $5.1 billion relates to budget variations between First and Second Pass approvals. However, after discounting for price variation, foreign exchange and Government approved quantity changes, the net variation from original approved pre Second Pass budget is nil. After subtracting the $5.1 billion from the $14.9 billion, the balance of $9.8 billion (increase) from Second Pass to 30 June 2009 comprises: price and exchange of $6.1 billion; Government approved scope changes of $4.3 billion; and net transfers of $-0.6 billion to Defence Groups and other projects. The majority of the scope change relates to the Government approved increase in MRH90 aircraft numbers from 12 to 46.

Figure 3

Projects' Original and 30 June 2009 Approved Budgets ($m)



Source: 2008–09 MPR.

Note: In the cases of the MRH90 and LHD Ships, see earlier footnote 11.

Project Budget Variance

1.4 Approved budget variations are classified by DMO into three factors: price, exchange and real variations. The first two factors, price (material and labour) indexation and exchange rate variation are generally standard provisions in acquisition projects that extend over a number of years, and essentially represent budget variations outside the scope of project management to control.[13] Across the nine 'repeat' projects from 2007–08, DMO

[13] Australian Government arrangements for foreign exchange variation involve 'no win/no loss' supplementation. As a matter of policy, unless specifically approved, individual agencies cannot 'hedge' against foreign exchange risk.

data included in the PDSS indicates that all budget approval increases in 2008–09 were due to these factors.

1.5 Exchange rate variations in project budget are a result of projects' exposure to foreign currencies and movement in foreign exchange rates. Exchange rate variations impact projects where equipment is sourced from overseas, and can result in significant budget variations from one year to the next. For instance, in 2007–08 a stronger Australian dollar decreased the 15 projects' budget by a total of $1.5 billion. However, in 2008–09 the Australian dollar was weaker against most foreign currencies throughout the year and as a result, the budget for the 15 projects increased by a total of $3.4 billion due to exchange movements. In the second half of 2009, the Australian dollar has strengthened against most foreign currencies, and if this trend continues, then this would result in a decline in the foreign exchange component of project budgets in 2009–10.

1.6 Real variations in project budgets primarily reflect changes in the scope of projects, transfers between projects for approved equipment/capability, and budgetary adjustments such as administrative savings decisions. Across the nine repeat projects from 2007–08, there was only one budget variation related to scope change in 2008–09.[14]

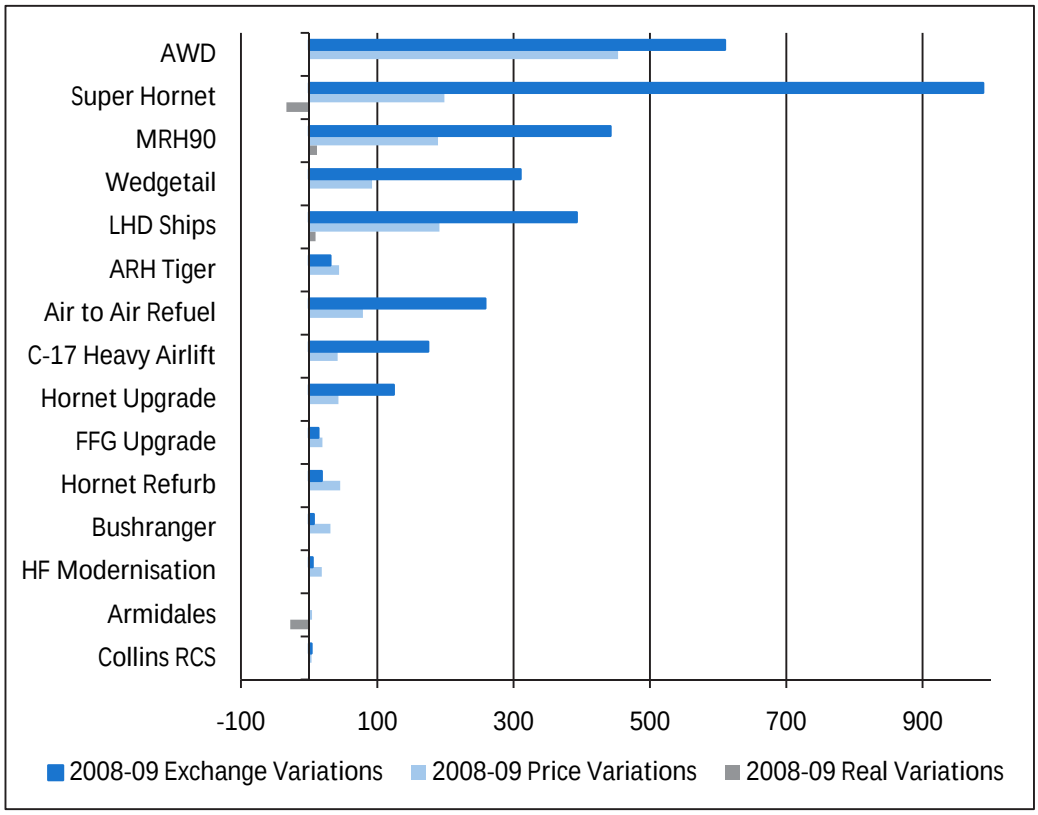
1.7 The in-year approved budget of the 15 projects from the 2008–09 Major Projects Report (MPR) increased by a total of $4.8 billion or 15 per cent. The increases mainly relate to price and exchange rate variations. As reflected in Figure 4, this budget increase was largely driven by the following projects:

- Super Hornet (24 per cent of the 15 projects' budget increase);
- AWD Ships (22 per cent of the 15 projects' budget increase);
- MRH90 (13 per cent of the 15 projects' budget increase); and
- LHD Ships (12 per cent of the 15 projects' budget increase).

[14] This involved the Armidales transferring $27.8 million in approved funding from the project to the Defence Support Group to upgrade wharf facilities at Darwin and Cairns.

Figure 4

In-Year (2008–09) Budget Changes ($m)



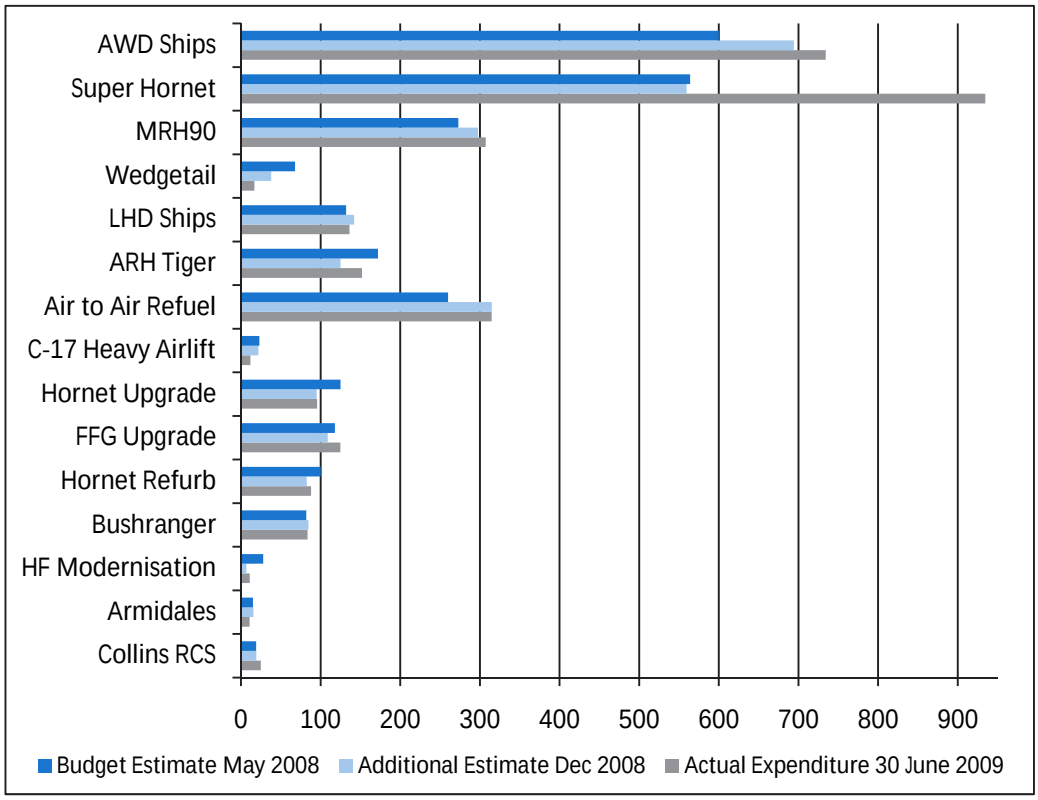
Sources: 2008–09 MPR and project budget approval history.

Actual and Estimated Expenditure

1.8 With regard to the 15 projects covered in the 2008–09 MPR, Figure 5 presents details of each project's estimated and actual expenditure for the year 2008–09. The actual expenditure for the 15 projects at 30 June 2009 was $3.0 billion against estimated expenditure of $2.6 billion, an increase of 17 per cent related to the earlier than expected completion of project elements. For one project, the Super Hornet, the actual expenditure was 67 per cent higher than estimated due to the Foreign Military Sales (FMS) purchases being brought forward.

Figure 5

In-Year (2008–09) Projects' Forecast and Actual Expenditure ($m)



Sources: 2008–09 MPR and Portfolio Budget Statements.

Schedule performance[15]

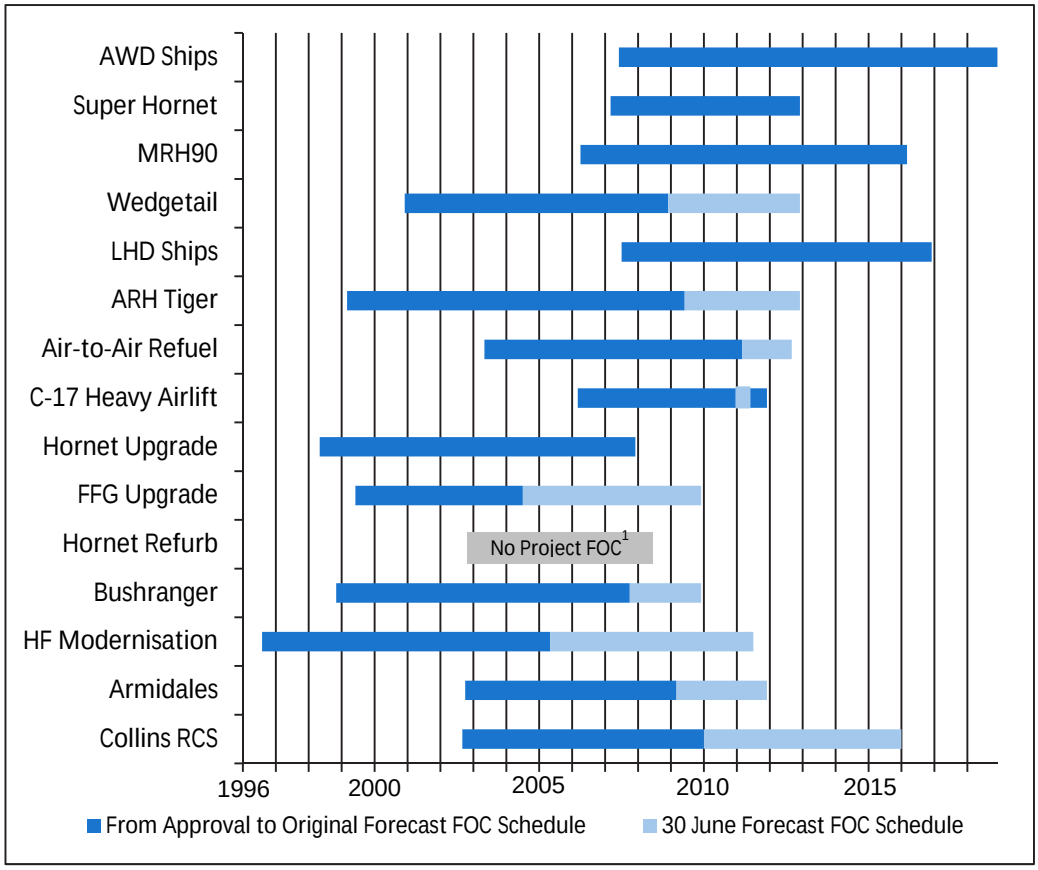
1.9 Figure 6 presents details on projects' original and 30 June 2009 forecast for achieving FOC. The total delay for the 15 projects is expected to be 378 months later than predicted when first approved. This slippage represents a 28 per cent increase on the expected schedule since the main investment decision. Across the 15 major projects, eight projects have experienced a slippage in FOC achievement. One project, the C-17 Heavy Airlift, which is a

[15] In the instances where FOC dates have changed due to changes in the scope of the project, this creates difficulties in measuring the year-to-year progress of the 'same' project. Where this is an issue, the ANAO has used the project's 2007–08 MPR scope to analyse progress in 2008–09 or has used the lead/main capability FOC as the benchmark. The results from this approach may be different from DMO's approach to the analysis of 2008–09 MPR data.

MOTS acquisition, is forecast to achieve FOC 11 months ahead of its original schedule.

Figure 6

Projects' Original and 30 June 2009 Schedule for FOC



Source: 2008–09 MPR.

Note 1: [1]See Figure 2 for explanation.

Note 2: Hornet Upgrade FOC date relates to Phase 2.2. The FOC date for complete Phase 2 upgrade is August 2011.

Note 3: Bushranger FOC date relates to production period 1. The FOC date for production period 3 is April 2012.

Note 4: HF Modernisation FOC date relates to the Final System. The FOC date for the project's Mobiles element is 2016.

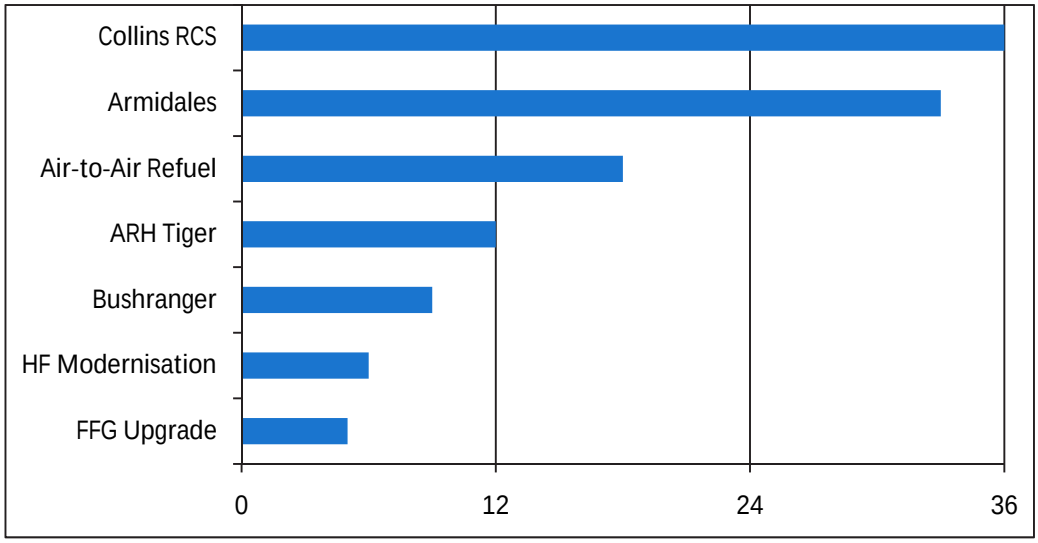
1.10 Reasons for schedule slippages can involve technical factors such as design problems, difficulties in integrating different systems to achieve the required capability, or emergent work associated with upgrades. In other cases, a project's ability to gain access to the platform can impact schedule.

1.11 In 2008–09 there was 119 months slippage in the forecast achievement of FOC for the 15 projects. This represents a seven per cent average increase in the schedule timeframe for this group of projects. Figure 7 shows that the in-year schedule slippage involved the following projects:

- Collins RCS (delays in docking program and impact of emergent work);
- Armidales (outstanding defects – with 'workarounds' in place);
- Air to Air Refuel (increased scope and complexity of the aircraft conversion);
- ARH Tiger (realignment with operational release date planned under the Army's project plan for introduction into service of the ARH);
- Bushranger (component delivery delays);
- HF Modernisation (component delivery delays); and
- FFG Upgrade (schedule impact from incremental approach to operational release).

Figure 7

In-Year (2008–09) Schedule Changes to achieving FOC (months)



Source: 2008–09 MPR.

Note: The remaining eight projects did not record changes to the relevant FOC date during the year.

Capability performance

1.12 In agreements with Defence's Capability Development Group (CDG), DMO agrees to deliver platforms and systems to the ADF that satisfy capability attributes referred to as measures of effectiveness (MOEs). MOEs specify, in high-level operational terms, the capabilities of platforms or systems. Hence, and in conjunction with cost and schedule performance measures, they provide an overall picture of the status and current performance of a project.

1.13 The JCPAA has indicated a continuing interest in data that clearly shows each project's progress towards delivering on the key measures of equipment capability. However the 2008–09 MPR, as in last year's report, only provides a single aggregated presentation of MOE achievement by all projects. DMO reports that as at end September 2009, the consolidated MOE traffic light status of all 15 projects' was:

- one per cent of MOEs were at this stage unlikely to be met;
- 13 per cent of MOEs were under threat but still considered by DMO as manageable; and
- 86 per cent of MOEs were assessed as having a high level of confidence that they would be met.

1.14 As the MOE data has only been included in the DMO analysis (Part 2 of this report), and not the PDSSs, it has not been subject to ANAO review in 2008–09.

1.15 However, narratives on the 30 June status of capability performance contained in the PDSSs, and recent DMO evidence before Parliamentary committees, assist in providing an insight into major projects that are experiencing significant challenges in delivering their planned equipment capability. The projects of note in this regard include:

- Wedgetail – the phased array radar, which is central to the surveillance capability, remains under development and DMO expects the radar's full contracted capability will not be met by the scheduled date. DMO has indicated the need to put in place a plan to incrementally improve the radar's performance when the technology to solve the shortfalls becomes available. The second main area of current capability concern which has been identified is whether the electronic surveillance system

will provide sufficient protection for the aircraft in a hostile environment.[16]

- FFG Upgrade – current issues preventing operational release of the upgraded ships include: the torpedo defence systems integration, hull mounted sonar and electronic support system not meeting the performance requirements.[17]
- HF Modernisation – currently, there is a risk to achieving the full complement of performance requirements for the project's final system. Considerable slippage in the project's schedule has occurred and some original capability requirements have been waived with the contractor, following agreement from Defence stakeholders.[18]

[16] 2008–09 MPR and Joint Standing Committee on Foreign Affairs, Defence and Trade, Defence Subcommittee, Committee Hansard, 21 August 2009, pp. 3-9.

[17] 2008–09 MPR.

[18] 2008–09 MPR and Joint Standing Committee on Foreign Affairs, Defence and Trade, Defence Subcommittee, Committee Hansard, 16 April 2009, pp. 41-42.

2. Acquisition Governance Issues Arising from the Review

Introduction

2.1 This chapter provides an overview of the approach adopted by the ANAO in the development of the 2008–09 MPR following the 2007–08 MPR pilot, and issues arising from our review. In this context we have highlighted areas within the governance frameworks where issues have been encountered during the preparation of the 2008–09 MPR and the review of the PDSSs. These issues included the nature of the information in the MPR, the maturity and reliability of systems available for its production and the resources available for the limited assurance review. Additionally, the chapter makes reference to further issues raised by the JCPAA for consideration in the context of the development of the 2009–10 MPR.

Review approach

2.2 Following agreement by the Auditor-General to produce a yearly report on the DMO's major projects, the ANAO has, in consultation with the CEO DMO, developed a program to build up resources, knowledge and processes necessary to complete a review of up to 30 major projects in future years. This has required both agencies to develop plans to ensure that sufficient investment is committed early in the process to ensure this target is met.

2.3 Both DMO and the ANAO consult with the JCPAA as progress with the development of the report is made, to ensure that the report provided meets the objectives of enhancing the transparency and accountability for the performance of major acquisition projects.

2.4 The ANAO's approach to the review of the individual PDSSs contained in Part 3 of this report has been conducted in accordance with the Australian Standard on Assurance Engagements (ASAE) 3000 *Assurance Engagements other than Audits or Reviews of Historical Financial Information* issued by the Australian Auditing and Assurance Standards Board.

2.5 In accordance with the provisions of section 20(1)(c) of the *Auditor-General Act 1997* and ASAE 3000, the ANAO and DMO have entered into an agreement relating to the review. As part of this process DMO has developed a

set of Guidelines, in consultation with the ANAO, to provide a framework for the production and provision of the PDSSs and supporting information to the ANAO for review. These Guidelines have been distributed to the project offices responsible for the major projects, and have assisted in transitioning the project offices through this developing process.

2.6 A review does not provide the same level of assurance as an audit due to differences in the work effort involved. In other words, the resources devoted to this review of 15 projects is substantially less than the resources that would be required to undertake an audit of the 15 projects, for example a performance audit.

2.7 As a result, in some areas where data is inherently uncertain and where systems and processes are not sufficiently mature to provide confidence in the completeness or accuracy of information, considerable additional resources would be required by the ANAO to include these elements within the scope of the review to obtain an appropriate level of assurance. For example, in risk identification and for prospective information which relates to events and depend on circumstances that may or may not occur, such information has been excluded from the scope of our review at this time.

Areas of Review Focus

2.8 As an initial stage of the ANAO's development of processes and procedures to provide independent assurance over the PDSSs, the ANAO has focussed on reviewing DMO's project management and reporting arrangements, and a number of the different frameworks in place that contribute to the governance of the acquisition processes within DMO. This focus has encompassed the following, to the extent that they impact the preparation of the PDSSs:

- DMO's project management framework, and its Enterprise Risk Management Framework (ERMF); and
- the financial framework supporting project management.

2.9 Amongst other things, this review has informed the ANAO's understanding of the DMO systems and processes used to populate the PDSSs, and highlighted opportunities for improvement in those systems and processes in the longer term.

Governance over Acquisition Processes

2.10 DMO governance over acquisition processes is guided by policies and procedures that are regularly updated to support developments in project management and DMO's own experience. Projects are assigned to project offices that have the responsibility to manage the acquisition process. A range of different systems and processes provide support to the project offices and allow for centralised reporting of key project information. The PDSSs are then populated from information compiled by the responsible project offices.

2.11 The ANAO's review of the PDSSs has drawn attention to four particular areas in relation to the accuracy and completeness of the PDSSs:

- due to the early stage of development of the ERMF and the level of assurance able to be provided, the data included within the tables of major risks and issues in the PDSSs have not been included in the scope of our review;
- further consideration of the risk of misstatement of prospective information has resulted in this area of the PDSSs also being excluded from the scope of the review, as sufficient assurance is as yet unable to be provided;
- review of reporting of prime contract price and prime contract progress payments in base date dollars, which was subject to qualification in the 2007–08 MPR due to uncertainties as a result of systems limitations, has resulted in this issue being resolved for only four of the 15 projects in the report; and
- the JCPAA has requested that the DMO provide further information for the 2009–10 MPR, including 'total project costs'.

DMO's Enterprise Risk Management Framework (ERMF)

2.12 During planning for the ANAO's assurance review, documentation on the design, development and implementation of DMO's ERMF was analysed in order to assess the ability to provide sufficient assurance for major challenges, project risks and issues, as included in Tables 1.2, 4.1 and 4.2 in the 2008–09 PDSSs.

2.13 During the course of the review, DMO provided an updated draft ERMF for ANAO review, providing a sound basis for a more consistent approach to the risk management of major acquisition projects. To provide

confidence as to the completeness and accuracy of risk assessments, and soundness of risk mitigation strategies, the implementation and management of this framework will be a challenging but necessary step for DMO in its goal of improving project management.

2.14 The recent review of the draft ERMF by the DMO Chief Audit Executive (CAE), highlighted a number of areas of focus in relation to addressing this challenge, including:[19]

- the significant gap between current risk management practices and those set out in the draft ERMF;
- rationalising DMO risk management software available to projects;
- improving DMO's risk culture and establishing consistency in the level of support and leadership for risk management across DMO; and
- greater staff training in the use of DMO's risk management model.

2.15 While it is essential for DMO to maintain and develop its ERMF to manage organisational responses to risks and issues which inevitably arise in major project acquisitions, the CAE's review highlights that the ERMF is not yet sufficiently mature to provide the necessary documentary evidence as to the completeness of risks and their likelihood of occurring, nor that of the resultant issues.

2.16 Separately, the ANAO's review highlighted that the ERMF is not yet underpinned by a sufficiently cohesive Information Technology (IT) system, and that there is variability in the maturity of risk management practices and processes at the project level. There is also a need for DMO to address the limited nature of policies and procedures available within the organisation to ensure accurate translation of risk and issue data into the PDSSs. The changes underway in DMO require amendment to business processes, IT system rationalisation and enhanced control and evaluation on an ongoing basis and future strategies to achieve this are expected to involve:

- adoption of the ERMF at a whole-of-organisation level, including translation to the project level;

[19] DMO Internal Audit, Advice on the draft Enterprise Risk Management Framework (ERMF) Defence Materiel Organisation (July 2009).

- evaluation of the ERMF's maturity and performance over time; and
- development of aggregation/declassification policies and procedures for translation of DMO risk and issues data into unclassified PDSSs.

2.17 Reflecting on these challenges, the ANAO's review has indicated that while DMO is working to improve the standard of risk management, the ANAO's conclusion is that the risk of misstatement under limited assurance procedures remains unacceptably high, is likely to continue for some time and it is not considered feasible to include major risks and issues within the scope of the ANAO's 2008–09 MPR. In particular, for sufficient and appropriate evidence to be provided in the requisite time frame for the purpose of this review, additional assurance processes, such as third party verification would be required.

2.18 The ANAO will continue to examine DMO's progress with enhancing the practice of enterprise risk management across the organisation. In the case of risk data for future MPRs, the JCPAA has asked the DMO to identify the extent to which DMO's risk management processes had forecast all risks that had eventuated compared to the previous year, by including an emergent risks and issues column within the respective PDSS tables.

Prospective Information

2.19 The assessment of the systems and processes in place to provide sufficient documentary evidence over prospective information within the PDSSs has again resulted in this area of the PDSSs not being included within the scope of the review. Statements about the future, by their very nature, involve uncertainty and rely on circumstances that may or may not occur. From an assurance review perspective, the risk of misstatement about future occurrences is higher than the risk of a misstatement about an event that has occurred and where sufficient documentary evidence can be provided. Generally, the longer the timeframe involved in the forecast the more uncertain are the underpinning assumptions, and the greater the risk of material misstatement.

2.20 Some information in the DMO's PDSSs contains forecasts for achieving project milestones (for example, FOC) and expected developments which may impact on the project (for example, technology development). Presently, this information draws on a large range of DMO and contractor systems and processes, with varying levels of internal control.

Presentation of Project Financial Information

2.21 As mentioned above, the ANAO considered the financial control framework supporting DMO's project management in order to reassess the prior year qualification in relation to systems limitations and in particular, the accuracy of information provided in relation to prime contract price and expenditure. Key controls were identified, and the aim of each control noted, in addition to whether they were preventative or detective (and their frequency), the implication of failure, and as a consequence any significant control weaknesses.

2.22 The control environments differed in each of the projects examined due to the numerous corporate and project management IT applications being employed by different project offices. As a result, there was inconsistency between the information produced by each project's IT systems, and efficiencies could not be gained by adopting a consistent approach to developing and subsequently reviewing each PDSS.

2.23 Difficulties encountered by DMO in presenting this information included:

- projects where DMO is the systems integrator can involve many different contractors and FMS cases, often with different base dates, in addition to contract amendments at differing base dates to the original contracts;[20]
- legacy system issues, where the Defence Financial Management Information System (DEFMIS), the financial management information system utilised by DMO prior to the introduction of the Resource and Output Management and Accounting Network (ROMAN) in 2000, could not readily disaggregate progress payment information;[21]
- FMS cases, for which records are kept in then-year dollars (that is, including price escalation), rather than in base date terms, as a result of requirements of the US Government;[22] and

[20] Hornet Upgrade, Hornet Refurb and Collins RCS. In addition, the AWD Ships project also has similar attributes, and DMO was unable to reliably report progress payments in base date dollars for this project, despite it having a much more recent inception than others.

[21] FFG Upgrade, Bushranger and HF Modernisation.

[22] Super Hornet and C-17 Heavy Airlift.

- for some projects, transactions are not managed in a way that facilitates separation into base date dollars.[23]

2.24 As a result of the above issues, DMO did not populate the prime contract price for three projects and prime contract progress payments for 11 of the 15 projects included in the 2008–09 MPR. This follows the ANAO's review conclusion in the 2007–08 MPR, which was qualified. As DMO has continued to encounter difficulties in this area, the review conclusion has been qualified due to this departure from the Guidelines, with respect to project financial information for prime contract price and prime contract progress payments in the 2008–09 MPR.

2.25 As an alternative to overcoming the difficulties mentioned above in obtaining reliable base date dollar information for prime contract price and prime contract progress payments, DMO has proposed to replace the disclosures with alternate information provided by reconciliations prepared for the Assets Under Construction (AUC) balance, within the Department of Defence financial statements.

2.26 However, the accrual presentation provided by AUC data introduces complexities in accounting for and assuring other parts of project's budget and expenditure, particularly costs that have been expensed in prior periods rather than capitalised as part of the AUC balance. The impact of these complexities has not yet been fully investigated, however there will be similar difficulties to those noted above. As a result, JCPAA intends to give this matter further consideration over the next 12 months, given that the approach is yet to be evaluated in terms of its utility to users and compatibility with the assurance review task.

Total Project Costs

2.27 To overcome the above-mentioned shortcomings in the information presented, the JCPAA has requested that a new PDSS table be prepared. This table would be designed to provide a holistic view of the most significant project costs, not just DMO expenditures, and could include training, facilities, in-service support, maintenance and spare parts, consumables usage, and other inputs to capability.

[23] ARH Tiger and Armidales.

Review Report

2.28 The ANAO's review report, covering the scope of our review on the 2008–09 MPR is included at page 133 of the report.

Part 2: DMO Major Projects Report

CEO DMO Foreword

I am pleased to present the second DMO Major Projects Report (DMO MPR). The first DMO MPR, tabled in Parliament in November 2008, reported on nine of the DMO's major projects. This Report reflects the status of 15 of the DMO's major projects – comprising an update on the first nine projects reported in 2007–08 and a further six new projects.

The DMO has applied the lessons from the 2007–08 DMO MPR pilot to improve the outcomes from this year's report. I will continue to work with the Joint Committee of Public Accounts and Audit (JCPAA) to further enhance the value of the report.

I am committed to ongoing investment in the DMO MPR and in the openness and transparency of the DMO's business. I view the DMO MPR as not only a report to Parliament but an insightful account of how well we are performing in our core business of equipping the ADF.

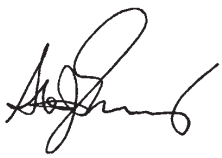
The format for this year's report is slightly different. We have chosen to present Part 2 of the report in a more informative manner. Having explained the DMO's business last year, this year we have focussed on how DMO's acquisition business is likely to be affected by recent reforms, notably the Government's response to the 2008 *Report of the Defence Procurement and Sustainment Review* (The Mortimer Review) and the Strategic Reform Program. We have also introduced a substantial Chapter that presents Project Executive Summaries for each of the 15 projects. These summaries present the PDSS data and related, individual project performance and analysis information as a narrative. Performance across time and across the 15 projects is analysed in Chapter 3. Over time the Report will provide a basis for trend analysis in the implementation and management of major projects. The format for the Project Data Summary Sheet (PDSS) in Part 3 of the report remains unchanged.

Preparing a report of this type requires a substantial investment of DMO resources in collecting data and providing evidence to the satisfaction of the ANAO. The DMO teams working on the projects in the DMO MPR devote considerable effort each year to the preparation, validation and executive level sign-off of project data. The project data in this report has also been reviewed by the major contractors for each project and we have considered their views in finalising the Report.

The ANAO's role in the DMO MPR is to review the DMO's PDSS project data in accordance with the Australian Standard on Assurance Engagements

(ASAE) 3000 *Assurance Engagements other than Audits or Reviews of Historical Financial Information* and express an independent conclusion based on this review. This engagement is underpinned by an agreement with the Auditor-General, under Section 20(1)(c) of the *Auditor-General Act 1997*, and detailed guidelines developed by the DMO. Implementing these arrangements and delivering the MPR in a very tight timeframe requires considerable discussion and coordination between the DMO and ANAO teams and I am pleased to say that the professional relationship we have developed with the ANAO team has made this possible.

I would like to thank the Auditor-General and his staff for their contribution to the overall Report. I would also like to recognise the considerable effort and dedication of the DMO's project office staff and our directing team in bringing together the 2008–09 DMO MPR.



Dr Stephen Gumley

Chief Executive Officer

12 November 2009

1. Introduction

Introduction

1.1 The Defence Materiel Organisation (DMO) operates as a prescribed agency under the Department of Defence. Its mission is to acquire and sustain equipment for the Australian Defence Force (ADF).

1.2 In 2009–10 the DMO will spend more than $11.2 billion[24] (about 43% of the Defence annual budget) acquiring and sustaining military equipment and services, and will employ over 7,500 military and civilian staff in more than 40 locations around Australia and overseas. The DMO delivers some of the largest and most demanding projects in Australia and the ADF relies on the DMO to provide its equipment on time, on budget and to the required levels of quality and safety. With a budget that is some 1% of the nation's Gross Domestic Product, the DMO acknowledges its responsibility to maintain high levels of transparency to Parliament and the Australian tax payer on the stewardship of funds under management; the DMO Major Projects Report (DMO MPR) is one of many ways in which it meets this responsibility.

1.3 The DMO currently manages about 200 major projects (each valued at greater than $20 million) and more than 150 minor projects (each valued at under $20 million). Major projects account for 98% of the DMO's capital acquisition budget expenditure. The major projects featured in the DMO MPR are some of the most complex and demanding Defence projects, spanning a range of technologies and Defence users.

1.4 This year's DMO MPR provides a progress report for cost, schedule and performance for each of these 15 projects as at 30 June 2009. The DMO has expended an estimated $2.9 million in producing this report. Over the coming years the DMO will increase, to up to 30, the number of major projects reported.

1.5 The projects included in the DMO MPR will change over time to reflect the approval of new projects and the closure of completed projects. Each year the DMO will propose additional projects for inclusion in the forthcoming year's Report as well as those for deletion. The Joint Committee of Public

[24] Based on an average foreign exchange rate of $ 1 AUD = 0.75 USD.

Accounts and Audit (JCPAA) will consider and endorse the projects for the DMO MPR.

1.6 This chapter presents an overview of the 2008–09 DMO MPR. In response to the experience gained from the 2007–08 DMO MPR and feedback from the JCPAA, additional explanation has been included about project maturity scores, issues with base date dollar data, and an overview of the management of lessons learned and project risks. An expanded section on lessons learned has been included in Chapter 3.

2007–08 Pilot DMO MPR Program Lessons Learned

1.7 The 2007–08 DMO MPR was conducted as a pilot and the lessons learned have been incorporated in this year's report.

Improvements in Readability

1.8 This year the DMO has developed a Project Executive Summary for each of the projects (Chapter 2), drawing on the project data in the PDSS and other relevant sources. This summary draws together key elements of the PDSS data on project cost, schedule and capability status as summarised narratives and performance diagrams.

Presentation of Updated Information

1.9 The DMO MPR's key benefit is to report the evolving history of each project. As a means to readily track in-year changes while retaining history from the previous year's report, the PDSS use different fonts to differentiate between previous years' data and current year updates.

Improved Analysis across all DMO MPR Projects

1.10 The Project Executive Summaries provide an in-project analysis of key performance areas over the life of each project in the DMO MPR. This analysis will reveal trends within a project.

1.11 As a complementary measure, the DMO has also undertaken a longitudinal analysis across all 15 projects (Chapter 3) which compares and contrasts project characteristics, data and performance. Over time, this analysis is likely to enhance our understanding of how to better manage major projects.

Clearer Guidance to Project Staff

1.12 The DMO produced more detailed guidelines for project staff on how best to prepare the PDSS data and supporting evidence. The DMO undertook

an executive review of the supporting evidence, comprising a large number of supporting documents linked to the PDSS data elements, before it was provided to the ANAO.

DMO MPR Development Schedule

1.13 This year the DMO and ANAO expended extra effort to plan and schedule all activities to produce the DMO MPR. The agreed schedule was followed for the PDSS and provided sufficient time for the ANAO's assurance reviews of new and repeat projects.

Information Sought by the JCPAA

1.14 On 19 March 2009, the JCPAA held a public hearing on the 2007–08 DMO MPR. As a result of this hearing the DMO has included further explanation on Project Maturity Scores at paragraphs 1.37 to 1.39 and additional information on the scores in the project data. The JCPAA[25] was also keen to know how the DMO was implementing lessons learned. This has been provided in paragraphs 3.23 to 3.54 from a whole of DMO perspective, rather than on a project by project basis, as many of the individual lessons presented in the PDSS are potentially systemic and require action at the enterprise level.

1.15 Further to the Auditor-General's Qualified Conclusion in the pilot 2007–08 DMO MPR regarding uncertainty about the reported prime contract expenditure at base date price, the DMO has consulted with the ANAO to address this issue along with concerns as to how best to assure project risks and improve the quality of capability KPIs. Following this consultation, the DMO and ANAO held discussions with the JCPAA on the value of including base date dollar data and the best way to indicate the status of project risk. In this DMO MPR, these issues remain as works in progress from the pilot DMO MPR.

1.16 In September 2009, the JCPAA advised that, "Having considered the advantages and disadvantages outlined by both the DMO and ANAO of replacing 'base date' financial data with AUC[26] data in Table 2.7 of the PDSS, the Committee is satisfied that the provision of AUC data is a suitable approach for the DMO to take." The Committee was mindful that the AUC

[25] <http://www.aph.gov.au/hansard/joint/commttee/J11746.pdf>

[26] AUC – Assets Under Construction

data approach is yet to be evaluated and will monitor the effectiveness of utilising this data. Regarding risks, the JCPAA has also agreed that information in Section 4 – (Risks, Issues and Linked Projects) of the PDSS, will in future also identify whether the regular risk management assessment had forecast all risks that had eventuated during the life of the project. The Committee accepted that these amendments would take effect from the 2009–10 DMO MPR onwards.

Projects in the 2008–09 DMO MPR

1.17 The following six projects are additions to this year's Report:

- SEA 4000 Phase 3 Air Warfare Destroyer Build;
- AIR 5349 Phase 1 Bridging Air Combat Capability (Super Hornet);
- AIR 9000 Phase 2, 4 & 6 Multi Role Helicopter;
- JP 2048 Phase 4A/4B Amphibious Deployment and Support (LHD Ships);
- AIR 5402 Air to Air Refuelling Capability; and
- AIR 5376 Phase 3.2 F/A-18 Hornet Upgrade Structural Refurbishment.

1.18 The following nine projects were reported last year and progress during 2008–09 is included in this year's Report:

- AIR 5077 Phase 3 Airborne Early Warning and Control Aircraft;
- AIR 87 Phase 2 Armed Reconnaissance Helicopter;
- AIR 8000 Phase 3 C-17 Globemaster III Heavy Airlifter;
- AIR 5376 Phase 2 F/A-18 Hornet Upgrade;
- SEA 1390 Phase 2.1 Guided Missile Frigate Upgrade Implementation;
- LAND 116 Phase 3 Bushmaster Protected Mobility Vehicle;
- JP 2043 Phase 3A High Frequency Modernisation;
- SEA 1444 Phase 1 Armidale Class Patrol Boats; and
- SEA 1439 Phase 4A Collins Replacement Combat System.

Conduct of the 2008–09 DMO MPR

1.19 The PDSS included in Part 3 of this Report contains data that has been prepared by the respective DMO project offices in accordance with the Guidelines developed by the DMO. The DMO project offices provided supporting evidence for the data and the ANAO conducted interviews with project staff responsible for preparing the data and key project staff responsible

for managing the relevant subject area of the data sheets. The DMO also provided the ANAO with additional supporting information as requested.

1.20 Once the PDSS were materially complete, DMO project offices sought comment from contractors named in each PDSS and took account of these comments, where necessary, in the PDSS.

1.21 ANAO also sought an independent view on the PDSS from relevant Defence Capability Managers.

ANAO Overseas Visits

1.22 In addition to visits to projects based in Australia, the DMO facilitated overseas visits by two members of the ANAO team in June 2009 to the Airborne Early Warning and Control Aircraft project in Seattle, WA USA, and the F/A-18 Hornet Structural Refurbishment Project in Mirabel, Canada. During these visits, the ANAO team interviewed the Resident Project Teams and viewed work in progress on aircraft. The DMO also arranged for discussions between the ANAO and staff at the Australian Embassy, Washington DC USA on Foreign Military Sales (FMS).

Structure and Content of the 2008–09 DMO MPR

1.23 The 2008–09 DMO MPR is structured in two parts:

- Part 2 Chapter 2 provides information on Project Executive Summaries as well as analysis of project performance for each of the 15 projects in this Report and across the sample, including lessons learned.
- Part 3 contains detailed Project Data Summary Sheets (PDSS), reviewed by the ANAO, for each of the 15 projects. Appendix 3 provides readers with an explanation of the data elements in the PDSS.

Key Changes to the DMO's Business

1.24 As an introduction to the PDSS in the pilot report, the 2007–08 DMO MPR included a brief explanation of the DMO's business. In this Chapter we provide a snapshot of the key changes to the DMO's business. In particular, the Government's response to the September 2008 *Report of the Defence Procurement and Sustainment Review* led by Mr David Mortimer AO (the Mortimer Report) (to the extent that these recommendations may influence how the DMO's major projects will be managed) and the Strategic Reform Program (SRP).

1.25 Reforms that flow from the Government's response to the Mortimer Review cover the complete life cycle of capability systems. The reforms follow two themes:

- imposing commercial discipline on Defence procurement and sustainment processes; and
- making the DMO more business-like.

1.26 Among the reforms that the Mortimer Review will deliver are:

- ensuring that high quality strategic and capability advice is provided to Government to enable it to set strategy and prioritise needs; and
- increasing the rigour with which projects are assessed for entry into the Defence Capability Plan (DCP) and ensuring the DCP's affordability including the impact on future personnel and operating costs.

1.27 A further important focus of the reform will be to strengthen the role and accountability of the Capability Managers (Service Chiefs, the Vice Chief of Defence Force, Deputy Secretary Intelligence and Security, and the Chief Information Officer). Defence will implement a framework through which the Capability Managers provide greater oversight and co-ordination of all elements necessary to introduce a capability into service. The framework will include mechanisms to ensure that the DMO, the Capability Managers, and the Capability Development Group (CDG) work together to agree the baseline scope, cost, risk and schedule against which the delivery of equipment can be measured.[27]

1.28 The Response to the Defence Procurement and Sustainment Review noted:

> "The scope, cost and schedule of Defence equipment acquisitions will be better defined in the business cases considered by Ministers (or the National Security Committee of Cabinet) through the Two Pass process. There will be greater consistency and tighter control of changes between Ministerial approvals at the highest level, and the management of project implementation on a day to day basis. This will ensure that key project characteristics and outcomes are identified at the outset, and carried through

[27] The Strategic Reform Program DELIVERING FORCE 2030, page 13.

to completion, or reviewed and changed if necessary through a disciplined process involving Government."

"To assist in developing greater clarity in the capability planning process a Project Directive, based on the project approval decisions made by Government, will be issued immediately following Government approval at Second Pass. A draft Directive will be included in the submission to Government. The Project Directive will provide the top level direction from the Chief of the Defence Force (CDF) to the Capability Manager to introduce the full operational level capability into service by the date agreed upon by Government. It will articulate the respective roles of the Defence Groups, the Services and DMO in delivering their elements of the project."

"The DMO, supported by Defence Groups and Services, will have formal responsibility and accountability for developing estimates, information and advice relating to the cost, schedule and risk of equipment acquisition upon entry of a capability into the DCP and for developing the acquisition strategy."

1.29 The DMO is responding by enhancing elements of its governance. The overarching Memorandum of Arrangements between the Secretary, CDF and the CEO DMO is under review to ensure the respective responsibilities and accountabilities for Defence and the DMO are clearly described and delineated. Materiel Acquisition Agreements (MAAs) between Defence and the DMO, under which the DMO acquires materiel systems for major capital equipment investment projects, will be improved to ensure MAAs remain consistent with approval decisions made by Government and clarify when the responsibility for a new capability passes to the Capability Manager from the DMO. Consistent with this intent, the DMO is introducing two delivery milestones – Initial and Final Materiel Release – which mark the transition of materiel from the DMO to the Capability Manager. The Services and Defence Groups will remain responsible for delivering the other necessary Fundamental Inputs to Capability (FIC). When this change is finalised, the DMO proposes to report on Initial and Final Materiel Release as the milestones most relevant to the DMO's responsibility for delivery.

1.30 In future, the DMO will be responsible and accountable for developing military equipment costs, conducting schedule and risk analysis, and developing and implementing an acquisition strategy, including when acquisition under public-private partnership arrangements might be

appropriate. Defence Groups will remain responsible for other inputs to capability.

1.31 Defence will provide Government with clear information on the costs and benefits of Off-the-Shelf (OTS) options for all procurements. There will be occasions when no OTS solution exists; for example to meet Australian regulations or to provide interoperability with the rest of the ADF. In such cases, the Commonwealth will accept the development risks.

1.32 The DMO will continue to increase the commercial acumen of its staff by seeking to employ more commercially experienced and skilled personnel especially at the Senior Executive Service (SES) level. To this end the DMO has commenced recruitment of a SES Band 3, General Manager – Commercial, with extensive private sector experience, who will support the CEO DMO to achieve a more business-like focus throughout the DMO. This position will also play a major role in the development of acquisition strategies for major projects and ensure sound commercial advice is provided throughout the capability development process.

1.33 For complex and demanding projects (Acquisition Category – ACAT – 1 and 2 projects), the authority, responsibility and accountability of the project manager is now formally detailed in a Project Charter which will hold the Project Manager to account for meeting both financial and non-financial performance targets. Similarly, Product Charters have been enacted for the DMO's System Program Office Directors (for Materiel Sustainment – Category A and B products) who manage the sustainment of significant in-service assets.

1.34 The DMO has also instituted Gate Review Assurance Boards to examine its complex and demanding projects before crucial points in the lifecycle – both pre and post Second Pass Government approval – to probe project performance risks and direct remedial strategies where necessary.

1.35 Under the Defence Strategic Reform Program, the CEO DMO is accountable for the Smart Sustainment reform stream – to identify ways of delivering a better equipped and prepared ADF at a lower cost. The Smart Sustainment stream includes inventory reform and three elements previously in the Non Equipment Procurement reform stream – ADF clothing, explosive ordnance and fuel. The DMO will be responsible for delivering $5.5 billion of the $20 billion SRP savings over 10 years. Importantly, the DMO will adopt a systems approach and seek savings from sustainment of the force in being, the

design of future support/sustainment systems, the delivery of projects, and the internal costs to deliver acquisition and sustainment outcomes.

1.36 The DMO has reprioritised resources to establish a new Acquisition and Sustainment Reform Division to drive reform and manage implementation of the Mortimer reforms and Smart Sustainment. This Division also has responsibility for standardisation across the DMO and implementation of the Government endorsed Mortimer recommendations.

Project Maturity Scores

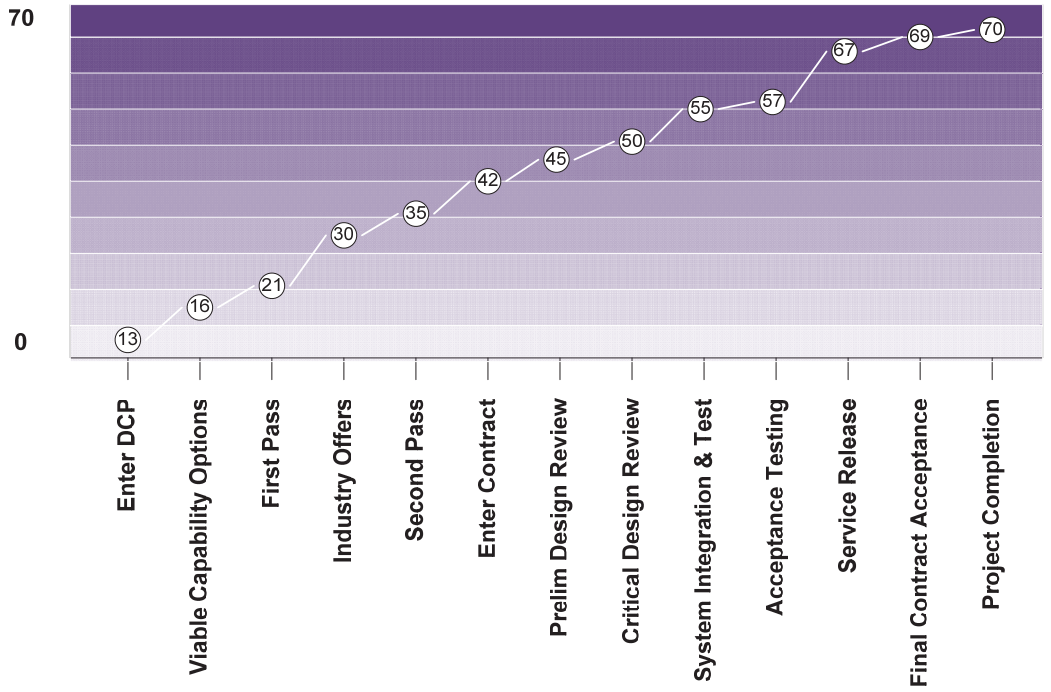
1.37 The DMO's Project Maturity Score quantifies the maturity of a project by way of an objective score based on the project managers' judgement at defined milestones in its capability development and acquisition phases. This score is then compared against an ideal or benchmark score for that milestone. A project's maturity is assessed at 13 milestones across its lifecycle and for each of these milestones the ideal or benchmark condition is represented by a benchmark score as shown in Figure 1.1.

1.38 The Project Maturity Score comprises a matrix of seven attributes (Cost, Requirements, Technical Understanding, Schedule, Technical Difficulty, Commercial and Operations and Support). The level of maturity that a project reaches at a milestone for each of these attributes is judged by the Project Manager on a scale of 1-10. Score assessment is made by selecting the most appropriate description (e.g., Feasible, Confident, Achieved) that fits the question under the Attributes columns. The table in Appendix 2 explains these descriptions.[28] The actual score is the sum of the assessed status of each attribute. Project Maturity Scores provide a means of communicating in a simple fashion an indicative 'as is' versus a 'should be' condition to inform decision making for each project. As the scores are objective they are not precise and are not intended to enable exact comparisons across projects.

1.39 The PDSS contain information on the benchmark and actual scores for each of the seven attributes and a brief explanation of variances between these scores.

[28] These descriptions are explained in more detail in DMO procedures but not presented here for reasons of brevity.

Figure 1.1 - Benchmark Maturity Scores



Base Date Contract Amounts and Expenditure

1.40 Variations to DMO's approved project budget are made to the amount of funds remaining, with adjustments at defined times in the budget cycle to account for foreign exchange and movements due to price indexation being set by the Department of Finance and Deregulation. These variations and their history are centrally managed and recorded by DMO's Finance Division and presented in Table 2.1 of the PDSS in Part 3 of this report. Tables 2.1 to 2.5 collectively provide substantial data on variations and expenditure at the whole of project level that has occurred against the MAA.

1.41 Table 2.6 of the PDSS requires the current value of contracts (including FMS Cases) to be stated in equivalent 'base date dollars'; that is the initial contract price expressed in economic values (price and exchange) applicable to a specified 'base date' in the contract, and also to state the current contract price as at 30 June 2009 on the same basis. Further to the advice provided at paragraphs 1.15 and 1.16, table 2.7 requires all contract expenditure incurred since the contract was executed in equivalent base date amounts as at 30 June 2009.

1.42 Most commercial contracts in respect of the projects in this DMO MPR, are variable price contracts. Such contracts establish a price, expressed in terms of a specified base date, and rules on how the base date price is to be adjusted in response to actual movements in the contracted labour and materiel price indices over time. While there is usually no provision for variation for exchange rate movements because DMO standard contracts (including FMS Cases) require payments to be made in source currencies (i.e. the currency of the country to which payments are due), there could be instances where this is not the case.

1.43 Over the course of a contract, many payments are made, e.g. down payments at contract commencement, and progress payments based on earned value and contract milestone payments when defined events have been achieved. The DMO has complete financial records to validate that all payments are properly made. Stating contract value (Table 2.6) and expenditure (Table 2.7) as at 30 June 2009 in equivalent contract base date dollars entails extracting all price indexation amounts over the life of a contract. In instances where contracts amounts are stated in Australian dollars, but paid in source currency for work undertaken overseas, then there is a requirement to calculate them back to the original foreign exchange rates in the contract.

1.44 DMO's project offices have complete financial records of all payments made in accordance with contracts conditions but are not required to manage their contracts or payments in base date amounts. Therefore, it is not cost effective for the DMO to state and validate base date figures in PDSS Tables 2.6 and 2.7 for the following reasons:

- Projects that involve multiple contracts, including where the DMO is the prime system integrator. Contracts are entered into at different times, with different base dates and, in certain contracts, under different payment regimes. Therefore, the total value of all contracts or contract expenditure could be misunderstood as the dollar values are at different base dates.
- To calculate 'base date' payments made before 2000 (when Defence changed financial management systems) would require a very substantial resource investment to review the original invoices and then make the appropriate base date calculation.
- The value of FMS Letters of Offer and Acceptance are estimates of the expected cost of goods and services being provided by the US Government

and are stated in 'then-year' dollars i.e. with price escalation built in. Periodic payments are also made in the escalated dollar amounts at the exchange rate of the day and it would be difficult to de-escalate individual payments to a base date dollar amount in a completely meaningful way.

- When contracts have been completed many years ago, the relevance of base date expenditure at 30 June 2009 is questionable.

1.45 Notwithstanding the above, wherever feasible, base date dollar amounts have been quoted, primarily in projects started after the financial management system changeover; where there is a single prime contract; and where the particular project established systems to track all of the individual payment types. Where the resource effort and cost to calculate the base date amounts as at 30 June 2009 has been seen to be excessive, the DMO has elected not to state these amounts in the PDSS. In each case where these figures are not included, an explanation has been provided.

1.46 Acknowledging the resource issues with the current form of information, and as stated at paragraph 1.6, the JCPAA has agreed to a change in the 2009–10 DMO MPR; the DMO will replace base date data with capitalised expenses and the value of assets that has been realised as they enter service. Further, the JCPAA will evaluate this revised approach and its utility. For this DMO MPR, although not provided in the PDSS, this data is provided in summary form in Chapter 2 for each of the projects. The DMO acknowledges that this data has not been reviewed by the ANAO this year.

Projects Lessons Learned from the DMO MPR

1.47 At the organisational level, the most common sources for identifying potential lessons learned in projects include: reviewing DMO's internal processes; analysing intelligence gained internally and from customers and suppliers in industry; assessing audit report recommendations; and implementing Government initiated reviews. Lessons are also identified at the individual project level, but not all of these have organisational significance.

1.48 Having identified lessons and assessed their organisational significance, implementation may involve developing new policies, guidance, processes, education and training, and sometimes cultural change. Each of these changes is likely to have a differing lead time for implementation and effect. For example, the effects from any major change to contracting practices would not be evident until a range of new projects had used the new practices and sufficient time had elapsed to assess the effectiveness of the changes.

In many cases, this time period will be greater than a year, precluding an assessment of effectiveness in the follow-on DMO MPR.

1.49 A range of mechanisms exist to assess the lessons and action them. Audit recommendations are monitored through Management Action Plans registered on a central Audit Recommendations Management System and DMO officers are assigned responsibility for reporting implementation progress. The DMO uses a series of councils in specialist areas such as engineering, logistics, project management and procurement to consider business improvement initiatives in response to business needs. The DMO also makes use of its regular engagement with industry to exchange best practice and work through business issues such as contracting reform and approaches to intellectual property. The DMO's Quality and Environmental Management System (QEMS) includes a means to link lessons learned with each of the DMO process areas and also includes lessons identified from audit reports and reviews. Lessons and identified systemic issues are then incorporated into the related DMO Manuals, training courses and processes.

1.50 The DMO has also developed a series of checklists based on lessons learned to assist staff in areas such as identification of risks throughout the life cycle, preparation of project approval submissions and conduct of mandated systems engineering reviews. In parallel, contracting templates are regularly reviewed and updated based on lessons learned and feedback from industry.

Major Project Risks

1.51 Table 4.1 in the PDSS records major risks for each of the DMO MPR projects. These risks are drawn from the project risk logs, as summarised from raw risk log data, and any material of a sensitive or classified nature removed. The ANAO reviewers were provided access to project risk management systems and logs.

1.52 Risks typically fall into two categories – those that can be reasonably identified and managed, and those risks that fall into the domain of unknown unknowns. Therefore, the DMO cannot definitively say that the risks recorded are complete; however, risk logs are regularly updated to reflect the changing risk context and effectiveness of risk treatments. Therefore, the risks and risk treatments included in Table 4.1 reflect their status at the time of PDSS review and may have changed since.

2. Executive Summaries and Individual Analysis

2.1 This section of the DMO MPR contains a project Executive Summary for each of the 15 projects reported. This new section provides an interpretation of the detailed PDSS data, as reviewed by the ANAO, and places the information in a DMO performance context. The data in these outlines are drawn from the individual PDSS in Part 3 of this Report, supplemented by information in the DMO Annual Report and includes other significant events of interest that have occurred since 30 June 2009.

2.2 These executive summaries cover:

- **Key characteristics:**
  - Project identification by name and project number.
  - The recipient of the capability.
  - Whether the project is developmental or off-the-shelf.
  - The main contractor.
  - The current DMO approved budget, project maturity score (out of a maximum score of 70); the DMO Acquisition Category complexity rating of the project (refer to Appendix 1); when the project received Second Pass approval by Government; and when it is currently forecast to achieve Final Operational Capability (FOC).
- **Description:** A short description of what the project is acquiring and its capability objective.
- **Project Status:** A contextual setting for the project and a brief account of its current status.
- **Challenges Ahead:** The key challenges that the project is facing as it goes forward.
- **Schedule Performance:** The schedule performance chart depicts the original plan at project approval versus its actual performance to date for key milestones of when the project was approved, when an acquisition

contract was executed, its Initial Operational Capability[29] (IOC) & FOC[30] forecasts; and a marker that shows the timing of the DMO MPR review in the project's overall timeline. Explanatory comments for major variations in IOC and/or FOC are also included.

- **Budget History:** The budget history chart shows the project's cumulative DMO budget variations[31] history[32] since Second Pass Approval and a narrative that explains the major 'Real' variations that have occurred.
- **Financial Performance:** The financial performance chart shows the project's planned versus actual expenditure achievement for financial year 2008–09 and a brief explanation for the variance.
- **Capitalisation Performance:** The capitalisation performance chart shows the project's life-to-date capital expenditure, its value realised as assets accepted into service, and the remaining balance of expenditure as well as a brief explanation of what equipment has been accepted into service. In essence it provides information on what value has been realised for expenses incurred and capitalised.
    - Readers should note that this information element is not included in the PDSS but is derived from Asset Under Construction (AUC) Reconciliations conducted each year in the DMO in support of its Financial Statements. As this information is not included within the PDSS, the ANAO has not provided assurance over the AUC element.

[29] A point in time at which the first subset of a capability system that can be operationally deployed is realised.

[30] The point in time at which the final subset of a capability system that can be operationally employed is realised.

[31] detailed explanations for the different types of budget variations shown are provided in Appendix 3.

[32] The individual project's budget variations recorded are explained in more detail in Section 2 of each PDSS.

AIR WARFARE DESTROYER BUILD

SEA 4000 Phase 3

For the **Royal Australian Navy**

Project Type: Australianised MOTS

Capability Type: New Capability

Contractor: Alliance

Budget	Maturity	Complexity	Approval	FOC
$8,261m	47	ACAT I	Jun 07	Dec 18

Description

The project will acquire three *Hobart* Class Air Warfare Destroyers (AWD) and support systems. These ships will form a critical element of the ADF's joint area air warfare defence capability.

Project Status

The AWD Program is being delivered under an alliance arrangement between ASC AWD Shipbuilder Pty Ltd (ASC), Raytheon Australia Pty Ltd and the Commonwealth. The program is currently in the acquisition phase and preliminary design reviews of the ships' systems have been completed. The Critical Design Reviews are planned for December 2009.

The majority of combat and platform system equipment has been selected and most combat systems are under contract. BAE Systems and Forgacs Engineering are under contract for the fabrication of hull blocks and steel fabrication is planned to commence in late 2009. Infrastructure works at the South Australian Government's Common User Facility (Techport) and the ASC Shipyard are almost complete and will meet the Alliance's requirements.

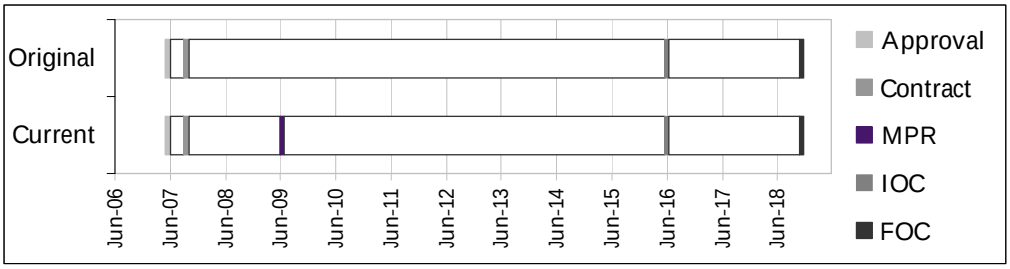
The AWD program is within budget and on schedule with all major milestones achieved. Progress towards achievement of planned in service dates for the three ships and their support system is as scheduled with the three ships planned for delivery in December 2014, March 2016 and June 2017.

Challenges Ahead

The major challenges the project faces are:

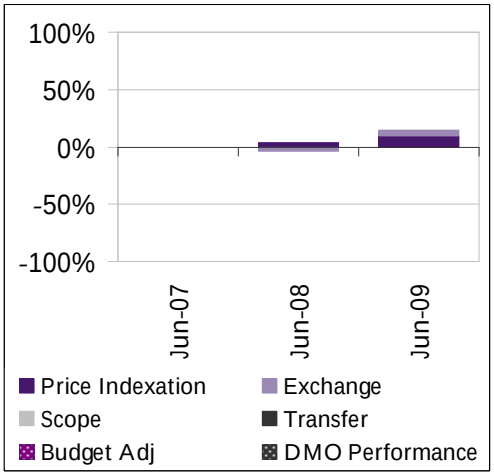
- Achieving a mature design on schedule including the successful integration of the Australianised weapons and sensor package in the existing platform.
- Putting in place an appropriately structured support system to enable through life support of the ships.
- Ensuring that Alliance partners and their sub-contractors have appropriately skilled and experienced labour.
- Achieving timely delivery from sub contractors and suppliers.
- Establishing an efficient working shipyard from a green field site.
- Adapting the build strategy and methodology of the Spanish ship designer, Navantia, to the Australian shipbuilding environment.

Schedule Performance - Project Approval to Capability Realisation



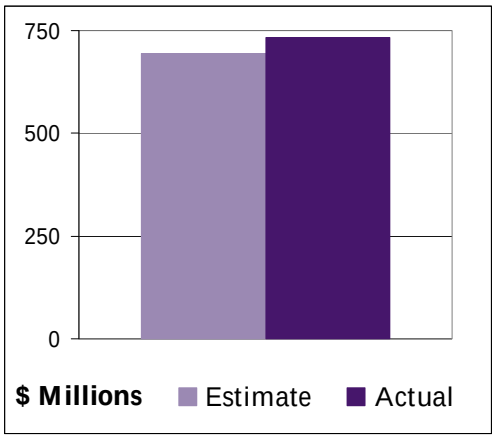
The scheduled forecast of IOC and FOC remains as per the original plan.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



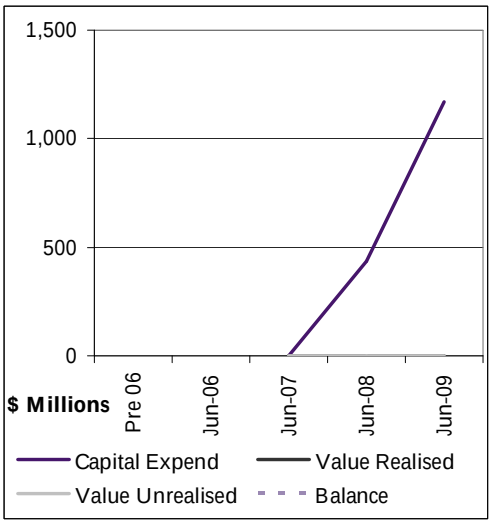
Since Second Pass budget approval of $7,207m, price indexation and foreign exchange variations have accounted for the total budget variation of $1,054m.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $40m is due to earlier than planned procurement and placement of contracts with local industry. This resulted in expenditure being achieved ahead of the plan.

Capitalisation Performance - Assets Under Construction $m



The project is in its early stages and it will be some years before acquired assets will be accepted into service. Capital expenditure will continue for some time before value can be realised from the assets under construction.

BRIDGING AIR COMBAT CAPABILITY

AIR 5349 Phase 1

For the **Royal Australian Air Force**

Project Type: MOTS

Capability Type: Replacement

Contractor: US Government

Budget	Maturity	Complexity	Approval	FOC
$4,310m	55	ACAT II	Mar 07	Dec 12

Description

The project will acquire 24 Boeing F/A-18F Super Hornets, associated weapons, support, and training systems to establish a bridging air combat capability before the introduction into service of the F-35 Joint Strike Fighter. The Super Hornet is a multi-role fighter that spans the air combat spectrum, including land and maritime strike.

Project Status

Production of aircraft is underway at the Boeing, St Louis, USA plant with aircraft at various stages of production. The first RAAF aircraft rolled off the assembly line in July 2009. 12 of the 24 aircraft will be pre-wired for potential conversion to an electronic attack variant. The Super Hornets will be based at RAAF Amberley and will aid the transition to a mature Joint Strike Fighter capability while allowing the RAAF to retire the F-111 fleet.

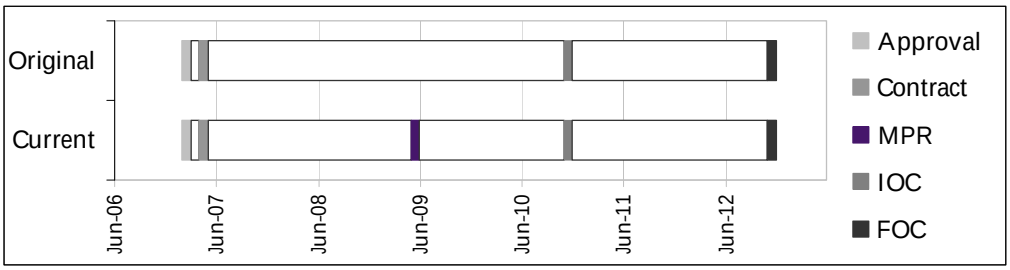
The first four aircraft are scheduled for delivery and commencement of operations at RAAF Amberley in the second quarter 2010. RAAF aircrew and ground crews have commenced training by US Navy personnel in the US in preparation for the first aircraft arrival in Australia. An IOC is planned for December 2010 and FOC will be achieved by December 2012.

The project remains within its current approved budget with the first two aircraft forecast to be delivered ahead of schedule and commence test activity in the US during the third quarter of 2009. The capability requirements for the project are expected to be fully satisfied.

Challenges Ahead

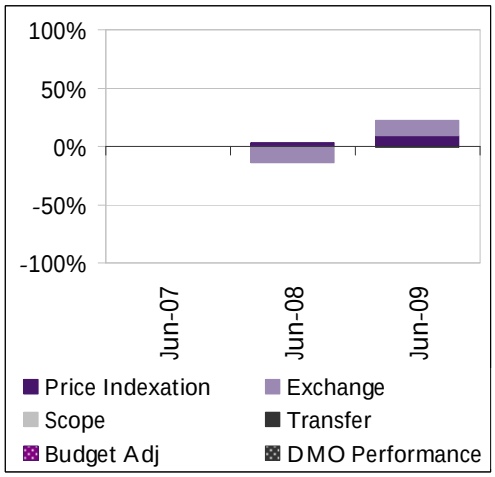
Delivery of logistics support to meet IOC is a medium risk which is being progressively reduced through access to US Navy support infrastructure.

Schedule Performance - Project Approval to Capability Realisation



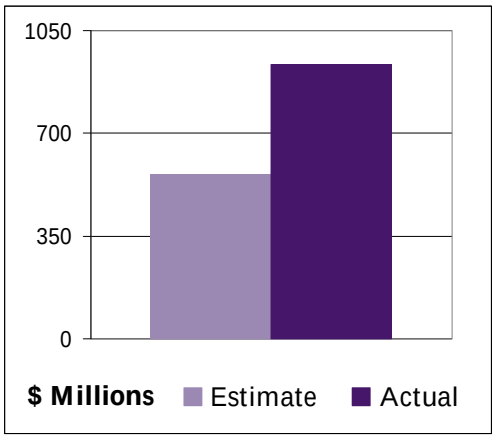
The scheduled forecast of IOC and FOC remains as per the original plan.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



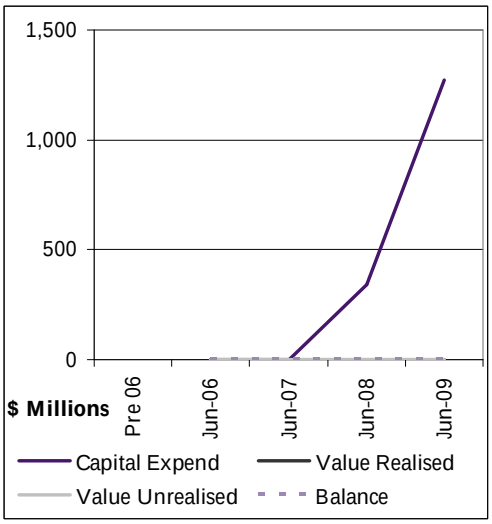
Since Second Pass budget approval of $3,546m, price indexation and foreign exchange variations have accounted for $797m of total budget variation. A transfer of $33m was made in July 2008 to Defence Support Group (DSG) for facilities.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $375m results from acceleration of US Navy activities resulting in contracts being signed earlier than originally forecast and an FMS purchase of spares and repairable parts.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project is yet to realise any value of its capital expenditure as assets accepted into service. This should change in 2010 as aircraft are accepted into service.

MULTI ROLE HELICOPTER

AIR 9000 Phase 2, 4 & 6

For the **Australian Army and Royal Australian Navy**

Project Type: Australianised MOTS

Capability Type: Replacement

Contractor: Australian Aerospace

Budget	Maturity	Complexity	Approval	FOC
$4,199m	57	ACAT II	Aug 04	Jul 14

Description

The project is acquiring 46 Multi-Role Helicopters (MRH90) for Army and Navy to provide one additional squadron of troop lift capability (Phase 2) and to replace the existing Army Black Hawk (Phase 4) and Navy Sea King (Phase 6) helicopter fleets. The support systems include an electronic warfare self protection support cell, a ground mission management system, a software support centre, an instrumented aircraft with telemetry, two full flight and mission simulators, and facilities infrastructure at Townsville, Oakey, Brisbane and Nowra.

Project Status

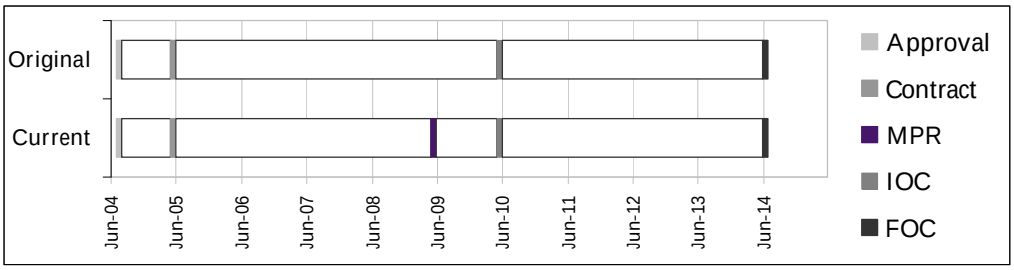
The first four aircraft were manufactured in France, two aircraft will be manufactured in Germany and the remaining will be assembled at the Australian Aerospace Brisbane facility. The first of the Australian assembled aircraft was accepted in December 2008. Eight MRH are now in service. Training for Navy and Army air and ground crew is being conducted in purpose-built training facilities in Townsville.

Aircraft operating with Army's 5th Aviation Regiment in Townsville have achieved a slower rate of effort (hours flown) than planned resulting in a likely delay of up to six months in the forecast IOC for Army to late 2011. Other major milestones remain on schedule and IOC for Navy is planned for mid 2010. Flying rate issues are being addressed and are not expected to affect FOC achievement in 2014. The project is expected to deliver the capability within the approved budget.

Challenges Ahead

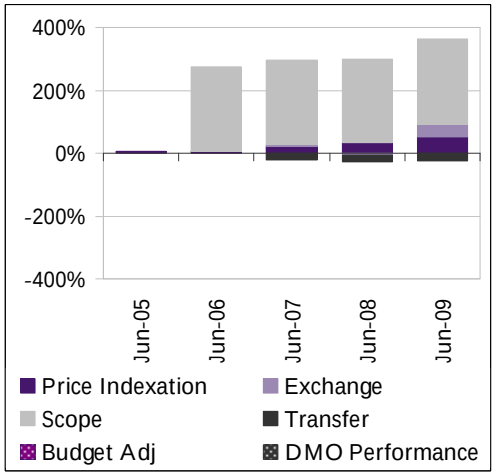
The major challenge for the project is being able to increase the rate of flying needed to train sufficient crews and complete aircraft role validation. The contractor and the Commonwealth project teams have implemented initiatives to improve aircraft reliability, provide sufficient spares and to maximise the usage of available aircraft.

Schedule Performance - Project Approval to Capability Realisation



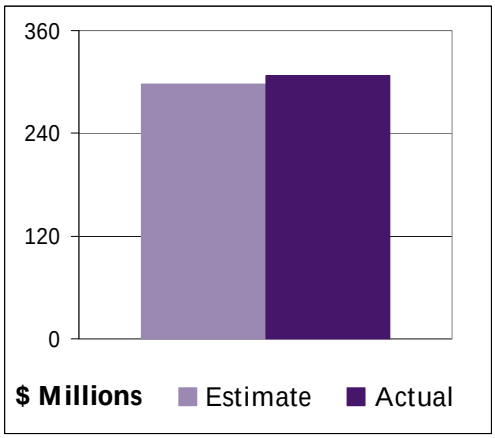
Despite a six month slip in achieving IOC for Army, although at risk, the schedule forecast for achieving the IOC for Navy and FOC remains as per the original plan.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



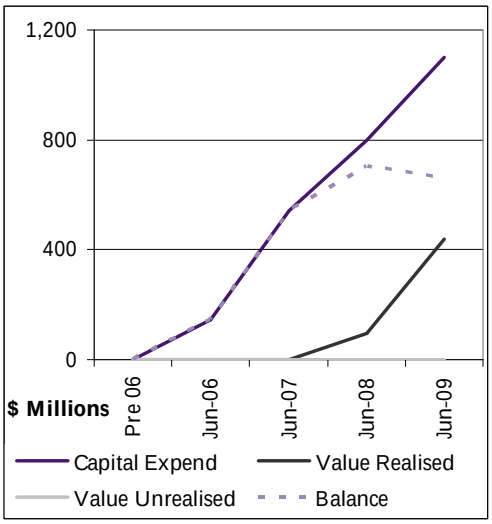
Since Second Pass budget approval of $957m, price indexation and foreign exchange variations have accounted for $884m of total budget variation. Significant real variations include: a June 2006 Government approved acquisition of a further 34 MRH90 helicopters to replace the Black Hawk (Phase 4) and Sea King (Phase 6) fleets resulting in a scope change of $2,566m; and a transfer of $219m in October 2006 to DSG for facilities.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $10m results from early achievement of a milestone payment for the flight mission simulator and payments for procurement of aircraft spares.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project has realised assets accepted into service to the value of $439m representing five MRH90 aircraft, Electronic Warfare Self Protection Support System, MRH Software Support Centre, and spares.

AIRBORNE EARLY WARNING AND CONTROL AIRCRAFT AIR 5077 Phase 3

For the **Royal Australian Air Force**

Project Type: Developmental

Capability Type: New capability

Contractor: Boeing (US)

Budget	Maturity	Complexity	Approval	FOC
$4,154m	47	ACAT I	Dec 00	Dec 12

Description

This project will provide Defence with an Airborne Early Warning and Control capability (AEW&C), with the provision of six aircraft and associated supplies and support. As an integral part of a layered ADF Air Defence System, the airborne early warning and control capability will enhance surveillance, air defence, fleet support and force coordination operations in defence of Australian sovereignty and national interests.

Project Status

In December 2008 the Commonwealth signed a Deed of Agreement with Boeing to enable the company to undertake a modified program of test and evaluation to determine the extent to which the aircraft system meets the specification and how well it will perform operationally. Under the Deed, an independent technical review of radar performance was completed by Massachusetts Institute of Technology in April 2009 and an operational utility demonstration was successfully conducted during EXERCISE Arnhem Thunder in April-May 2009. The test and evaluation program was planned for completion in mid 2009; however, delays in the conduct of test flights have caused this to extend into the 4th quarter 2009. Final results of the program will assist the Commonwealth to determine the way forward for the project.

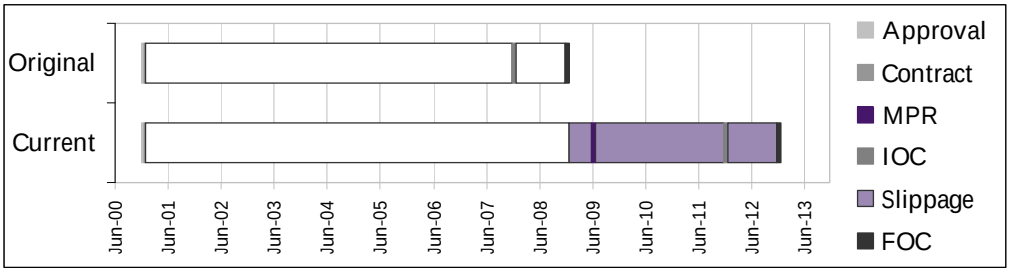
Boeing now proposes delivery of the first full capability aircraft in March 2010, a total delay of 40 months against the contract baseline. However, the DMO assesses that this revised date remains under considerable pressure. IOC is currently planned to be achieved by end 2011 and FOC by end 2012.

The first three aircraft continued to support the test and evaluation program throughout 2008–09. Boeing Defence Australia is scheduled to complete the modification programs in Australia for the remaining three aircraft in March 2010, April 2010 and September 2010. Construction of the initial AEW&C facilities at RAAF Tindal were completed in April 2009 and construction of the main Tindal facilities are now scheduled for completion in February 2011. Final Acceptance of the Operational Flight Trainer was achieved in February 2009. Boeing has achieved Federal Aviation Administration Supplemental Type Certification and Air to Air refuelling certification, a first for a B-737 variant.

Challenges Ahead

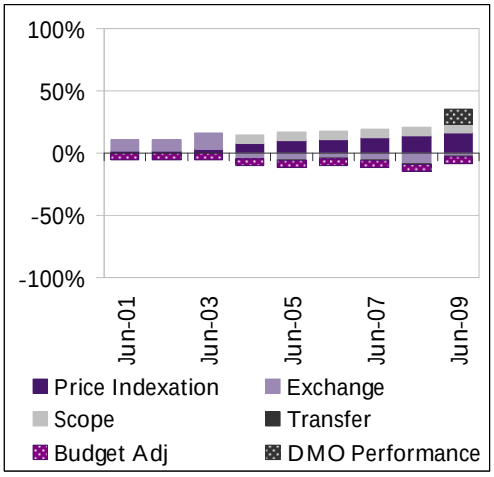
The major challenges for the project relate to the maturity of the integrated system, notably radar and electronic support measures, ongoing software development and the completion of test and evaluation. Defence recognises that the radar is unlikely to fully meet the contracted specification and is making assessments of the operational impact of these shortcomings.

Schedule Performance - Project Approval to Capability Realisation



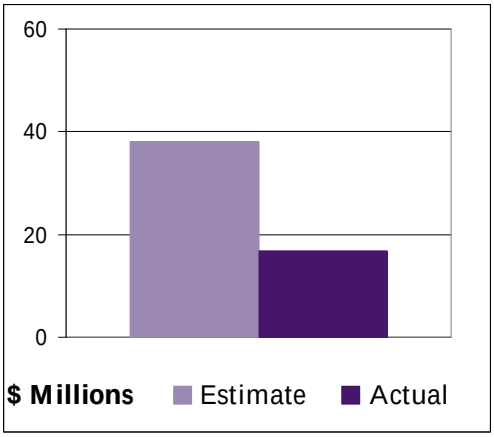
The schedule forecast for IOC and FOC has slipped by 48 months from the original plan caused by delays to system delivery as a result of problems associated with sub-system integration, supplier hardware availability, radar and electronic support measures maturity, and aircraft modification.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



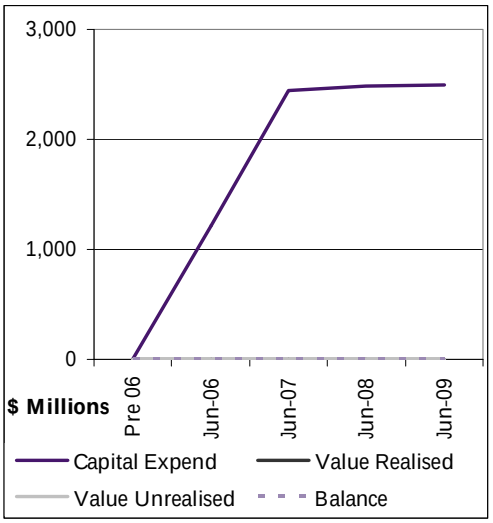
Since Second Pass budget approval of $3,270m, price indexation and foreign exchange variations have accounted for $463m of total budget variation. Significant real variations include: Budgetary Adjustment of $-166m in June 1999 due to overfunding for price indexation and foreign exchange at time of approval; Government approved scope change of $225m in June 2004 for two additional aircraft; and $388m in June 2008 for the significant variation between contracted labour and materials indices and supplementation provided by Government.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $-21m results from non achievement of forecast FMS expenditure, delays due to System Acquisition Contract slippage and delays in contract signature and mobilising of the support contract.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, as assets have not yet been accepted into service, the project is yet to realise any value of its capital expenditure.[33]

[33] No AUC reconciliation available for June 2006, therefore an average was used in the graph.

AMPHIBIOUS DEPLOYMENT AND SUSTAINMENT
JP 2048 Phase 4A/4B

For **Joint Services**
Project Type: Australianised MOTS
Capability Type: New Capability
Contractor: BAE Systems Australia Defence

Budget	Maturity	Complexity	Approval	FOC
$3,542m	45	ACAT I	Jun 07	Nov 16

Description

This project will provide the ADF with an increased amphibious deployment and sustainment capability through the acquisition of two 27,000 tonne Landing Helicopter Docks (LHDs) and associated supplies and support.

Project Status

The two LHDs combined will be capable of:

- Carrying an embarked force of approx 2,000 in addition to the ships' crew.
- Carrying around 100 armoured vehicles, including tanks, and 200 other vehicles.
- Providing hangar space and landing spots for at least 12 helicopters.
- 45 days endurance for crew and embarked force including support to these forces whilst ashore for 10 days.
- Command and control of all elements of a Joint Task Force.
- Conducting simultaneous helicopter and watercraft operations.

The hulls for the LHDs will be built and fitted out in Spain and transported to Australia where the ships' superstructure will be constructed, fitted out and integrated with the hulls by BAE Systems Australia Defence at its Williamstown shipyard in Melbourne. Steel was cut for the first ship in September 2008 and its "keel was laid" in September 2009. The first hull is expected to arrive in Australia in mid 2012 and the second in early 2014. Delivery and acceptance of the ships is forecast to occur in 2014 and 2015.

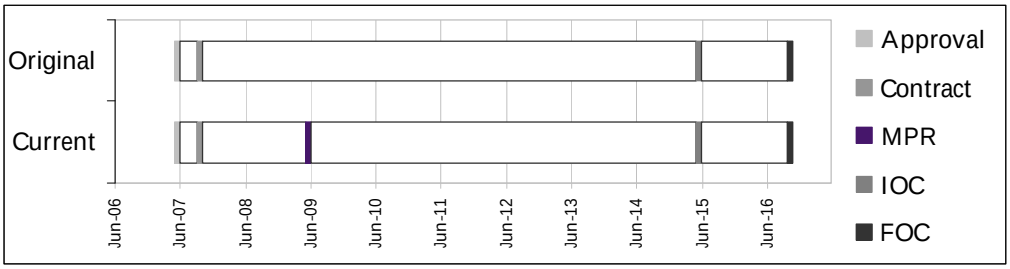
The project remains within its current approved budget with design reviews expected to be completed in 2009.

Challenges Ahead

The project has not experienced any major issues likely to affect the delivery dates of the LHDs. Challenges being managed include control of commercially sensitive Intellectual Property that remains an ongoing management issue for all parties as well as the integration of the Australian elements, such as the combat system and internal/external communications systems, which has proved to be more complex than initially thought.

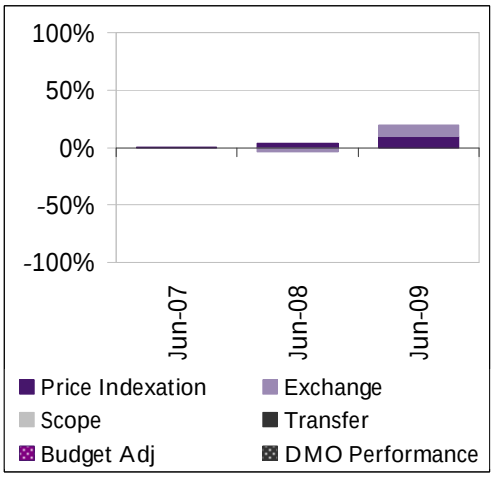
The potential for regulatory and/or requirements changes is a matter that needs to be kept under strict change management control to avoid adverse impacts on the project performance, cost, and schedule outcomes.

Schedule Performance - Project Approval to Capability Realisation



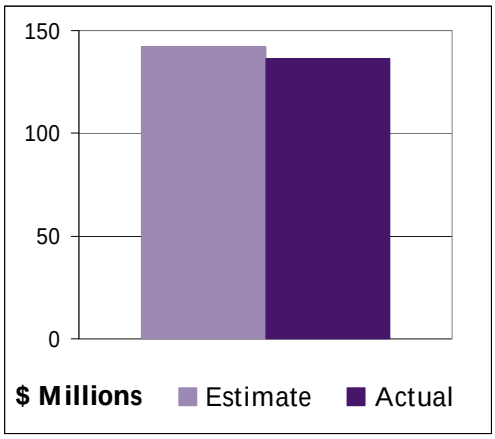
The scheduled forecast of IOC and FOC remains as per the original plan.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



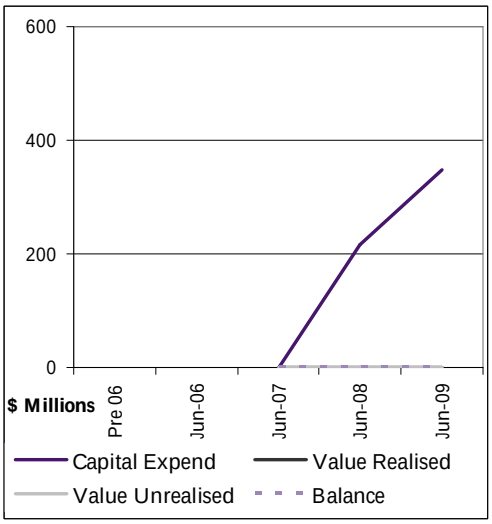
Since Second Pass budget approval of $2,959m, price indexation and foreign exchange variations have accounted for $573m of total budget variation.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $-6m results from the slippage of three payment milestones due to more time being allocated to design review activities.

Capitalisation Performance - Assets Under Construction $m



The project is in its early stages and it will be some years before the various assets will be accepted into service. Hence, capital expenditure is likely to continue for some time before value can be realised from assets under construction.

ARMED RECONNAISSANCE HELICOPTER AIR 87 Phase 2

For the **Australian Army**

Project Type: Australianised MOTS

Capability Type: New Capability

Contractor: Australian Aerospace

Budget	Maturity	Complexity	Approval	FOC
$2,101m	55	ACAT II	Mar 99	Dec 12

Description

This project will provide Defence with 22 Armed Reconnaissance Helicopters (ARH), a training system including simulation devices for aircrew and maintenance personnel, a software support facility and a ground mission management system. The Commonwealth entered into a 15-year support contract that commenced with delivery of the first two helicopters in December 2004.

Project Status

16 ARH, two of three aircrew training simulators, five of six ground training devices, the software support facility and the ground mission management system have been accepted by the Commonwealth. Two ARH are being used for type acceptance activities, five for aircrew training, three for training operations at the 1st Aviation Regiment in Darwin and the remaining six aircraft are being upgraded to the next aircraft configuration.

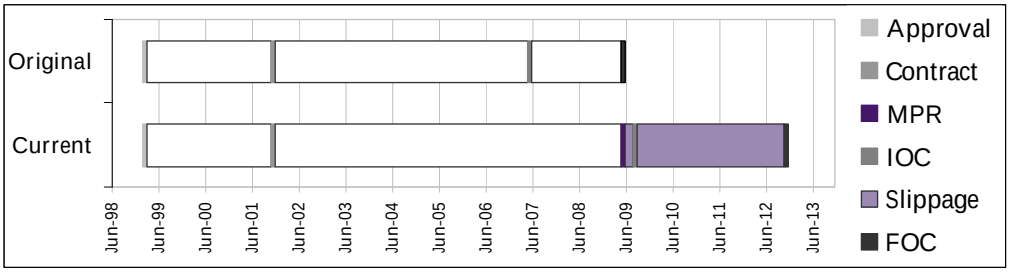
26 military aircrew including nine instructors have been trained and a further seven aircrew are currently undergoing training and will qualify this year. The fleet has now flown in excess of 4300 hours, mainly in support of training and aircraft certification activities.

The Commonwealth and Australian Aerospace agreed changes to the Acquisition and Through Life Support Contracts to implement the provisions of a Deed of Agreement in February 2009 and December 2008 respectively. The re-baselined schedule included a September 2009 IOC, 27 months later than originally contracted. All 22 ARH are now planned to be delivered by September 2010 with final supplies acceptance in June 2011.

Challenges Ahead

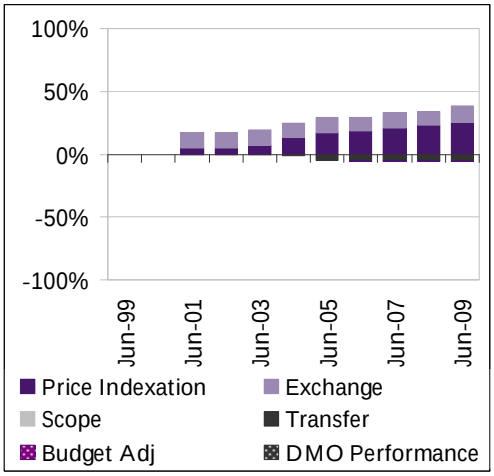
The key challenges to the program are linked to spares availability. This is essential to support the aircraft retrofit program and to achieve the necessary aircraft flying Rate of Effort required to support test programs and the conduct of aircrew training. Australian Aerospace and the DMO have implemented strategies to manage these challenges, recover schedule and prevent further slippage. Improvement in the flying Rate of Effort has been made and is expected to continue as Australian Aerospace's maintenance and supply support networks become more effective.

Schedule Performance - Project Approval to Capability Realisation



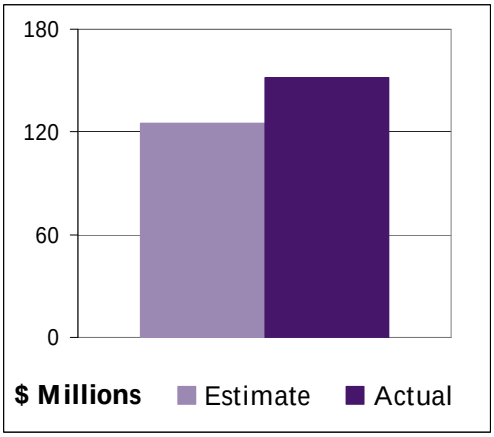
The schedule forecast for FOC has slipped by 42 months from the original plan. Whilst the final aircraft is expected to be delivered by September 2010 and project deliverables complete by June 2011, the FOC will not be achieved until December 2012. The apparent 12 month delay from the 2007–08 MPR to this report for FOC is due to a more accurate measure of when the complete ARH regimental unit is a fully trained operational capability rather than the point at which operationally capable aircraft and systems are delivered by the project. There have been no major changes to actual project schedule since the 2007–08 MPR.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



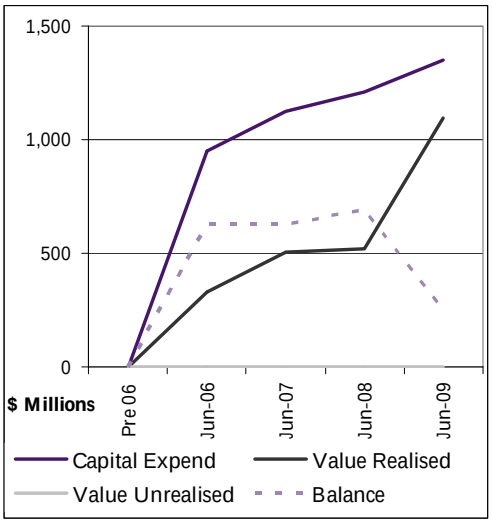
Since Second Pass budget approval of $1,584m, price indexation and foreign exchange variations have accounted for $608m of total budget variation. Significant real variations include transfers of $18m in October 2002 and $59m in December 2003 to DSG for infrastructure at Oakey and Darwin respectively.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $27m results from achievement ahead of plan because amendments to the contract brought forward the schedule of payments.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project has realised assets accepted into service to the value of $1,094m including 15 ARH and associated systems.

AIR TO AIR REFUELLING CAPABILITY
AIR 5402

For the **Royal Australian Air Force**

Project Type: Developmental

Capability Type: New Capability

Contractor: Airbus Military

Budget	Maturity	Complexity	Approval	FOC
$2,088m	54	ACAT II	May 03	3rdQTR 2012

Description

This project is acquiring five new generation Airbus A330 Multi-Role Tanker Transport (MRTT) aircraft, to be known as KC-30A in RAAF service. The MRTT will be capable of in-flight refuelling of current and future aircraft and will provide a significant Air Logistics Services capability to the ADF.

Project Status

The first (prototype) aircraft re-entered the conversion centre in Madrid, Spain, in February 2008 for installation of military avionics and the remainder of the fuel system modifications. Ground test activities were completed in December 2008. The contractor has successfully completed the second of three phases of developmental flight testing including: validation of refuelling pod aerodynamics; the performance of the new refuelling boom in free flight; and certification of the new tanker and receiver mode flight control laws. "Wet" contacts, i.e. fuel transfer, with both pods and boom are expected to be demonstrated in October 2009.

The second aircraft, the first to be converted in Australia, was inducted into the Qantas Australian Conversion Centre at Brisbane Airport in June 2008. Conversion is nearing completion. The third aircraft was delivered to the Conversion Centre in June 2009.

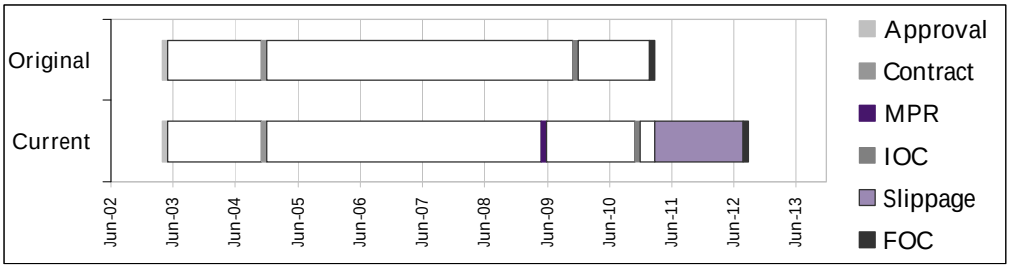
Testing of the new refuelling and military avionics systems during 2008–09 has confirmed system performance with no significant issues identified to date. The second aircraft will return to Spain around October 2009 to join the first aircraft for completion of qualification testing, additional training and receiver clearance activities to support achievement of an IOC by late 2010/ early 2011.

The project is approximately 14 months behind the contract baseline schedule.

Challenges Ahead

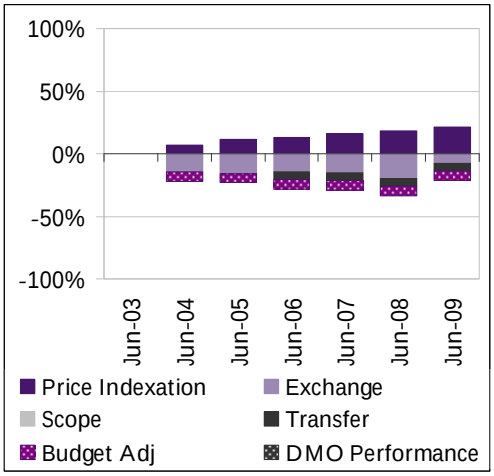
Airbus Military's ability to meet the contracted schedule milestones continues to be the greatest challenge. Delays experienced with aircraft development have impacted the associated design, development and verification of the Support System. There is a moderate level of technical and schedule risk associated with certification and qualification testing of the new military avionics and refuelling systems. Risks with development of the boom system have been mitigated through completion of testing on the Airbus Military A310 Boom Demonstrator test bed. Risks with development of the military avionics are being managed through comprehensive subsystem and system-level bench testing.

Schedule Performance - Project Approval to Capability Realisation



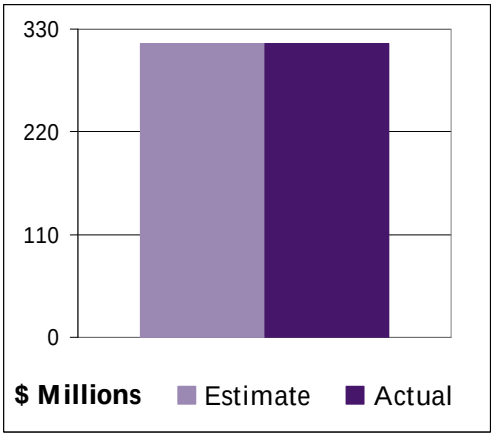
The scheduled forecast for FOC has slipped by 18 months from the original plan primarily caused by delays to the development, certification and qualification of the first-of-type aircraft. Schedule recovery is not expected because of the increased scope and complexity of the conversion. Delays will impact the introduction into service of the new MRTT capability and delay achievement of the expected operational readiness.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



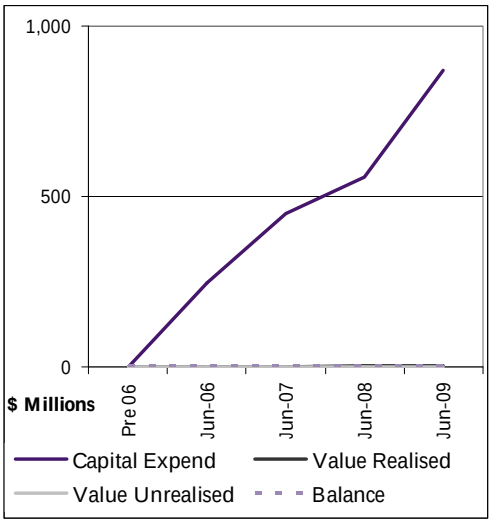
Since Second Pass budget approval of $2,077m, price indexation and foreign exchange variations have largely been offset by significant real variations including: Budgetary Adjustment reduction of $149m in June 2004 reflecting a Defence Committee direction following evaluation of tenders; and a transfer of $136m in November 2005 to DSG for approved infrastructure upgrades at the Main Operating Base at Amberley.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation is insignificant.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project has realised assets accepted into service to the value of $4m.

C-17 GLOBEMASTER III HEAVY AIRLIFTER

AIR 8000 Phase 3

For the **Royal Australian Air Force**

Project Type: MOTS

Capability Type: New Capability

Contractor: US Government

Budget	Maturity	Complexity	Approval	FOC
$2,055m	65	ACAT II	Mar 06	Jan 11

Description

This project has acquired and transitioned to Air Force four C-17 Globemaster heavy lift aircraft. The project also includes the acquisition of associated logistics support provisions, role equipment, training devices and facilities. This capability significantly enhances the ADF's ability to support national and international operations, and major disaster rescue and relief efforts.

Project Status

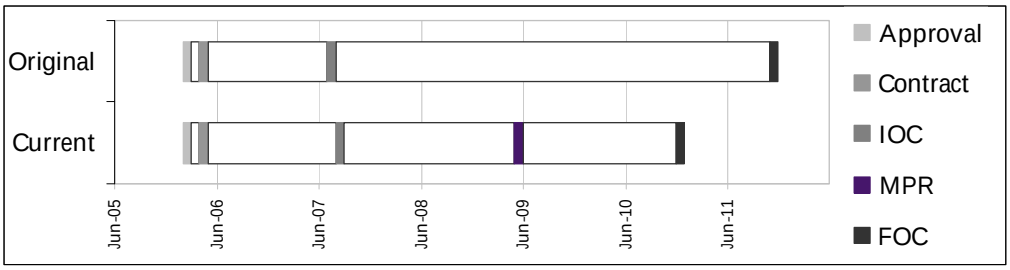
During 2008, the Heavy Air Lift Project completed training of the full initial squadron of pilots, loadmasters and maintenance personnel. Specialist equipment, training and logistics support were also put in place for a high-dependency patient Aero-Medical Evacuation capability, which has been successfully used in operations since September 2008. Attainment of a C-17 Airdrop capability is occurring as planned, with several successful airdrop trials conducted in 2008–09 and certification now being finalised.

The project is within budget and on schedule to deliver remaining self–protection improvements, training devices, specialist role equipment and mature support arrangements. FOC will be achieved when mature C-17 facilities have been established. This is anticipated to occur by 2011.

Challenges Ahead

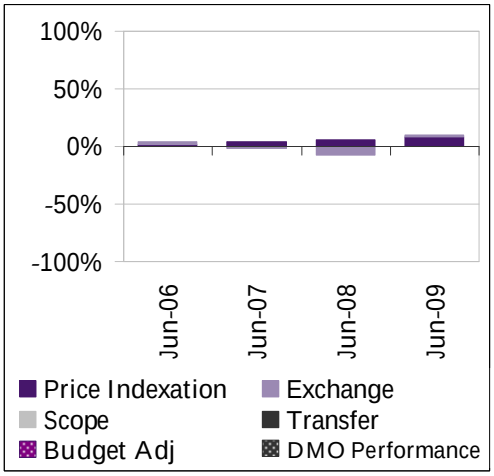
The primary challenge for the project is the delivery of effective logistics support to enable sustained C-17 operations of all four aircraft at required rates of effort. This is being managed through participation in the US Air Force led Globemaster Sustainment Partnership and through progressive delivery of increased spares and equipment holdings in 2009 and 2010.

Schedule Performance - Project Approval to Capability Realisation



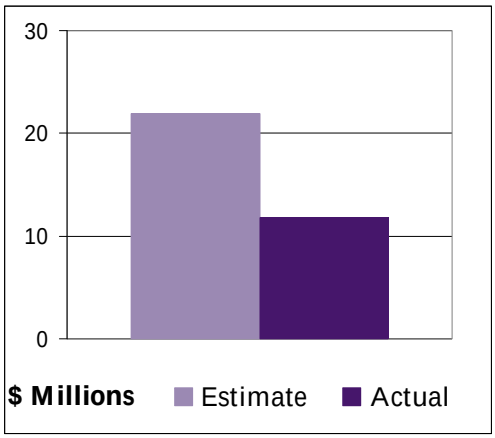
The schedule forecast for FOC remains eleven months ahead of the original planned date. The majority of FOC milestones are forecast for early achievement.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



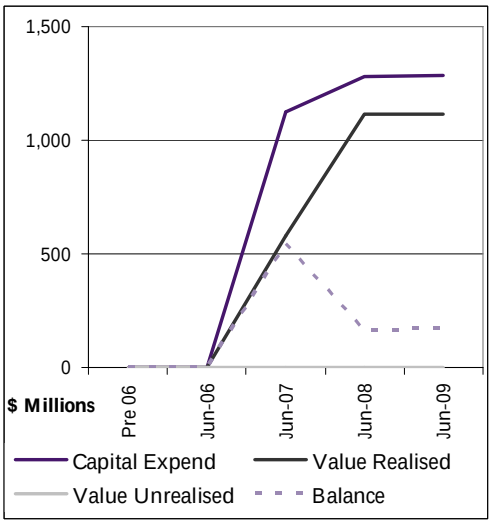
Since Second Pass budget approval of $1,864m, price indexation and foreign exchange variations have accounted for the total budget variation of $190m.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $-10m results from price savings on the aircraft and other FMS sourced equipment; therefore no additional FMS payments were required this year. Underspends against non-prime contract activities also contribute to the variance.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project has realised assets accepted into service to the value of $1,115m including four C-17 Globemaster Heavy Airlift Aircraft.

F/A-18 HORNET UPGRADE

AIR 5376 Phase 2

For the **Royal Australian Air Force**

Project Type: Australianised MOTS

Capability Type: Upgrade

Contractor: Various

Budget	Maturity	Complexity	Approval	FOC
$2,042m	52	ACAT II	May 98	Aug 11

Description

The project will upgrade the F/A-18 fleet to incorporate enhancements which will allow the aircraft to more effectively perform their air defence strategic concept tasks. This capability is being implemented in three distinct stages: the first enabling the aircraft to more effectively perform its air defence role; the second enhancing pilot situational awareness; and the final stage providing additional aircraft self protection. Each stage also includes an upgrade to the aircraft software for ground support and training systems.

Project Status

The upgrade includes: an upgraded radar; full colour displays; moving map capability; a secure data link; a Helmet Mounted Cueing System; an upgraded Countermeasures Dispensing System; a new Electronic Countermeasures Jammer; and new Radar Warning Receivers.

Fleet modification of the air defence role and pilot situational awareness systems was completed in August 2003 and December 2008, respectively. An interim electronic warfare capability, introducing a new radar warning receiver into service, was established in November 2008. The mature electronic warfare production program commenced in May 2009 and is planned to be complete by late 2012. Ongoing upgrades are required to the training systems to introduce emerging Hornet capabilities being introduced by other Hornet and weapon upgrades.

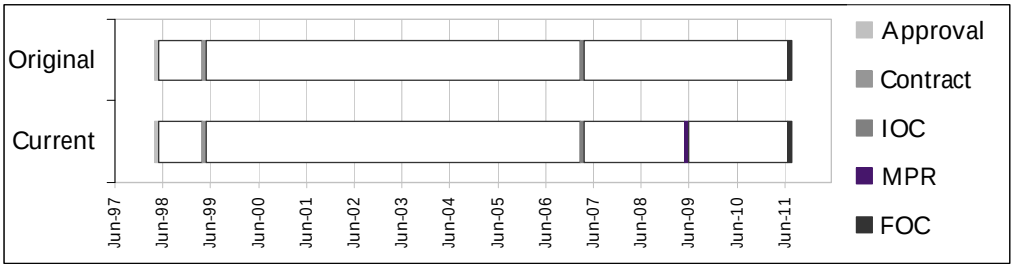
All three capability enhancement stages and software upgrades remain within the total project budget and on schedule, with two stages complete and accepted into service.

Challenges Ahead

The DMO's role as prime system integrator poses some challenges, particularly considering the commercial and security complexities of integrating disparate systems sourced from a diverse range of commercial and national entities. The key risks relate to the development and integration of aircraft and system software, which have not previously been integrated and installed in other F/A-18 Hornet fleets. The primary strategy to alleviate the software risks is an iterative development and testing regime, which draws on US Navy subject matter experts and the project resident team at the US Navy software development and testing facility.

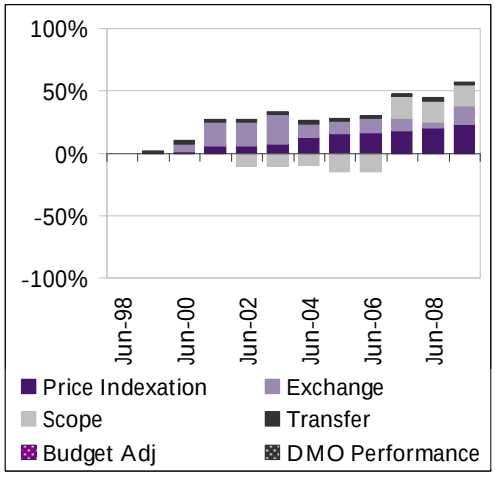
Currently only a small portion of training systems software has been cleared for release to Australia. The source code used to create the simulations is subject to export control from the US, limiting the ability of Raytheon Australia to meet changing simulation requirements. This was highlighted during incorporation of Australian Unique Software Loads as a result of Hornet upgrade activities.

Schedule Performance - Project Approval to Capability Realisation



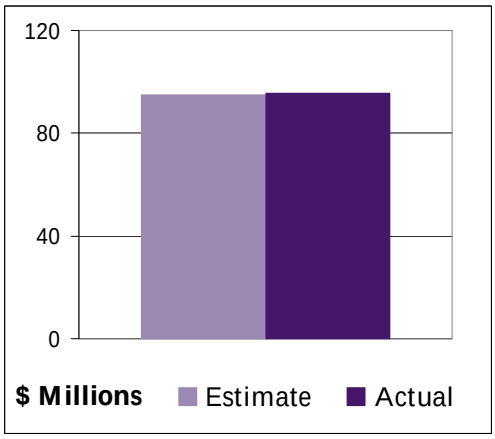
Despite the IOC milestone for the sub-phase relating to electronic warfare self protection (Phase 2.3) moving to April 2010, the scheduled forecast of IOC and FOC remain as per the original plan

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



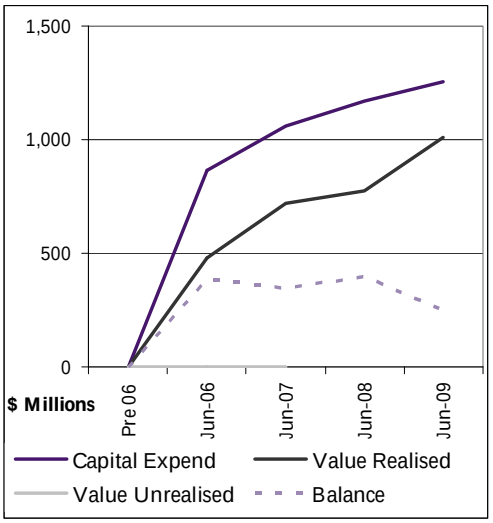
Since Second Pass budget approval of $1,300m, price indexation and foreign exchange variations have accounted for $488m of the total budget variation. Significant real variations for the project include: Reduction of $132m in July 2001 as a result of White Paper considerations; a transfer to a Major Capital Equipment Program for Radio Frequency Jammer of $67m in December 2004; and approved scope increase of $413m to include Hornet Electronic Warfare Self Protection Suite upgrade being conducted under Phase 2.3 of the project.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation is insignificant.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project has realised assets accepted into service to the value of $1,012m including 71 F/A-18 Hornet Aircraft Phase 2.1 and Phase 2.2 upgrades and three Tactical Operational Flight Trainers.

GUIDED MISSILE FRIGATE UPGRADE IMPLEMENTATION SEA 1390 Phase 2.1

For the **Royal Australian Navy**

Project Type: Developmental

Capability Type: Upgrade

Contractor: Thales Australia

Budget	Maturity	Complexity	Approval	FOC
$1,537m	57	ACAT II	Jun 99	Dec 09

Description

This project is a significant combat systems capability enhancement to Navy's four *Adelaide* Class FFG frigates involving upgraded and integrated combat systems, sensors, missile launchers and associated platforms systems, an on board training system to the ships' combat system, and improvements to the reliability of the ships' platform systems. A shore-based Operator and Team Trainer system, and a Warfare System Support Centre have also been established.

Project Status

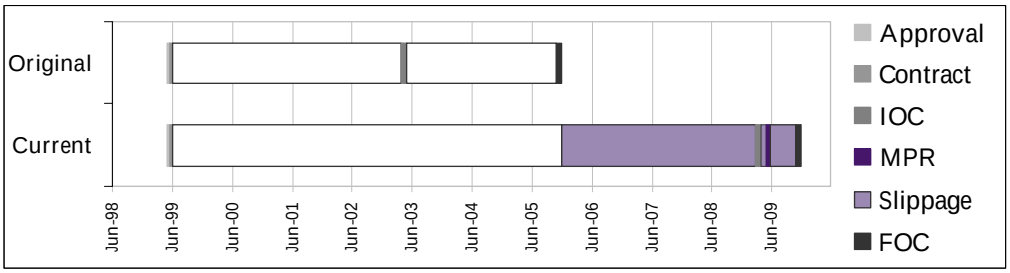
HMA Ships *Sydney*, *Darwin*, *Melbourne* and *Newcastle* and the land-based Warfare System Support Centre have been accepted from the contractor; deficiencies on acceptance are to be addressed during 2009–10. Navy continues to operate these ships for a wide variety of important roles in local and regional deployments and training of Navy personnel for future operations.

Upgrade activity was undertaken in four of the *Adelaide* Class frigates and associated shore-based facilities. HMA Ships *Sydney* and *Darwin* were accepted from the contractor in November 2008 and HMAS *Melbourne* in December 2008. HMAS *Newcastle*, the last FFG to enter the program, was provisionally accepted from the contractor by the DMO in May 2009.

Challenges Ahead

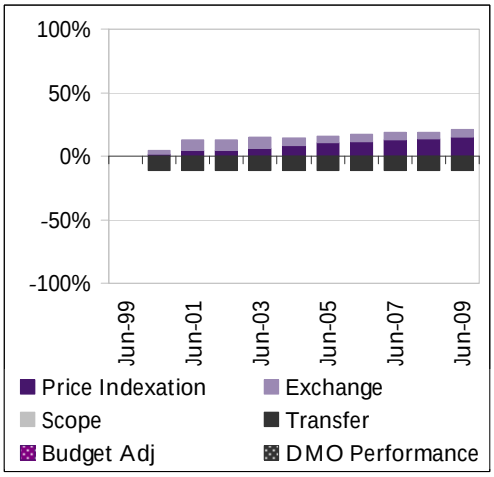
Electronic support and torpedo defence systems capabilities have not yet met Navy's operational requirements. An incremental phased approach to achieving operational release of these systems has been agreed between Navy and the DMO. The first of these phases was achieved in April 2009 and the remainder are expected by December 2009 when Initial Operational Release by Navy and final contractual acceptance are expected to be achieved.

Schedule Performance - Project Approval to Capability Realisation



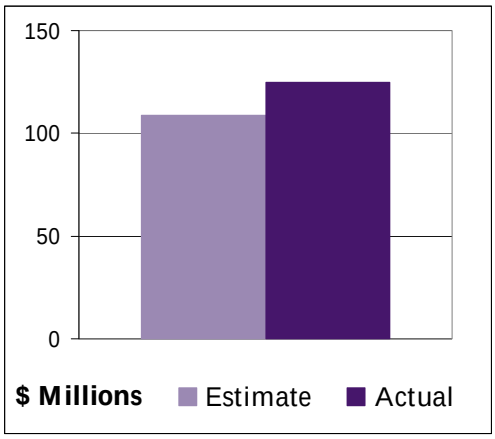
The schedule forecast for FOC has slipped by 48 months from the original plan caused by an underestimation of the program complexity from the outset. The project was re-baselined in April 2004 and again in May 2006.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



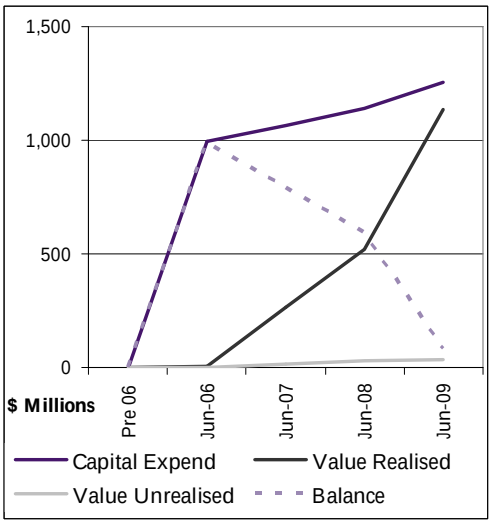
Since Second Pass budget approval of $1,392m, price indexation and foreign exchange variations have accounted for $298m of total budget variation. Significant real variations include a transfer of $153m in July 1999 for procurement of Evolved Sea Sparrow Missiles (ESSM) by Project SEA 1428 Phase 2A ESSM.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $16m results from program variation and achievement of two additional milestones in late 2008–09.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project has rolled out assets to the value of $1,140m including provisional acceptance of the four upgraded FFGs, six ship sets of equipment (including for the two ships withdrawn from the upgrade program), Operator and Team Trainers, Underwater Warfare System Data Recorder, Warfare System Support Centre and upgraded software. In a prior year the project experienced an asset impairment totalling $30.4m.[34]

[34] No AUC reconciliation available for June 2006, therefore an average was used in the graph.

F/A-18 HORNET UPGRADE STRUCTURAL REFURBISHMENT AIR 5376 Phase 3.2

For the **Royal Australian Air Force**

Project Type: MOTS

Capability Type: Upgrade

Contractor: Various

Budget	Maturity	Complexity	Approval	FOC
$938m	67	ACAT II	Oct 03	N/A

Description

This project is the second stage of a multi–stage structural refurbishment program for the Air Force's F/A-18 Hornet fleet. The centre barrel is the primary load bearing structure in the Hornet fuselage for the transfer of flight loads from the wings to the fuselage, and is the most significant component of the Hornet airframe in terms of aircraft life. This project is replacing the centre barrels of selected aircraft and undertaking other structural refurbishment work to extend the fatigue life of the Hornet aircraft.

Project Status

In May 2008 an engineering study showed that the fatigue life of Hornet Centre Barrels could be extended beyond the current limits. As a result only 10 aircraft will require Centre Barrel Replacement. Additional discrete structural modifications are being undertaken on 42 aircraft to address fatigue damage, corrosion and other emergent ageing aircraft issues; 19 of these aircraft have been completed as at 30 June 2009.

As at 30 Jun 09, the first two prototype and one production centre barrel replacement aircraft have been returned to the fleet. The 4th - 6th aircraft have had the centre barrels replaced and are undergoing final rebuild at RAAF Base Williamtown. The 7th - 10th aircraft have had the centre barrel replaced and are undergoing initial rebuild in Canada, before being transported back to Williamtown for final rebuild and delivery.

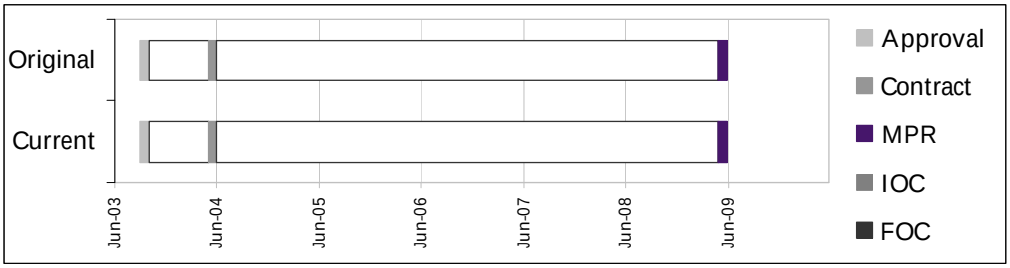
The project remains within budget and schedule, with centre barrel replacement in full rate production. The program is scheduled to be completed by December 2012. All modified aircraft meet the project's technical specifications and have been accepted back into service.

Challenges Ahead

The nature of structural refurbishment of an ageing aircraft is such that unknown conditions may be revealed in the process of disassembly. This may result in more extensive refurbishment work becoming necessary and this poses a challenge to the production schedule.

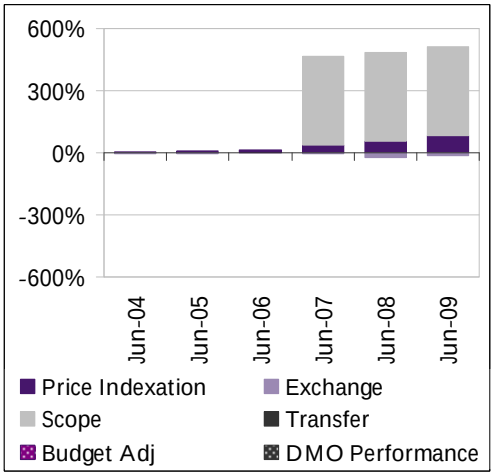
As a further consequence of the disassembly required during structural refurbishment, additional parts may be required to replace those that are found to be unserviceable. Obtaining these parts in time to maintain the production schedule is a major risk confronting the project.

Schedule Performance - Project Approval to Capability Realisation



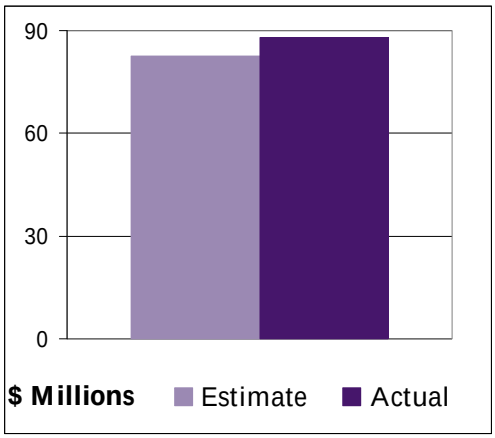
There is no IOC or FOC for this project as it does not introduce any new capability to the Hornet aircraft fleet.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



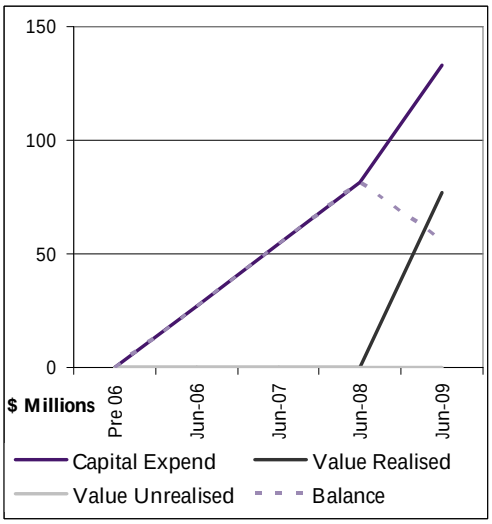
Since Second Pass budget approval of $157m, price indexation and foreign exchange variations have accounted for $109m of total budget variation. Significant real variations include an approved scope increase of $674m in October 2006 to provide structural refurbishment for additional F/A-18 aircraft to ensure sufficient aircraft life until transition to the New Air Combat Capability.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $6m results from early production and achievement of milestones.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project has realised assets accepted into service to the value of $77m.[35]

[35] No AUC reconciliation available to June 2006 and 2007, therefore an average was used for the graph.

BUSHMASTER PROTECTED MOBILITY VEHICLE LAND 116 Phase 3

For the **Australian Army**

Project Type: Australianised MOTS

Capability Type: Replacement

Contractor: Thales Australia

Budget	Maturity	Complexity	Approval	FOC
$931m	57	ACAT III	Nov 98	Apr 12

Description

The project is acquiring 737 vehicles in seven variants (troop, command, mortar, assault pioneer, direct fire weapon, ambulance and air defence). The vehicles provide protected land mobility to Army units and RAAF Airfield Defence Guards.

Project Status

All 300 vehicles under the original contract with Thales have been delivered. Delivery of the 144 Enhanced Land Force vehicles was completed in April 2009. Delivery of 293 vehicles to meet the Land 121 Overlander Phase 3 requirement began in April 2009 and will be completed by 2012.

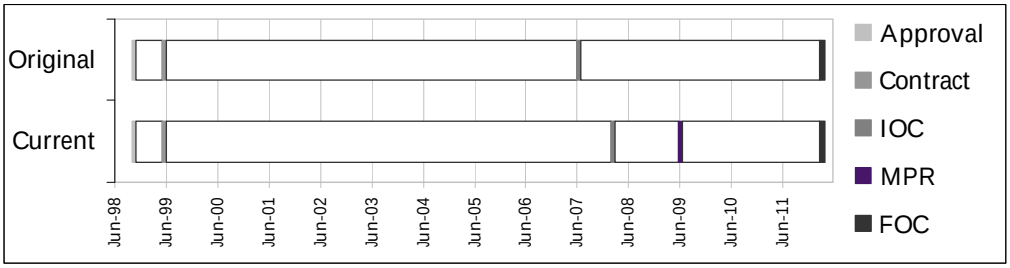
In June 2007 Government approved the rapid acquisition of additional Protected Weapon Stations, Automatic Fire Suppression Systems and purpose designed spall curtains to further enhance the protection level of Bushmasters. All Protected Weapon Stations, Automatic Fire Suppression Systems and Spall Curtain systems have been delivered and fitted.

The Bushmaster is a most successful vehicle and has been exported to the British and Netherlands armed forces. The project continues to be within budget and planned schedules for delivery are being maintained.

Challenges Ahead

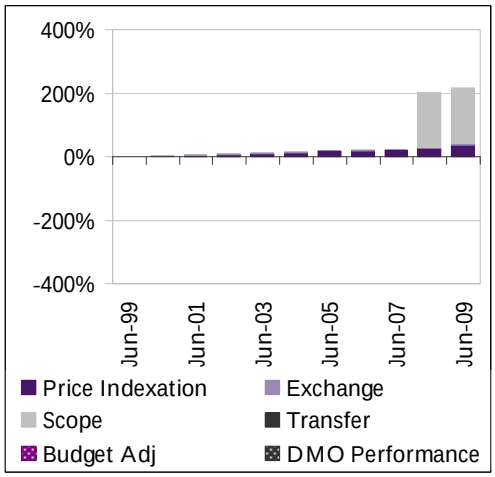
There are no significant issues facing this project.

Schedule Performance - Project Approval to Capability Realisation



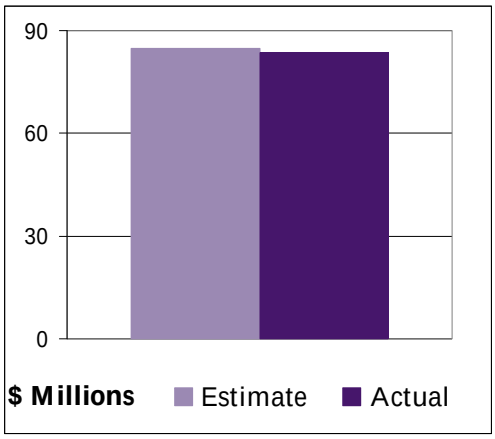
The schedule forecast for FOC remains as per the original plan. Major deliveries of vehicles have occurred as noted in the Project Status. The Bushranger Project suffered delays of 8 and 26 months in achieving the In-Service Date and FOC respectively for the first of the three vehicle Production Periods when it experienced a number of technical problems. However the third Production Period is forecast to be on time.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



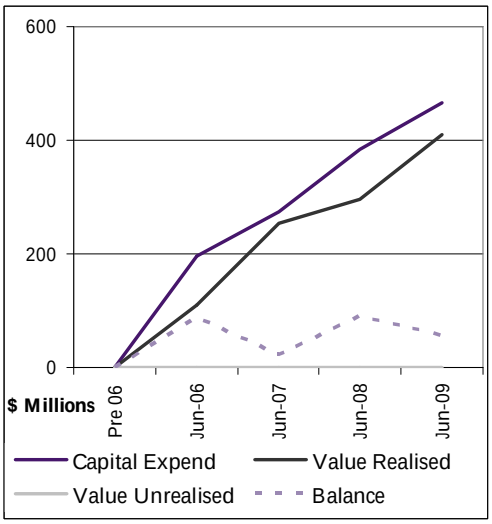
Since Second Pass budget approval of $295m, price indexation and foreign exchange variations have accounted for $120m of total budget variation. The real variations are for approved increases to the number of vehicles: $155m in July 2007 for an additional 144, and $361m in August 2007 for an additional 293, Protected Mobility Vehicles for Enhanced Land Force and Overlander requirements respectively.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $-1m results from minor delays in deliveries by contractors.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project has realised assets accepted into service to the value of $411m including 476 Bushmaster Protected Mobility Vehicles (in six different variants), radios, communications equipment and logistics support.

HIGH FREQUENCY MODERNISATION

JP 2043 Phase 3A

For **Joint Services**

Project Type: Developmental

Capability Type: Upgrade

Contractor: Boeing (Australia)

Budget	Maturity	Complexity	2nd Pass	FOC
$661m	54	ACAT II	Aug 96	2016

Description

The High Frequency (HF) Modernisation project will replace Naval HF Stations at six sites, replace Air Force HF Stations at four sites, upgrade design and performance of the replaced systems, and upgrade selected ADF mobile platforms.

Project Status

The first stage of the project, completed in 2004, upgraded capability at Navy and Air Force fixed network sites and is supporting ADF operations. The Fixed Network comprises four HF stations, one station in each of the Riverina (NSW), Townsville (QLD), Darwin (NT) and North West Cape (WA) areas, with primary and backup Network Management Facilities in Canberra.

The second stage will provide increased levels of automation, improved capability, enhanced security and survivability, reduced reliance on staff and will incorporate the new equipment into selected mobile platforms such as ships, aircraft and military vehicles.

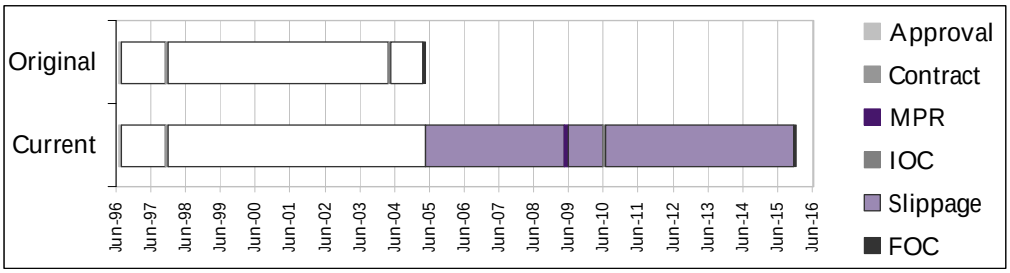
The prime contractor has experienced difficulties with certain complex elements of design, integration and testing. A revised schedule has been agreed with the prime contractor, such that delivery of the full final fixed network capability previously planned in 2008 will now occur in 2010. This delay has a flow on effect to the completion of upgrades to mobile platforms.

The project remains on budget; but the inability to meet contract schedule milestones has led to a deferral of planned payments until achievement.

Challenges Ahead

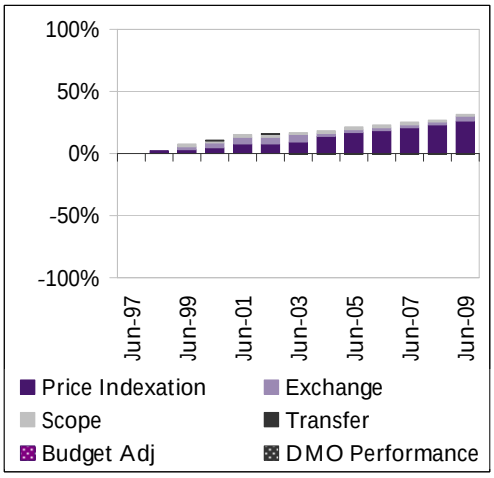
The project is presently focused on providing enhanced capabilities including the mobiles platform upgrades. Platform availability will be an issue for mobile platform upgrades because the upgrade schedules need to be coordinated with maintenance schedules and the operational availability of the platforms. The tasks of integrating the HF upgrade equipment with existing communications systems of varying levels of maturity and sophistication, and accommodating the new equipment within the spaces available, will also be a risk to the mobiles program.

Schedule Performance - Project Approval to Capability Realisation



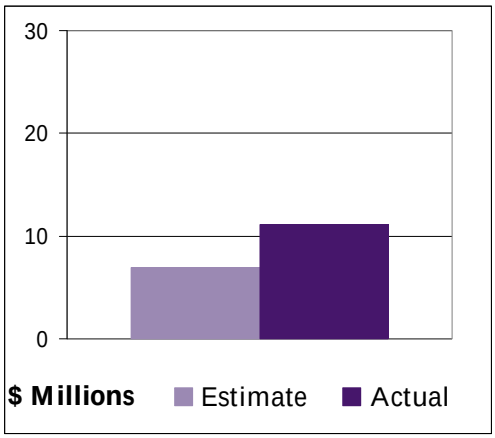
The schedule forecast for FOC on the final system (Fixed Network) has slipped by 74 months from the original plan caused by contractor delays with software development, resource shortages and system instability. The total slippage of 127 months shown in the graph above is based upon the last of the 87 Mobiles upgrades achieving FOC.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



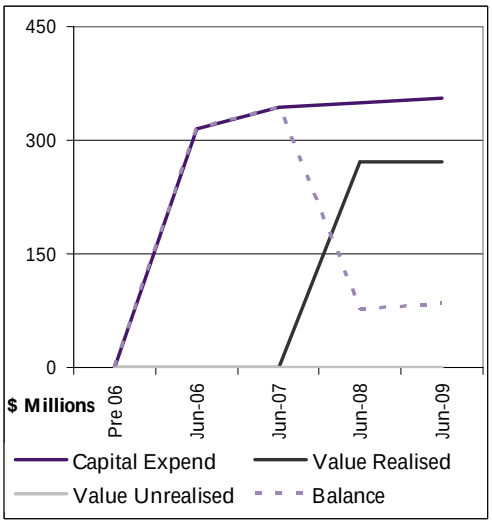
Since Second Pass budget approval of $505m, price indexation and foreign exchange variations have accounted for $150m of total budget variation.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end net variation of $4m results from a combination of events including: contractor achievement, cost savings in frequency rental, a Commonwealth payment following dispute settlement with the contractor and delays in the development of Blackhawk mobile equipment.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project has realised assets accepted into service to the value of $272m including the Fixed Network Core System.

ARMIDALE CLASS PATROL BOATS

SEA 1444 Phase 1

For the **Royal Australian Navy**

Project Type: Australianised MOTS

Capability Type: Replacement

Contractor: DMS

Budget	Maturity	Complexity	Approval	FOC
$535m	62	ACAT III	Oct 02	Dec 11

Description

This project replaced the Navy's Fremantle Class Patrol Boats. All 14 Armidale Class Patrol Boats were delivered between 2005 and 2007 and are in operation with the Navy.

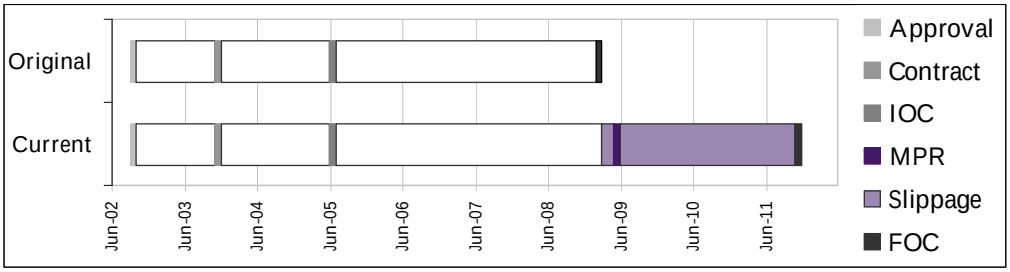
Project Status

With all vessels delivered and commissioned into the Navy, the DMO is now closing extant issues, moving toward supporting full operational release and achieving FOC before closing the acquisition phase of the project.

Challenges Ahead

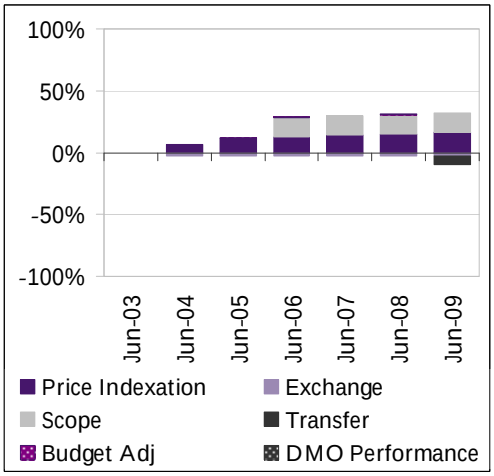
Previously identified problems with fuel contamination have now been resolved and the design changes for sea boat hydraulic piping modifications are being worked with DMS and Austal Ships Pty Ltd. Modifications to the exhaust mast have been undertaken and results are being assessed. Once results from the trials of changes implemented in HMAS GLENELG have been fully evaluated, the remainder of the Fleet will be modified.

Schedule Performance - Project Approval to Capability Realisation



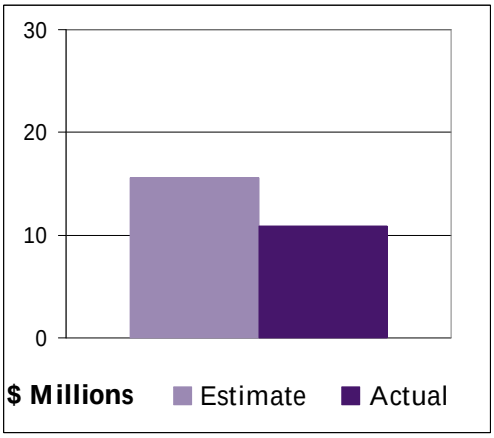
The schedule forecast for FOC, which was not stipulated until August 2008, has slipped by 33 months caused by problems with satisfying Navy Operational Release requirements.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



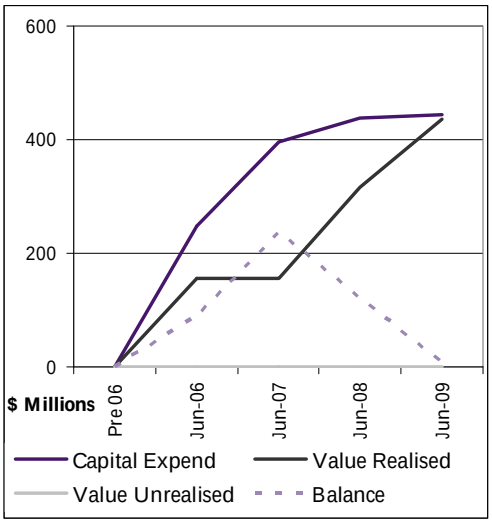
Since Second Pass budget approval of $437m, price indexation and foreign exchange variations have accounted for $61m of total budget variation. Significant real variations include: an approved scope increase of $67m in June 2005 for two additional Patrol Boats; and transfer of $28m in August 2008 to DSG for facilities at Darwin and Cairns.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $5m results from delays in resolving engineering issues and in approving Contract Change Proposals.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project has realised assets accepted into service to the value of $436m including fourteen Armidale Class Patrol Boats.

COLLINS REPLACEMENT COMBAT SYSTEM

SEA 1439 Phase 4A

For the **Royal Australian Navy**

Project Type: Australianised MOTS

Capability Type: Upgrade

Contractor: Various

Budget	Maturity	Complexity	2nd Pass	FOC
$459m	56	ACAT II	Sep 02	2016

Description

This project will provide the *Collins* Class submarines with a US Navy Tactical Command and Control System, minor improvements to the combat system augmentation sonar, and shore facilities for integration, testing and training. Shore based systems are located at the Submarine Training and Support Centre at HMAS STIRLING (WA) and a reference laboratory in the US at the Naval Undersea Warfare Center.

Project Status

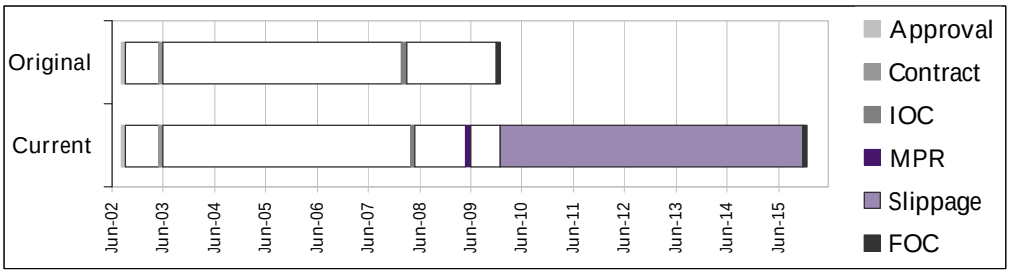
The DMO is the prime systems integrator for this project. The combat system installed in HMAS *Waller* was approved for Initial Operational Release by Navy in May 2008 and participated in "Rim of the Pacific" (RIMPAC) 2008 exercises off Hawaii. Installations are proceeding as planned for HMA Ships *Farncomb* and *Dechaineux*, with Initial Operational Release for HMAS *Farncomb* achieved in September 2009 and forecast for HMAS *Dechaineux* in September 2010; the final installation is currently scheduled for completion in 2014.

The combat system has been proven and equipment for installation is available. However, actual installation of combat systems in platforms is dependent on platform availability. A Defence review is examining, among other things, optimising the time between full cycle dockings to maximise submarine availability for operations.

Challenges Ahead

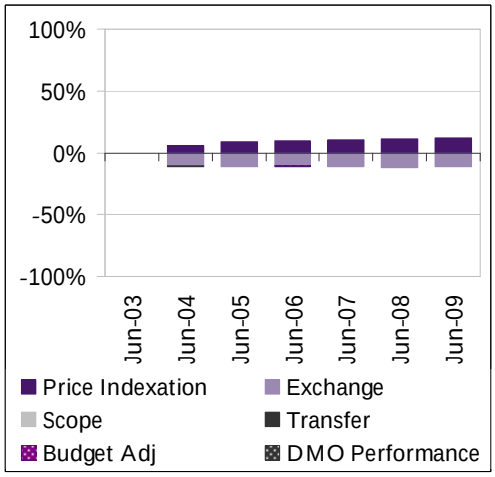
The primary challenge facing the project is the availability of submarines and the consequential schedule impact on combat system installations. A further challenge is the cost and schedule impact of unforeseen US Navy led changes to the Tactical Command Control system baseline, both of which are being closely monitored.

Schedule Performance - Project Approval to Capability Realisation



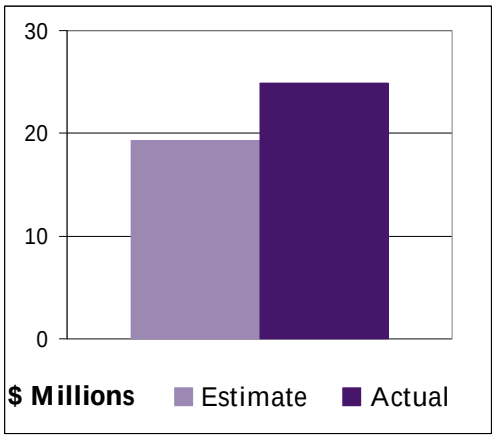
The schedule forecast for FOC has slipped by 72 months from the original plan caused by the impact that emergent defects within the platform and other capability upgrades have had on the submarine availability for installation of replacement combat systems.

Budget History – Cumulative % Variations from Budget at 2nd Pass Approval



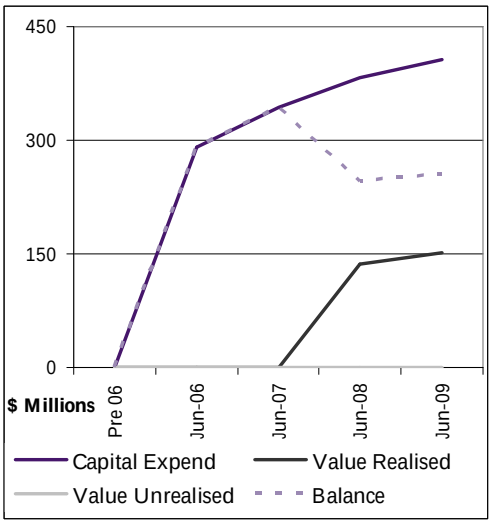
Since Second Pass budget approval of $455m, price indexation and foreign exchange variations have accounted for $5m of the net total budget variation.

2008–09 In Year Financial Performance - Actual vs. Budget $m



Year end variation of $6m results from over achievement by local and overseas industry.

Capitalisation Performance - Assets Under Construction $m



As at June 2009, the project has realised assets accepted into service to the value of $152m including one *Collins* Class Submarine upgrade, Combat System Support Facility, and Test and Training Systems.

3. Project Longitudinal Analysis

3.1 The Project Executive Summaries and Status Outlines in Chapter 2 provide a snapshot of each project and make observations about their performance. This chapter provides a longitudinal analysis that compares and contrasts performance across the 15 projects and includes an analysis of key aspects of this performance. As the number of projects included in the DMO MPR increases over time, the longitudinal analysis is expected to indicate trends and enable more systemic observations on DMO project performance.

3.2 For the purpose of the longitudinal analysis, projects have been referred to with the following abbreviated titles (in tables and diagrams) that follow:

Project Number	Project Name	Abbreviation
SEA 4000 Ph 3	Air Warfare Destroyer Build	AWD Ships
AIR 5349 Ph 1	Bridging Air Combat Capability	Super Hornet
AIR 9000 Ph 2, 4 & 6	Multi Role Helicopter	MRH90
AIR 5077 Ph 3	Airborne Early Warning and Control Aircraft	Wedgetail
JP 2048 Ph 4A/4B	Amphibious Deployment and Support	LHD Ships
AIR 87 Ph 2	Armed Reconnaissance Helicopter	ARH Tiger
AIR 5402	Air to Air Refuelling Capability	Air to Air Refuel
AIR 8000 Ph 3	C-17 Globemaster III Heavy Airlifter	C-17 Heavy Airlift
AIR 5376 Ph 2	F/A-18 Hornet Upgrade	Hornet Upgrade
SEA 1390 Ph 2.1	Guided Missile Frigate Upgrade Implementation	FFG Upgrade
AIR 5376 Ph 3.2	F/A-18 Hornet Upgrade Structural Refurbishment	Hornet Refurb
LAND 116 Ph 3	Bushmaster Protected Mobility Vehicle	Bushranger[36]
JP 2043 Ph 3A	High Frequency Modernisation	HF Modernisation
SEA 1444 Ph 1	Armidale Class Patrol Boats	Armidales
SEA 1439 Ph 4A	Collins Replacement Combat System	Collins RCS

Project Characteristics and Status Summary

3.3 Table 3.1 notes the key characteristics that typify the 15 projects and provides a holistic picture of their key attributes.

3.4 Table 3.2 provides a composite picture of the cost and schedule performance of all 15 projects as at 30 June 2009.

[36] The Bushmaster Protected Mobility Vehicle is also known as 'Project Bushranger'. 'Bushranger' has therefore been used as the abbreviated name of the project for the purposes of this analysis.

Table 3.1 - Project Characteristics

Project	Service Customer[37]	Type of Capability[38]	Type[39]	ACAT[40]	Kinnaird[41]	Maturity Stage[42]	Prime System Integrator[43]
AWD Ships	Navy	New	Australianised MOTS	1	Post	Preliminary Design Review	AWD Alliance
Super Hornet	Air Force	Replace	MOTS	2	Post	System Integration Test	US Navy (FMS)
MRH90	Army/Navy	Replace	Australianised MOTS	2	Pre	Acceptance Test	Australian Aerospace
Wedgetail	Air Force	New	Developmental	1	Pre	Critical Design Review	Boeing Company
LHD Ships	Joint	New	Australianised MOTS	1	Post	Preliminary Design Review	BAE Systems Australia
ARH Tiger	Army	New	Australianised MOTS	2	Pre	System Integration Test	Australian Aerospace
Air to Air Refuel	Air Force	New	Developmental	2	Pre	System Integration Test	Airbus Military
C-17 Heavy Airlift	Air Force	New	MOTS	2	Post	Acceptance Into Service	US Air Force (FMS)
Hornet Upgrade	Air Force	Upgrade	Australianised MOTS	2	Pre	System Integration Test	DMO
FFG Upgrade	Navy	Upgrade	Developmental	2	Pre	Acceptance Test	Thales
Hornet Refurb	Air Force	Upgrade	N/A	2	Pre	Acceptance Into Service	DMO
Bushranger	Army	New	Australianised MOTS	3	Pre	Acceptance Test	Thales
HF Modernisation	Joint	Upgrade	Developmental	2	Pre	System Integration Test	Boeing Defence Australia
Armidales	Navy	Replace	Australianised MOTS	3	Pre	Acceptance Into Service	Defence Maritime Services
Collins RCS	Navy	Upgrade	Australianised MOTS	2	Pre	System Integration Test	DMO

[37] The ADF customer who will be the Capability Manager when equipment/ systems enter service.

[38] 'New' - a capability that has not previously existed in the ADF; 'Replacement' – a current capability that is being replaced by more up to date technology or to respond to a changing threat; 'Upgrade' – an upgrade to existing capabilities.

[39] 'Developmental' – Involving substantial design development and systems integration; 'MOTS/COTS' – Off-the-shelf equipment of Military or Commercial origin; and 'Australianised' MOTS/ COTS, an off-the-shelf design with significant levels of unique adaptation for Australian requirements.

[40] The DMO's categorisation of projects that represent the complexity of the project on a sliding scale of 1 to 4, with ACAT 1 representing the most complex projects.

[41] Provides an indication of whether the projects were initially developed under pre-or post Kinnaird reforms.

[42] Provides an indication of maturity of a project based on the benchmark stage of a project.

[43] Identifies the entity that has prime systems integrator responsibility for delivering mission and support systems for the project.

Table 3.2 - Project Cost and Schedule Status Summary 2008–09

Project	2nd Pass Budget[44]	Current Budget[45]	Indexation/ Exchange[46]	Scope Changes[47]	Transfers[48]	$ Net Variation[49]	% Net Variation	Original FOC	Current FOC	Variance Factor[50]
AWD Ships	7,207.4	8,260.7	1,053.3	0.0	0.0	0.0	0.0%	Dec 18	Dec 18	1.0
Super Hornet	3,545.8	4,309.8	797.3	0.0	-33.3	0.0	0.0%	Dec 12	Dec 12	1.0
MRH90	957.2	4,199.2	883.9	2,597.1[51]	-239.0	0.0	0.0%	Jul 14	Jul 14	1.0
Wedgetail	3,269.5	4,154.2	463.1	225.6	-18.9	214.9	6.6%	Dec 08	Dec 12	1.5
LHD Ships	2,959.4	3,542.0	573.2	0.0	9.4	0.0	0.0%	Nov 16	Nov 16	1.0
ARH Tiger	1,584.0	2,101.4	608.4	0.0	-84.3	-6.7	-0.4%	Jun 09	Dec 12	1.3
Air to Air Refuel	2,076.6	2,087.6	300.1	0.0	-135.5	-153.6	-7.4%	Mar 11	Qtr3 12	1.2
C-17 Heavy Airlift	1,864.4	2,054.8	190.4	0.0	0.0	0.0	0.0%	Dec 11	Jan 11	0.8
Hornet Upgrade	1,300.0	2,041.6	488.5	221.5	35.0	-3.4	-0.3%	Aug 11	Aug 11	1.0
FFG Upgrade	1,392.5	1,536.9	297.8	0.0	-152.7	-0.7	-0.1%	Dec 05	Dec 09	1.6
Hornet Refurb	156.6	937.8	108.7	673.5	0.0	-1.0	-0.6%	N/A	N/A	N/A
Bushranger	295.0	930.7	120.3	515.4	0.0	0.0	0.0%	Apr 12	Apr 12	1.0
HF Modernisation	505.0	660.6	150.1	11.0	-4.7	-0.8	-0.2%	May 05	2016	2.2
Armidales	436.8	535.3	60.5	67.1	-29.8	0.7	0.2%	Mar 09	Dec 11	1.4
Collins RCS	455.3	458.6	5.0	0.0	-0.9	-0.8	-0.2%	2010	2016	1.8
Total	28,005.5	37,811.2	6,100.6	4,311.2	-654.7	48.6	0.2%	-	-	1.28

[44] The portion of Second Pass budget approved by Government, transferred to the DMO under a MAA with Defence for delivery of the materiel system ($millions).
[45] The current budget that takes account of all price indexation, foreign exchange and real variations from Second Pass Approval ($millions).
[46] The total of price indexation and foreign exchange variations between the Current and 2nd Pass Approved budget ($millions), outside of the DMO's capacity to control.
[47] The total of all approved quantity changes to the project's scope between the Current and 2nd Pass Approved budget ($millions).
[48] The total of all transfers to and from other Defence Groups (i.e. Defence Support Group) and DMO projects ($millions).
[49] The net variation after accounting for all price indexation, foreign exchange, scope change and transfer variations since the 2nd Pass Approved budget ($millions).
[50] A schedule variance factor of 1 = on time; >1 = late; and <1 = early.
[51] The significant scope increase for the MRH90 project is a result of Government decision to increase aircraft quantities from 12 to 46.

Budget Variance Attributions

3.5 Figure 3.3 presents a summary of the project budget variations to date i.e. Price Indexation; Foreign Exchange; and Real variations. Significant real variations fall within three main groupings:

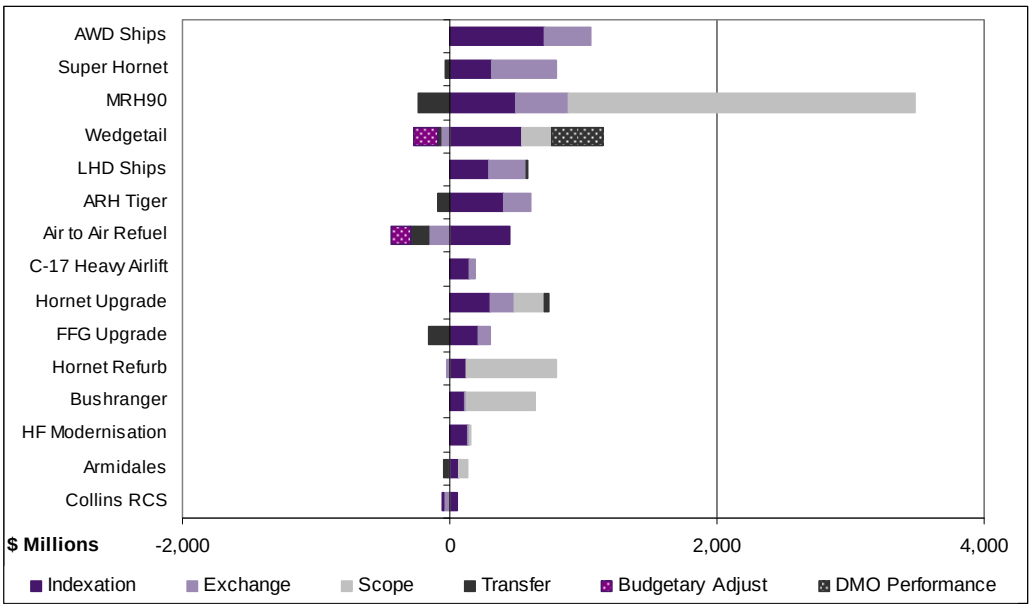
- **Scope changes:** Projects with the largest DMO budget real variation from scope changes approved by Government are:
  - MRH90 increased from 12 to 46 aircraft to replace Army's Blackhawk and Navy's Sea King helicopters.
  - Wedgetail increased from four to six aircraft.
  - Hornet Upgrade scope increased to include an upgrade to the aircraft's electronic warfare self protection suite.
  - Hornet Structural Refurbishment scope increased to undertake additional discrete structural modifications on 42 F/A18 Hornet aircraft to address emergent ageing aircraft issues and extend their fatigue life until replaced by the F-35 Joint Strike Fighter.
  - Project Bushranger vehicles have increased from an initial 370 to 737 to equip the Enhanced Land Force and acquire vehicles for the Overlander project. The project has also introduced modifications to vehicles from operational experience to provide additional protection to personnel.
  - Armidale Patrol Boat numbers increased from 12 to 14.
- **Transfers:** The next significant category of real variations relates to transfers that occur when a portion of the project scope and budget is transferred to another project or sustainment, or to a Defence Group to perform an element of project scope. For example, significant transfers of the DMO budget were made from the MRH90 and Air to Air Refuelling projects to the Defence Support Group (DSG) to fund the acquisition of facilities.
- **DMO Performance:** The Wedgetail project had to seek additional supplementation through a real cost increase for contract price indexation variations beyond the supplementation provided by Government. Of the $388m increase, $240m had been consumed for price escalation experienced up to the date of the increase and a further $148m price escalation forecast for the remainder of the project. This increase enabled

the project to reconstitute its budget to complete the work remaining on the project and provide for contingency required to manage residual risks. Notwithstanding that this is a price indexation variation beyond the control of the DMO, the only category in the DMO's records under which this can be shown is 'DMO Performance'.

3.6 Price indexation caused by escalation and foreign exchange variations account for the most significant changes to projects' approved DMO budget at Second Pass. These variations are inevitable in complex and long term projects. The next major cause for price variations is represented by 'real variations' which are mainly attributable to capability decisions. For some of the 15 projects, these decisions have resulted in variations to equipment quantities approved by Government. Transfer of funds from the DMO Budget at Second Pass to other Groups in Defence, in the main to the DSG for the acquisition of project related facilities, is the next major cause for budget variations.

3.7 As Table 3.2 shows, after accounting for price indexation, foreign exchange adjustments, Government approved changes to scope and budget transfers, the net variation to overall project cost is $49m. However, acknowledging that the $388m increase attributed to the Wedgetail project was due to price escalation, the total net variation in table 3.2 would be a $340m reduction across the 15 DMO MPR projects. Consequently, if the impact from these four factors is removed from the variances in Figure 3.3, very little variance from the Second Pass budget approval exists.

Figure 3.3 - Variance Attribution from Second Pass Budget Approval



Schedule Performance to IOC and FOC

3.8 Figure 3.4 depicts the schedule performance of each project in terms of forecast variance of IOC and FOC from original plan by way of a variance factor. The schedule variance factor is a ratio of the period between achieved or forecast IOC and FOC from Second Pass Approval to the originally planned period between these events. Schedule variance factors:

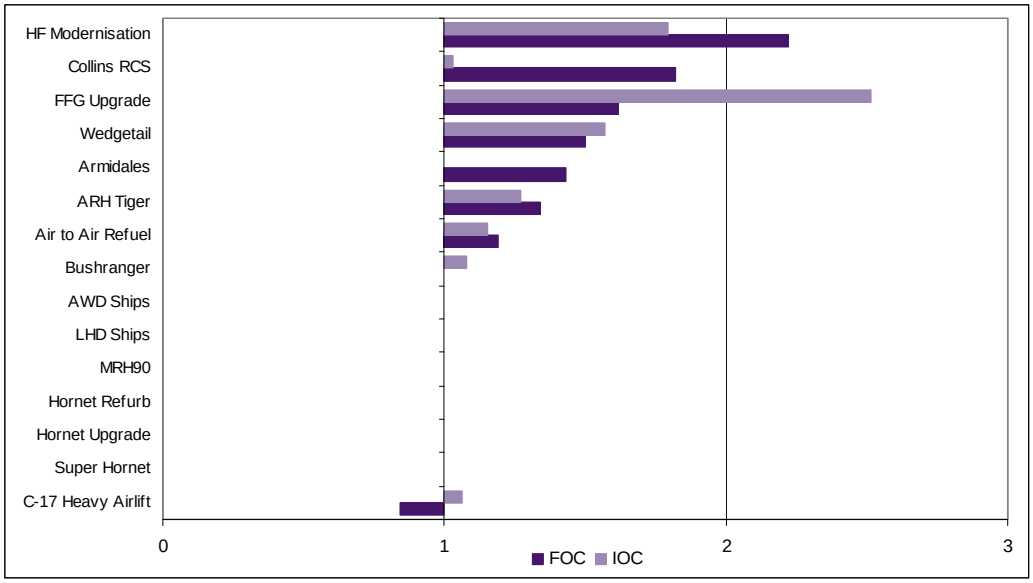
- of less than one mean the project has come in or is forecast to be ahead of the original planned schedule;
- of one mean the project has come in or is forecast to achieve the original planned schedule; and
- of greater than one mean the project has come in or is forecast to be behind the original planned schedule.

3.9 The average performance across the 15 projects is a variance factor of 1.28, or 28% schedule overrun, for FOC (1.25 for IOC). This reflects very favourably in comparison with international benchmarks. The Standish Group, an international project management and software projects benchmarking organisation, reports that in 2004 the average time overrun in IT projects was

84%;[52] the UK Ministry of Defence, Defence Equipment and Support organisation, reported in 2008 a 36%[53] overrun across 20 of its major projects.

3.10 It should be noted that the Bushranger project suffered a delay of 26 months in achieving FOC for the first of the three vehicle Production Periods when it experienced a number of technical problems. However, the third Production Period is forecast to be on time.

Figure 3.4 – Schedule Variance Factors



3.11 Figure 3.5 presents the IOC and FOC schedule slippage grouped by project types. Discounting the slippage to the Collins RCS project (where delays primarily result from limited platform availability) the data indicates developmental projects suffer the highest incidence of schedule slippage followed closely by projects requiring Australianisation of off-the-shelf equipment. Schedule risks in these types of projects naturally first impact on IOC when systems are being integrated and tested for the first time in readiness for operational release. The impact of IOC delays is not always equally translated to delayed FOC achievement. This is because delays impacting IOC are not necessarily on the critical path to achieve FOC.

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[52] *My Life is Failure: The Standish Group International 2006 - based on CHAOS chronicles Version 5.0.7*

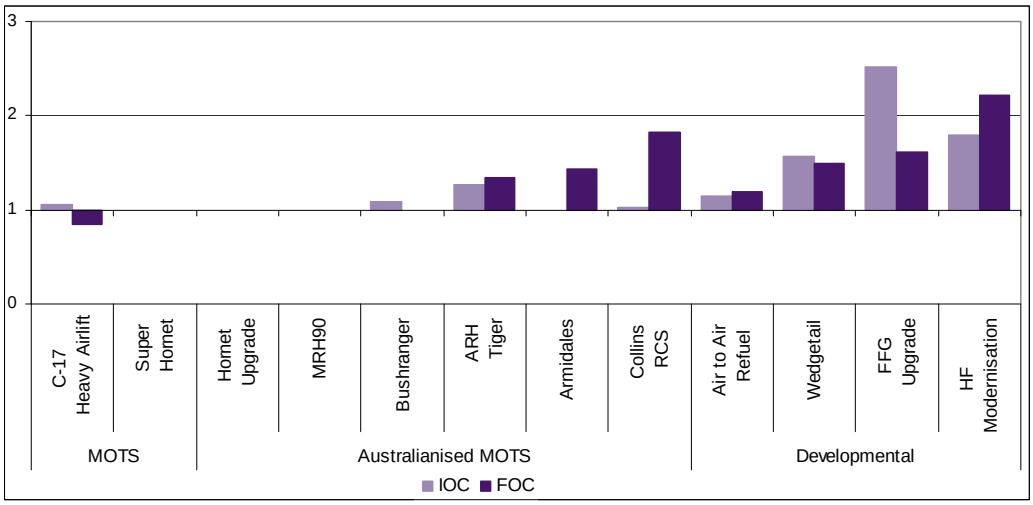
[53] National Audit Office, *Major Projects Report 2008.*

3.12 Developmental projects on both new and existing capabilities are most susceptible to delays. Upgrades to existing capabilities, such as the FFG Upgrade project, pose unique problems associated with refit and life of type extension work being undertaken in conjunction with capability upgrade work. Developmental projects which also have a high dependence on the availability of platforms already in service, such as the mobile platform components of the HF Modernisation project and the Collins RCS project, have a higher potential for schedule slippage.

3.13 True off-the-shelf projects such as the C-17 Heavy Airlift and Super Hornet projects, where virtually no changes are made to proven military equipment and the equipment is available from an existing production line, present the least technical and schedule risk.

3.14 In terms of risk, Australianisation of off-the-shelf equipment projects sits between developmental and off-the-shelf projects. Although initial assessments of such modifications may appear to present relatively low risk, experience has shown that they can introduce unforeseen complexities and risks of a magnitude that can edge a project toward becoming developmental with the attendant risks this entails. In the ARH Tiger project for example, it was never envisaged that the ADF would be the lead customer. However, slippages in the Franco German program caused the ADF to become the lead for acceptance of engineering certification for a period of time and shifted the character of the project from Australianised MOTS to a first of type equipment acquisition. The Lessons Learned section of this report elaborates on this aspect.

Figure 3.5 - Schedule Variance Factors by Project Type



3.15 Schedule performance is by far the biggest issue that the DMO faces in delivering projects to the ADF and this has been publicly acknowledged by the CEO DMO, Dr Gumley. Schedule delays to projects have a number of effects: increasing the overall cost of project delivery; tying up industry and DMO resources for longer than planned, which causes a direct increase in project cost and impedes the transfer of resources to other priority projects; and affecting cash flow because late delivery of goods will also delay payment. The DMO has successfully contained the cost impact of schedule delays through the use of fixed price contracts as well as seeking compensation through the imposition of liquidated damages.

3.16 With reference to Figure 3.5, off-the shelf equipments (ie with virtually no design changes and where the DMO can access existing production lines) represent the least schedule risk. These projects usually deliver within or ahead of planned schedules for delivery.

3.17 On this basis, procurement of OTS equipment emerges as the best option to minimise schedule risk; however minimisation of schedule risk is not the only factor to consider. To ensure the ADF has the best available technology to suit unique Australian requirements and offer interoperability with existing equipment, OTS equipment will not always meet Defence's needs. Despite the higher technical and schedule risk of developmental projects, these factors may justify either development of unique equipment solutions or modification of existing solutions. While the DMO's schedule performance in these projects is comparable to or better than international

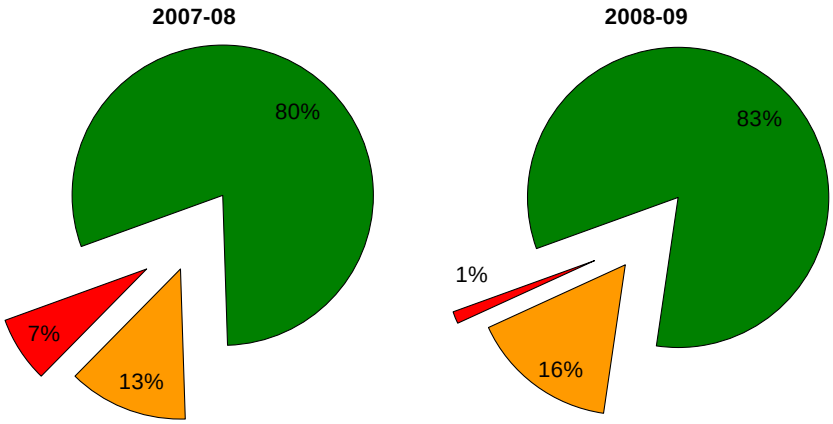
benchmarks this is not a reason for complacency. Understanding the inherent risks in these developmental projects, adopting risk reduction and risk management techniques and regularly monitoring these risks throughout the requirements development and materiel lifecycle is essential. The DMO, in supporting project approval submissions, minimises risk by ensuring the proposal is mature, the risks are clearly stated and understood, and robust risk management measures are in place.

3.18 In addition to the two-pass Government approval process, the DMO's Gate Review Assurance Board process now comprehensively examines projects at critical milestones or gates in the pre and post government approval phases of a project to ensure that the DMO has the best information available for Government to make an informed decision. Despite best planning and risk management, occasions will arise when projects will be faced with significant issues that were not forecast. The Projects of Concern unit in the DMO monitors projects that encounter these situations, devises strategies to address them, examines and reports on performance remediation and keeps Government advised throughout the process.

Project Capability

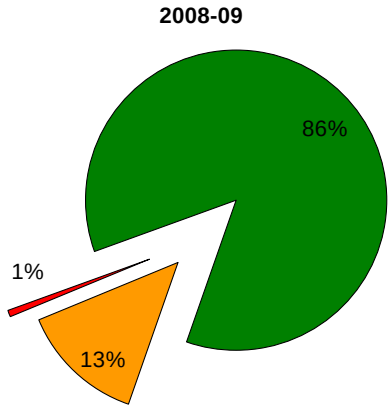
3.19 Two views of project capability are provided. Figures 3.6 and 3.7 show a comparison between the percentages of Measures of Effectiveness (MOEs) for the same nine projects reported in both the 2007–08 and 2008–09 DMO MPR.

Figures 3.6 and 3.7 – Traffic light Analysis of the Nine 2007–08 MPR Projects



3.20 Figure 3.8 breaks down the percentage of Measures of Effectiveness (MOEs), identified in the 15 MPR projects' MAAs and their respective traffic light indicators as at the end of September 2009. MOEs represent key capability performance attributes of a project which if not satisfied would have a significant effect on the eventual suitability for operational service. The individual MOEs for projects are not included for security classification reasons. The DMO has undertaken to develop a more robust KPI to the extent that this is possible given security constraints and availability of consistent measures and information across highly variable projects; in the interim, the current subjective approach will continue.

Figure 3.8 – Traffic light Analysis of the 15 2008–09 MPR Projects



3.21 The traffic lights, based on a subjective assessment, indicate:

- **Red:** MOEs that at this stage are unlikely to be met
- **Amber:** MOEs that are under threat but still considered as manageable.
- **Green:** MOEs for which there is a high level of confidence they will be met.

3.22 Of the total number of MOEs across the nine projects in the 2007–08 DMO MPR, 7% of these were reported 'Red', 13% 'Amber' and 80% 'Green'. A direct comparison with the same nine projects in 2008–09 shows 1% reported 'Red', 16% 'Amber', and 83% 'Green'. Capability performance percentages reported for the nine 2007–08 MPR projects and 15 projects in the 2008–09 MPR is not directly comparable because of the higher number of projects and the associated increase in the total number of MOEs and the fact that each project has a differing number of MOEs. Figure 3.8 indicates that 86% of all 15 projects' consolidated MOEs are likely to be or have been met. This year only

one MOE is reported 'Red' in comparison with four in 2007–08; the reduction results from the resolution of technical issues over the reporting year.

Project Lessons Learned in the 2008–09 DMO MPR

3.23 In comparison with the 2007–08 DMO MPR, this year's report features more detail on project lessons learned. To establish a historical baseline this section includes an analysis of lessons learned over the life of the projects – not solely focusing on 2008–09. Future years DMO MPRs will concentrate on lessons learned in the year of review.

3.24 Section 5 of each PDSS lists lessons learned by each project. The majority of lessons learned in the 2008–09 DMO MPR are an evolution from lessons learned earlier in the project life cycle and reflect the changing: project circumstances; interactions with Defence Industry; and technological/project complexity. In response, the DMO adopts an evolutionary approach to policy, process and procedural changes.

3.25 Rather than deal with each lesson individually, they are grouped under generic category headings to reflect the strategies adopted at the enterprise level in the DMO to address organisational level lessons. The following types of lessons learned have been identified and are discussed in more detail:

- Requirements Management (Air to Air Refuel, Armidales, Bushranger, HF Modernisation);
- First of Type Equipment (Wedgetail, Air to Air Refuel, Armidales, FFG Upgrade, MRH90);
- Off-the-shelf Equipment (ARH Tiger, C-17 Heavy Airlift, HF Modernisation, MRH 90);
- Contract Management (AWD Ships, FFG Upgrade, HF Modernisation, MRH90);
- Schedule Management (Air to Air Refuel, Bushranger, Collins RCS, HF Modernisation); and
- Resourcing (Super Hornet).

Requirements Management

3.26 **Lessons:** Requirements management is a lifecycle discipline spanning all phases of a project. It entails the implementation and management of systems engineering processes which rigorously control the translation of endorsed capability needs into engineering requirements, specifications,

design and eventual equipment performance and acceptance. Requirements management is an important consideration in all projects. These lessons learned relate to requirements management across both project development and acquisition stages.

3.27 Implementation: Since the formation of the DMO in 2000, more rigorous systems engineering processes have been put in place and refined. These are communicated to project staff through a comprehensive set of interrelated requirements management, systems engineering and verification and validation manuals and guides developed by the DMO. Operational requirements are expressed in an Operational Concept Document (OCD) that expresses the warfighter's needs. These needs are given engineering interpretation in a Function and Performance Specification (FPS) and the testing regime to demonstrate performance of delivered system solutions is captured in a Test Concept Document (TCD). The OCD and FPS comprise the requirement specifications for the materiel systems delivered by the DMO and are included in the MAAs with Defence. The DMO also includes the OCD and FPS in contracts as the basis on which suppliers' detailed specifications are developed. While the FPS states the technical requirement that needs to be satisfied, the OCD ensures that 'fitness for purpose' is maintained. Requirements traceability techniques are employed between the contracted FPS and its decomposition into contractor system and subsystem level specifications; cross referencing between requirements and test and evaluation regimes demonstrates that requirements have been satisfied.

3.28 During the design development and systems integration phases of a project, contractors are required to develop detailed and comprehensive execution plans supported by resourced schedules. The DMO's project offices scrutinise these plans and monitor their implementation taking an active role in reviewing the adequacy of the underpinning systems engineering processes. Mandated engineering reviews are incorporated in the DMO's ASDEFCON (Strategic Materiel) standard Statements of Work in contracts to provide points to review and validate contractor progress.

First of Type Equipment

3.29 Lessons: First of type equipment generally refers to equipment or systems that have not been proven in service with other military or commercial organisations and are new to the ADF. Because of limited knowledge and lack of precedent, first of type equipment projects experience a range of unique and

interrelated issues across areas like requirements management, system development and integration, verification and validation, resourcing, schedule, contract management, and complexity in establishing a sustainable in-service support system.

3.30 Implementation: Implementation of the *Defence Procurement and Sustainment Review 2008* (the Mortimer Review) addresses these lessons by requiring the DMO to be responsible and accountable for developing cost, schedule and risk analyses for military equipment, and for developing and implementing the acquisition strategy. This will build on the reform, since the implementation of the Defence Procurement Review 2003 (the Kinnaird Review), which required the DMO to have far greater involvement in the development of capability proposals. This involvement commences before projects enter the DCP and grows as projects proceed through the two-pass Government approval process to identify, manage and reduce project risk. The acquisition strategies for those projects involving first of type developmental equipment and systems require significant investment in understanding the inherent risk and then investigating and managing risk between Government approvals at First and Second Pass, as well as during contract.

3.31 The recently introduced Gate Review Assurance Boards provide independent assurance by critically examining all aspects of projects at pre-determined milestones, at different phases of their capability and materiel acquisition lifecycle, to ensure readiness for the project to proceed from one phase to the next.

3.32 The DMO has been refining its requirements and systems engineering processes, project planning, evaluation, review and contract management processes to address technical risks inherent in complex systems development and integration projects, and to plan the total costs of ownership for a capability. Further improvements are planned, to improve contracting templates and oversight to strengthen early planning of the definition and implementation of support concepts, particularly for OTS and first of type developmental systems.

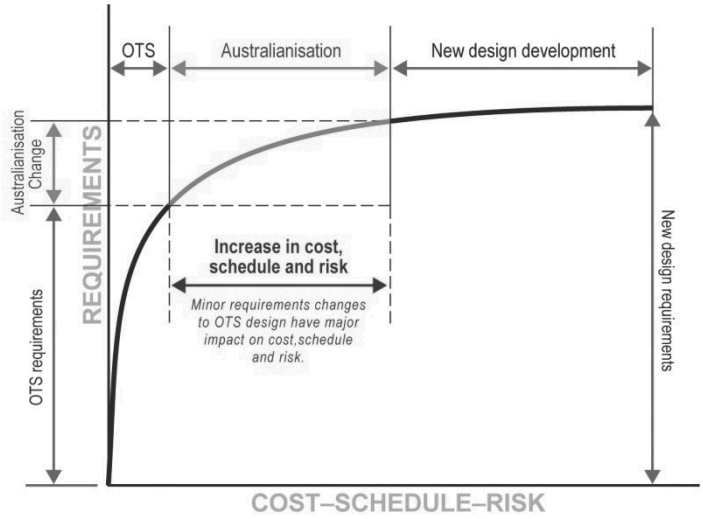
Off-The-Shelf Equipment

3.33 Lessons: Military off-the-shelf (MOTS) or commercial off-the-shelf (COTS) equipment is equipment that has been proven in service and in the inventory of a military or commercial organisation. The lessons identified by projects in the DMO MPR in relation to off-the-shelf equipment are best

understood as two distinct issues: accelerated procurement of true MOTS equipment, e.g. C-17 Heavy Airlifter and Super Hornet projects, where complexities in establishing in-service support systems have been encountered; and modified MOTS/COTS equipment such as the Air to Air Refuelling and Armed Reconnaissance Helicopter projects in which the design maturity of MOTS was underestimated.

3.34 Implementation: An important part of the two-pass Government approval process is consideration of off-the-shelf options to satisfy capability needs or an explanation of why such an option is not available. Any option that proposes Australianisation of OTS equipment must detail the rationale, and associated costs and risks. As some of the lessons recorded by DMO MPR projects show, the extent of Australianisation of an off-the-shelf equipment solution can introduce significant project risk. Figure 3.9 below illustrates the disproportionate impact that seemingly small changes to off-the-shelf equipment can have on cost, schedule and risk.

Figure 3.9 - Concept Diagram; impact on cost, schedule and risk of volume of requirements



3.35 C-17 Heavy Airlifter and Super Hornet projects were acquired with virtually no change to their base design. Because the DMO procured aircraft from an existing production line, deliveries were achieved on time. However, due to the complexity of the necessary support and support infrastructure requirements, the projects experienced difficulties in synchronising development of support capability with aircraft deliveries despite the ability to

leverage off mature US Air Force and US Navy support arrangements such as spares, repairable items and engineering and maintenance support. In response, the DMO is strengthening its guidance for the development of support concepts and support strategies at the time of capability development. This early work must emphasise comprehensive understanding of the complexity of support systems for OTS equipment.

3.36 In the case of the Air to Air Refuel and ARH Tiger projects, their design maturity was overestimated during the tender evaluation and pre-contract phases. The introduction of more in-depth risk reduction effort through offer definition processes, ahead of project approval and contract signature, is intended to assist in the early identification of such risks.

3.37 Where the DMO is acquiring equipment which is also under procurement by a foreign Government, slippages in the procurement schedule of the latter can put the DMO in the position of being a lead customer bearing an unplanned and significant proportion of risk. In the case of aircraft, airworthiness certification becomes a significant issue particularly when the ADF had planned to rely on the certification process of another military but later found itself to be the lead customer.

3.38 The DMO has been progressively updating its standard technical review processes to promote the early identification and management of developmental and integration risks through the acquisition phase of the materiel system lifecycle.

Contract Management

3.39 **Lessons:** The majority of lessons of a contract management nature were recorded by the FFG Upgrade and HF Modernisation projects. These projects were contracted in the late 1990s under a contracting template (DEFPUR 101) that did not provide the Commonwealth with a standardised approach to the management of complex technical programs. This has now been addressed with the introduction of the ASDEFCON series of DMO contracting templates.

3.40 **Implementation:** The FFG Upgrade contract was particularly complex in terms of the need to manage interfaces between a major refit program, life of type extension work and a very considerable combat systems capability upgrade which is the fundamental reason for the project. The FFG Upgrade contract was executed before final contract specifications and statements of work were finalised. A further complication was that the Commonwealth decided, midway through the contract, to reduce the number of ships in the

upgrade from six to four resulting in considerable changes to the contract and a Deed of Settlement to reflect the reduction in project scope.

3.41 Unlike the ASDEFCON Strategic Materiel template, the DEFPUR 101 contracting model did not include a standardised approach to the management of technical risks that typically arise in complex developmental and integration projects, such as the FFG Upgrade and HF Modernisation projects. Instead, individual projects developed their own approach. This meant that there was no consistent basis for monitoring the effectiveness of the various approaches. In turn, the DMO's ability to leverage improvements across the organisation to address risks that arose in such projects was limited. The deficiencies in these previous contracting approaches continue to affect the management of these two projects.

3.42 The ASDEFCON Strategic Materiel template now provides a standardised Statement of Work for large scale, software-intensive systems integration activity. This includes a set of mandated system reviews supported by checklists and guidance on the conduct of these reviews.

Schedule Management

3.43 **Lessons:** Schedule management is by far the most pressing matter for the management of DMO complex projects. International benchmarking with other Defence organisations shows that this is not a DMO unique issue. The UK *National Audit Office Major Projects Report 2008* notes that "In aggregate the 20 projects examined are now predicted to achieve their In Service Dates 483 months later than predicted when first approved. This slippage represents a 36 per cent increase in their expected timescales since the main investment decision."

3.44 The US Government Accounting Office March 2009 report entitled "*DEFENSE ACQUISITIONS Assessments of Selected Weapon Programs*" reported that across 95 programs in 2007 an average schedule delay of 22 months in delivering initial capabilities was experienced. Private sector benchmarks are not markedly different.

3.45 The ASPI *Defence Budget Brief 2008-2009* notes that "18.5% of the DMO project budget represented projects with a delay in excess of 12 months, including 17.3% with a delay in excess of 18 months".

3.46 The majority of the schedule slippages experienced by DMO projects can be attributed to industry's project performance. These slippages primarily

result from underestimating the scope and complexity of work, particularly complex systems design development and systems integration, and managing schedules of major sub-contractors.

3.47 **Implementation:** Based on these lessons learned, the DMO continues to pursue and consolidate prior schedule management initiatives. The DMO has invested heavily in building up its own scheduling skills through training and competency programs. To enforce greater rigour in the scheduling aspects of project management, the DMO project offices are required to use mandated schedule management tools with the capacity for schedule risk analysis. The DMO has also adopted a standard set of cardinal milestones across the life of a project to ensure all projects measure their schedule health at critical stages. The DMO's major contracts require contractors to provide fully resourced Contract Master Schedules and associated management plans.

3.48 Forecasting schedules for highly complex projects is a difficult task. Payment incentives for timely delivery by contractors including liquidated damages have been facilitated by linking payment milestones to physical achievement of work and by improving the definition of criteria for the achievement of these milestones. Payments based on earned value are now restricted to 30% except in unusual circumstances. With significant cash flow impacts as a consequence, contractors are now conducting more critical examination of achievability of their schedules than they might have done in the past.

Resourcing

3.49 **Lessons:** Adequate and timely resourcing of industry and DMO project teams is a pre-requisite to successful project outcomes. This is particularly important at the start up phase of a project with the multitude of activities necessary to ramp up the project such as developing and implementing detailed management plans, placing key subcontracts and ensuring long lead design work and equipment procurement is advancing at a pace commensurate with the contract master schedule. Any delay in these preliminary stages of a project life is, in the DMO's experience, very difficult to recover as the project develops.

3.50 At various stages throughout the project the emphasis on activities will change. This will result in corresponding changes to the demand and priority for specialist staff from both the DMO and industry. The test and evaluation phase, for example, requires the DMO to have available both engineering and

operational staff from the Services in sufficient numbers to support the verification and validation program.

3.51 **Implementation:** The DMO's contracts for strategic procurements require contractors to have a detailed Contract Start Up Plan that describes the contractor's strategy, methodology and the activities necessary to ensure an orderly start up of the contract. Progress against this plan is regularly monitored throughout the contract start up stages. The contractor's Project Management Plan and other related management plans and schedules enable the DMO to gain visibility of how planning and resourcing is being managed to meet delivery schedules.

3.52 In the DMO, staff resources are managed at Agency-wide, Divisional and Branch levels through the establishment of workforce plans. At the project level, staffing plans are developed by individual project offices to forecast staff demand and skill requirements over the course of the project.

3.53 The DMO's strategy to address whole-of-workforce challenges focuses on building organisational capability and productivity through effective attraction, retention, and professionalisation of all staff. The corporate recruitment campaigns have targeted critical job disciplines, graduate, cadet and trainee programs, while continuing to develop university partnerships to ensure that graduate programs take account of the DMO's skills needs.

3.54 In addition to initiatives to improve workforce planning, the DMO continues to refine professionalisation and training programs to ensure the DMO staff have the necessary skills and competence. Professionalisation in core skills such as project management, engineering, logistics and financial and contract management disciplines remains a priority. Where no other options are available, the DMO can engage professional service providers to fill temporary gaps; however the DMO prefers to use Australian Public Service or military staff where domain expertise or experience is necessary.

Conclusions

3.55 Analysis across the 15 projects is somewhat limited by the sample size, their short reporting history in the DMO MPR and differing stages in the project life cycle. These aspects will improve in subsequent years with further additions to the number of projects included in the DMO MPR, longer reporting histories through successive DMO MPRs and greater maturity of projects when the more recently approved projects, like the AWD and LHD

Ships, have progressed. The current PDSS format and content also constrain more extensive qualitative and quantitative analysis. Nevertheless, across the 15 MPR projects, schedule – not cost – performance is clearly seen as the most significant risk and issue for DMO project management.

Part 3. Auditor-General Review, CEO DMO Statement and Project Data Summary Sheets

Independent Review Report by the Auditor-General

Auditor-General for Australia

Independent Review Report by the Auditor-General on the Defence Materiel Organisation's Project Data Summary Sheets

To the President of the Senate
To the Speaker of the House of Representatives

Scope

Subject to the following paragraphs, I have undertaken a review of the accompanying Project Data Summary Sheets (PDSSs) as at 30 June 2009 against the 2008–09 PDSS Guidelines (the Guidelines) for 15 major capital equipment acquisition projects for which the Defence Materiel Organisation (DMO) is responsible. The 15 projects are:

- Air Warfare Destroyer Build – SEA 4000 Phase 3
- Bridging Air Combat Capability – AIR 5349 Phase 1
- Multi Role Helicopter – AIR 9000 Phase 2, 4 & 6
- Airborne Early Warning and Control Aircraft – AIR 5077 Phase 3
- Amphibious Deployment and Support – JP 2048 Phase 4A/4B
- Armed Reconnaissance Helicopter – AIR 87 Phase 2
- Air to Air Refuelling Capability – AIR 5402
- C-17 Globemaster III Heavy Airlifter – AIR 8000 Phase 3
- F/A-18 Hornet Upgrade – AIR 5376 Phase 2
- Guided Missile Frigate Upgrade Implementation – SEA 1390 Phase 2.1
- F/A-18 Hornet Upgrade Structural Refurbishment – AIR 5376 Phase 3.2
- Bushmaster Protected Mobility Vehicle – LAND 116 Phase 3
- High Frequency Modernisation – JP 2043 Phase 3A
- Armidale Class Patrol Boats – SEA 1444 Phase 1
- Collins Replacement Combat System – SEA 1439 Phase 4A

My review encompassed all of the information in each PDSS, including cost and schedule performance and capability delivered against contracted requirements, but did not include an assessment of the following information.

(a) Major Challenges in Table 1.2, and Table 4.1 (Major Project Risks) and Table 4.2 (Major Project Issues).

(b) Future dates that are 'forecasts' regarding a project's expected achievement of delivery schedules and capability where included in Sections 1, 3 and 4 of each PDSS.

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By its nature, the identification of major project Risks and Issues and the achievement of future dates involves uncertainty because it relates to events and depends on circumstances that may or may not occur, or which may have occurred but have not yet been identified, and this range of circumstances can cause these items to differ materially from those stated in the PDSSs. The Statement by the CEO DMO also refers to the uncertainty of unknown risk events that may emerge in the future. Additionally, DMO's systems and processes are not sufficiently mature without considerable additional examination by the Australian National Audit Office (ANAO) to provide assurance in relation to the completeness and accuracy of the above-mentioned information. In view of these factors, it was not feasible to obtain an appropriate level of assurance for the purpose of this review in respect of the information presented.

The Responsibility of the Chief Executive for the Project Data Summary Sheets

The Chief Executive of the DMO is responsible for the preparation and presentation of the unclassified PDSSs for the 15 projects outlined in the scope, in accordance with the Guidelines. This responsibility includes ensuring the completeness and accuracy of each project's cost and schedule performance and capability delivered against contracted requirements in each PDSS, without disclosing information of a classified nature.

The Auditor's Responsibility

My responsibility is to express an independent conclusion based on my review.

My review has been conducted in accordance with the Australian Standard on Assurance Engagements, ASAE 3000 *Assurance Engagements Other than Audits or Reviews of Historical Financial Information* issued by the Australian Auditing and Assurance Standards Board. My review is designed to enable me to obtain sufficient appropriate evidence to form a conclusion on whether anything has come to my attention to indicate that the information and data in the PDSSs that is within the scope of my review has not been prepared, in all material respects, in accordance with the Guidelines.

Independence

In conducting the review, I have followed the independence requirements of the Australian National Audit Office, which incorporate the requirements of the Australian accounting profession.

Review criteria and methodology

The criteria that have been used to conduct my review are based on the Guidelines and include whether the DMO has procedures in place designed to ensure that project information and data were recorded in a complete and accurate manner for each project.

I have conducted the review of the PDSSs, as explained in the above **Scope** section, for the 15 projects by making such enquiries and performing such procedures as I, in my professional judgement, considered reasonable in the circumstances including:

- an examination of each PDSS;
- a review of relevant procedures used by the DMO to prepare the PDSSs;
- a review of documents and information relevant to the PDSSs;
- interviews with persons responsible for the preparation of the PDSSs and those responsible for the management of the 15 projects; and
- an examination of the statement and management representations by the DMO Chief Executive, the DMO managers, and confirmation from the Capability Managers relating to the stated dates within the PDSSs for Initial Operational Capability and Final Operational Capability, as well as any other material matters in relation to the PDSSs.

A review of this nature provides less assurance than an audit.

Basis for Qualified Conclusion

The Statement by the CEO DMO indicates that certain base date contract figures in Tables 2.6 and 2.7 have not been included, as the DMO resource effort and cost to calculate the base date contract amounts has been seen to be excessive and consequently DMO has not reported base date price at signature or at 30 June 2009 or progress payments at base date price at 30 June 2009, as required by the Guidelines, for the following projects:

Price at Signature (Table 2.6) not reported for:

- F/A–18 Hornet Upgrade – AIR 5376 Phase 2
- F/A–18 Hornet Upgrade Structural Refurbishment – AIR 5376 Phase 3.2

Price at 30 June 2009 (Table 2.6) not reported for:

- F/A–18 Hornet Upgrade – AIR 5376 Phase 2
- F/A–18 Hornet Upgrade Structural Refurbishment – AIR 5376 Phase 3.2
- Collins Replacement Combat System – SEA 1439 Phase 4A

Progress Payments (Table 2.7) not reported for:

- Air Warfare Destroyer Build – SEA 4000 Phase 3
- Bridging Air Combat Capability – AIR 5349 Phase 1
- Armed Reconnaissance Helicopter – AIR 87 Phase 2
- C–17 Globemaster III Heavy Airlifter – AIR 8000 Phase 3
- F/A–18 Hornet Upgrade – AIR 5376 Phase 2
- Guided Missile Frigate Upgrade Implementation – SEA 1390 Phase 2.1
- F/A–18 Hornet Upgrade Structural Refurbishment – AIR 5376 Phase 3.2
- Bushmaster Protected Mobility Vehicle – LAND 116 Phase 3
- High Frequency Modernisation – JP 2043 Phase 3A
- Armidale Class Patrol Boats – SEA 1444 Phase 1
- Collins Replacement Combat System – SEA 1439 Phase 4A

This departure from the Guidelines constitutes a basis for a qualified conclusion of my review.

Qualified Conclusion

Based on my review described in this Report, except for the departure from the Guidelines described above, nothing has come to my attention that causes me to believe that the information in the PDSSs within the scope of my review has not been prepared, in all material respects, in accordance with the Guidelines.

Ian McPhee
Auditor–General

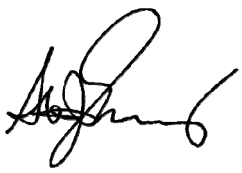
Canberra ACT
13 November 2009

Statement by the CEO DMO

The attached Project Data Summary Sheets for the fifteen major projects included in this report have been prepared in accordance with Guidelines developed by the DMO in consultation with the Australian National Audit Office.

In my opinion, the Project Data Summary Sheets comply in all material respects with the Guidelines and reflect the status of the projects as at 30 June 2009. In stating this opinion I acknowledge that:

- Base date contract figures for certain projects in Tables 2.6 and 2.7 have not been included as the DMO resource effort and cost to calculate the base date amounts has been seen to be excessive.
- Table 4.1 lists known major project risks that have been identified as at 30 June 2009, but by the very nature of risks, the list is not purported to be complete because of unknown risk events that may emerge in the future.



Dr Stephen Gumley
Chief Executive Officer

12 November 2009

Project Data Summary Sheets

2008–09 PDSS Guidelines

The PDSS presented in this report have the same data format that was presented in the previous 2007–08 DMO MPR and endorsed by the JCPAA.

The DMO and the ANAO have signed an arrangement under sub-section 20(1)(c) of the *Auditor-General Act 1997*. This arrangement sets out the details of this arrangement between the DMO and the ANAO for the review of PDSS for the fifteen major capital equipment acquisition projects in this report as at 30 June 2009. This arrangement includes detailed PDSS Guidelines which require each PDSS prepared by the DMO to contain materially accurate data supported by evidence considered necessary by the ANAO to conduct its assurance review of the data in the PDSS.

The PDSS Guidelines:

- identify and define the roles of each organisation involved in producing the DMO MPR;
- provide a list of projects to be included in the 2008–09 DMO MPR;
- provide an activity schedule for the organisations involved;
- provide detailed instructions on the development of project specific PDSS and the supporting evidence necessary for ANAO review of data;
- provides general guidance on the report's formatting conventions and the security classification of data; and
- describe the processes and procedures necessary for producing the annual DMO MPR.

PDSS Presentation

Each PDSS is presented in order of projects by largest budget size. Projects that have previously been reported in the 2007–08 DMO MPR are noted as such below their heading, with updated information from that reported in the 2007–08 DMO MPR clearly differentiated in bold purple formatted text.

AIR WARFARE DESTROYER BUILD

SEA 4000 Phase 3

This project was first reported in the 2008–09 DMO MPR

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Warren King
Deputy Program Manager	Mr Michael Aitchison
Deputy Program Manager	CDRE Peter Marshall
Program Manager	Mr Warren King

History	Name	Start	End
Program Manager	Mr Warren King	Oct 07	Current

1.2 Project Context

Project	Explanation
Description	The $8,261 million Sea 4000 Phase 3 Air Warfare Destroyer Project will acquire three *Hobart* Class Air Warfare capable Destroyers (AWD) and their support system for the ADF. The capability provided by the AWDs will form a critical element of the ADF's joint air warfare defence capability and will contribute to a number of other joint warfare outcomes.
Background	The Program began, following the adoption by Government of the 2000 Defence White Paper, with an initial phase which assessed requirements and alternatives for an air warfare destroyer. In May 2005 the Government granted first pass approval to the Program, allowing commencement of Phase 2, the Design phase. Phase 2 oversaw the development of two platform designs: ▪ The 'Existing' design based upon a modified version of the Navantia designed and built F-100 warship as the Australianised military off-the-shelf option; and ▪ The 'Evolved' design produced by Gibbs & Cox developed from an in-house design utilising design features of the US Navy class of Aegis Guided Missile Destroyers. In May 2005, the Government selected ASC AWD Shipbuilding Pty Ltd as the shipbuilder for the AWD Program and determined that the ships should be built in Adelaide. Raytheon Australia Pty Ltd was chosen as the Combat System Systems Engineer. In October 2005, Defence sought and received Government approval to acquire three *Aegis* Weapon Systems to provide the core air warfare capability of the AWD. The Commonwealth subsequently entered into a US FMS agreement for the acquisition of the *Aegis* weapons system comprising: ▪ Three Aegis Weapon System sets, and ▪ Associated engineering services and integrated logistic support. In June 2007, at Second Pass, the Government granted approval to commence construction of the *Hobart* Class Air Warfare Destroyer utilising the Existing design. This decision initiated the current phase of Project Sea 4000 Phase 3, the construction phase. Phase 3 includes detailed design, procurement, ship construction, and set to work of the *Aegis* Combat System and the F100 based Platform Systems. This culminates in the delivery of three *Hobart* Class AWDs together with the ships support systems including initial spares and ammunition outfits, and initial crew training. Phase 3 concludes with the delivery to the Navy of the third AWD, HMAS *Sydney.* At Second Pass, the Government approved Defence's proposal to close Sea 4000 Program Phase 2, Design, and Phase 3.1, *Aegis* acquisition activities, and combine the remaining Phase 2 and Phase 3.1 scope and funding with Sea 4000 Program Phase 3.

Uniqueness	The Sea 4000 Air Warfare Destroyer Program is currently one of Australia's largest and most technically complex Defence projects. The AWDs will be the Navy's first *Aegis* equipped ships and will be the most modern version of *Aegis* installed in a non US Navy ship. The AWDs are being delivered through an Alliance based contract arrangement involving ASC AWD Shipbuilder, Raytheon Australia and the Commonwealth, represented by the DMO. The Alliance based contract arrangement is described in greater detail in the "Contractual Framework" Section.
Contractual Framework	The Alliance based contract arrangement was signed in October 2007. Alliance based contracting has delivered highly successful outcomes in complex projects such as construction of the National Museum of Australia and current upgrades to the Hume Highway in southern New South Wales. The Alliance based contract arrangement should deliver similar benefits, although it also incorporates additional features to protect the Commonwealth's essential interests. The key features of the AWD Alliance and the operations of the Alliance based contract arrangement include: ▪ The Industry Participants (Raytheon Australia and ASC AWD Shipbuilder) are jointly and severally responsible for the delivery of the three ships and their support systems. Each party remains individually responsible for compliance with all statutory requirements. ▪ The Alliance is neither a legal body, nor a joint venture. ▪ All participants have a shared commercial interest in the outcome of the Program through pain share/gain share arrangements. The Industry Participants fee is at risk if performance is poor, however, they can benefit from delivery ahead of schedule and / or under budget. ▪ The Industry Participants are expected to use their commercial expertise and business acumen in achieving the aims of the Program. ▪ The Commonwealth retains "step in" rights to protect the national interest and the unilateral right to determine strategic issues relating to the Program. ▪ To the greatest extent possible, the Alliance accommodates emerging issues to achieve a "best for Program" outcome which considers the interests of all parties. ▪ Risk is managed through the allocation of management reserve. ▪ Procurements are executed by the Participant best placed to do so; where this is one of the Industry Participants it is done in accordance with their processes and procedures. ▪ All financial accounting is on an "open book" basis. The Commonwealth entered into a Platform System Design contract with Navantia, the ship designer, in October 2007. This contract is managed by the AWD Alliance under the Alliance based contract arrangement. The *Aegis* combat system is being procured by the Commonwealth under the FMS agreement with the US Navy. This agreement is managed by the AWD Alliance under the Alliance based contract arrangement. While Navantia and the US Navy (and its equipment supplier, Lockheed Martin) are not part of the Alliance, they work closely with the Alliance and are treated in an alliance like manner.
Major Challenges	The major challenges the project faces are: ▪ Achieving a mature design package by Critical Design Review in December 2009, this includes the successful integration of the Australianised weapons and sensor package in the existing platform. ▪ Ensuring that the Alliance participants and their sub contractors have access to appropriately skilled and experienced labour for effective management of the Program, building and testing the ships, and establishing the support systems. ▪ Achieving timely delivery of items being manufactured by sub contractors for the Alliance participants, from multiple locations within Australia and around the world. ▪ Delivering an appropriately structured support system to enable the ships to be properly sustained through life. ▪ Establishing an efficient working shipyard from a green field site (at Osborne, South

	Australia) ▪ Adapting the build strategy and methodology of the Spanish ship designer, Navantia, to the different Australian shipbuilding environment.
Current Status	**Cost Performance** Cost performance during the 2008–09 Financial Year is better than planned due to early equipment procurement. The project is currently progressing within the approved budget. **Schedule Performance** Progress to achievement of planned in service dates for the three ships and their support system is as scheduled although the selection of the block suppliers was approximately six months later than planned. The three ships are planned for delivery in December 2014, March 2016 and June 2017 respectively. **Capability Performance** The current status is that planned capability will be achieved.

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	NA	May 05	NA
Second Pass	Jul 07	Jun 07	(1)

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
AWD Alliance	3 AWDs and support systems	Variable with Pain/Gain Share	Alliance	Oct 07
Navantia	Platform Design	Fixed with indices escalation	Alliance based	Oct 07
US Ny	3 *Aegis* Combat Systems	FMS	FMS	Oct 05

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
N/A	N/A

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage:	Benchmark	6	6	7	6	6	7	7	45
Preliminary Design Review	Current Project	7	7	7	7	7	6	6	47
	Explanation	▪ Commercial: finalisation of block contracts has been delayed. The impending contract signatures will close a significant commercial risk. ▪ Operations and Support: support system activities are progressing with planned lead in reviews and the detailed design review for the support system scheduled in 2010. ▪ Schedule, cost, technical understanding and technical difficulty attributes are rated higher than the benchmark for this stage.							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
7,207.4	709.2	344.1	0	8,260.7

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
N/A	N/A	N/A	N/A
Total	N/A	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
8,260.7	1,175.3	7,085.4

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
694.2	734.3	40.1

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
(45.0)	FMS	FMS under spend represents, in part, some cost savings on the program. Local industry overspend relates to procurements and placement of contracts earlier than anticipated in the budget. These variations to budget are not related to work brought forward from 2009–10.
(9.0)	Commonwealth delay	
94.1	Local industry	
40.1	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
AWD Alliance	4,323.1 (Oct 07)	4,379.9 (Oct 07)	AWDs and Support Systems	3	3
Navantia	373.6 (Dec 06)	377.9 (Dec 06)	Platform System Design and Services	N/A	N/A
FMS	1,259.3 (Sep 08)	1,259.3 (Sep 08)	Weapon System Acquisition Support	N/A	N/A
			Aegis Weapon System, Long Lead Material	3	3
			Additional Aegis Material	N/A	N/A
			Additional Systems and Services	N/A	N/A
Explanation	The FMS Case signed pre Second Pass project approval involved three contractual steps (initial version and two amendments); October 2005 for initial engineering services, April 2006 for long lead items and July 2006 for the full scope of three ship sets of core Aegis Combat System equipment. The resulting scope was in accordance with Government approval of Sea 4000 Phase 3.1. Post Second Pass, there has been one further amendment to the FMS Case for additional Aegis Combat System equipment and services. This amendment is in accordance with Government approval at Second Pass of the full scope of Sea 4000 Phase 3. There will be further amendments to the FMS Case to cover the full planned scope of FMS supplies, still within Second Pass Government approval, and this could represent significant cost risk due to the uncertainty of future US Navy orders for Aegis systems.				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
N/A	N/A	N/A
Explanations	Contract expenditure in base date dollars has not been provided for this project. Because of the multiple number of contracts in varying base date dollars, progress payments in base date dollar terms is not feasible.	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Functional	AWD Program	Mar 08		Apr 08	1
Preliminary Design	AWD Program	Dec 08		Feb 09	(1)
Critical Design	AWD Program	Dec 09	Dec 09	Feb 10	(1)
Variance Explanations	Note(1): The PDR was conducted as scheduled in December 2008 and completed as scheduled in February 2009. The CDR is scheduled to be conducted in December 2009 and completed in February 2010.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	(2)				
Acceptance	Ship 1 – Commencement of Category 5 Trials	Aug 14	Aug 14	Aug 14	0
	Ship 1 – Provisional Acceptance	Dec 14	Dec 14	Dec 14	0
	Ship 2 – Commencement of Category 5 Trials	Nov 15	Nov 15	Nov 15	0
	Ship 2 – Provisional Acceptance	Mar 16	Mar 16	Mar 16	0
	Ship 3 – Commencement of Category 5 Trials	Feb 17	Feb 17	Feb 17	0
	Ship 3 - Provisional Acceptance	Jun 17	Jun 17	Jun 17	0
Variance Explanations	Note(2): The System Integration Test and Evaluation events have not been finalised. They will be finalised following completion of AWD Program Critical Design Review, currently scheduled for February 2010.				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
IOC	Jun 16	Jun 16	0	N/A

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC	Dec 18	Dec 18	0	N/A

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
Change: any change introduced to the existing platform design will have cost and schedule impact. Pressure for change could occur for a variety of reasons including: ▪ Customer demand. ▪ Legislative and compliance requirements. ▪ Equipment obsolescence.	Recognise that the program will have to manage change. Effectively engage with all stakeholders to ensure that they understand the potential implications of change to cost and schedule. Provide robust mechanisms to control the authorisation of change. Ensure that where change is required that it is approved and implemented in an appropriate phase of the program.
Infrastructure: there are significant risks in the development of a green field shipyard: ▪ Physical infrastructure. ▪ IT Systems and tools. ▪ Working practices and procedures.	Monitor the progress of physical infrastructure development. Undertake rigorous analysis and design of the support tools. Develop mechanisms to test systems, processes and tools prior to commencement of full scale production. Undertake pre-production build activities to demonstrate solution viability.
Design Maturity: the design of the AWD is based on the Navantia Platform System with an Australianised *Aegis* Combat System. There is risk in achieving the appropriate level of design maturity for the integrated solution. The key issues driving this risk are: ▪ The current version of the Aegis Weapon System has not been previously integrated in the platform. ▪ The selection of Electronic Warfare and Communications Systems solutions has been delayed to take advantages of technology developments. ▪ Equipment selections may impact on the topside design.	The selection of an existing design significantly reduced overall program risks. The risks associated with the integration of the Aegis Weapons System are being actively managed through regular reviews between the Alliance, Platform System Designer, US Navy and Lockheed Martin (the Aegis equipment supplier to the US Navy). Ensure emerging issues are identified and addressed. Electronic Warfare and Communications and Information Systems procurement strategies are developed with a wide range of stakeholder engagement. These strategies are aimed at ensuring that the customer will be satisfied with the selected solution and that the solution will have minimal impact on the platform design. Ensure timely decisions are made. Equipment selections are undertaken in conjunction with quick look topside design studies, this will minimise the risk of impact to topside design.

4.2 Major Project Issues

Description	Remedial Action
The Program does not have an agreed Project Certification Plan and Certification Basis. The lack of an agreed Project Certification Plan and Certification Basis may have a significant impact on cost and schedule.	Engage the appropriate stakeholders to ensure there is high level commitment to expeditiously agreeing the Project Certification Plan and Certification Basis. Deadlines have been set for the agreement of the Project Certification Plan and Certification Basis.

4.3 Linked Projects

Project	Description of Project	Description of Dependency
N/A	N/A	N/A

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
Phase 3 commenced with the formation of the Alliance, a new organisational structure. Alliance based contracting offers significant advantages over traditional contracting methods but it must be recognised that it takes time and effort to develop the culture necessary to achieve improved outcomes. Visible high level management commitment is required from all parties. An external facilitator was engaged to assist in the initial and ongoing development of the Alliance and this has proved invaluable.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
The majority of combat and platform systems equipments have been selected and most combat systems are under contract. Subcontractors for the fabrication of hull blocks have been selected and steel fabrication is planned to commence before January 2010. Infrastructure work at South Australia's Common user Facility (Techport) and the ASC Shipyard are well underway.

BRIDGING AIR COMBAT CAPABILITY

AIR 5349 Phase 1

This project was first reported in the 2008–09 DMO MPR

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	AVM Colin Thorne
Branch Head	AIRCDRE Axel Augustin
Project Director	GPCAPT Graham Edwards

History	Name	Start	End
Project Manager	Mr Simon Barnes	Mar 08	Current
	Mr Stephen MacDonald	Feb 07	Feb 08

1.2 Project Context

Project	Explanation
Description	The $4,310 million Project Air 5349 Phase 1 will acquire 24 Boeing F/A-18F Super Hornets, associated weapons, support, and training systems to establish a bridging air combat capability.
Background	In November 2006, Government directed Defence to develop options to de-risk the transition from the current ADF air combat capability to the new air combat capability being acquired under Project Air 6000. To achieve this, Defence established Project Air 5349 to acquire a bridging air combat capability for the ADF. In March 2007, a joint sitting of the Expenditure Review Committee and National Security Committee of Cabinet approved the acquisition and sustainment of 24 F/A-18F Super Hornet aircraft and associated weapons, support, and training systems. Under Project Air 5349 Ph 1, 24 F/A-18F Super Hornet aircraft and associated training and support systems will be acquired primarily through FMS Cases with the US. The 24 F/A-18F Super Hornet aircraft being acquired include alternate mission equipment; electronic warfare equipment (with an Australian-unique data library); targeting pods; communication and navigation suites. The training systems being acquired include tactical flight simulators (known as Tactical Operation Flight Trainers), cockpit procedural trainers (known as Low Cost Trainers), and maintenance training simulators (known as Integrated Visual Environment Maintenance Trainers). The support systems being acquired include an automated maintenance environment, support and test equipment to operate and maintain the aircraft, initial aircrew and maintenance training; and the provision for three years worth of repairable items and breakdown spares, including fly-away-kits. Weapons for the Super Hornet aircraft are being acquired under a separate project phase, Air 5349 Phase 2. Integration of weapons onto aircraft is within the scope for Phase 1.
Uniqueness	The F/A-18F Super Hornets are a military-off-the-shelf aircraft acquisition. The aircraft are common with US Navy F/A-18F Super Hornets with the only significant configuration difference being the inclusion of a civilian-compatible Instrument Landing System. The F/A-18F Super Hornets was a directed Government solution resulting from the combined first and second pass project approval process. The timeframe between the Government approval of the project and the Initial Operational Capability date is significantly shorter than for other major aerospace acquisitions. The majority of acquisition activity is being undertaken through a US FMS Sales Case.

Major Challenges	Whilst the aircraft are military-off-the-shelf with a current production line running, the acquisition of the training and support systems needed requirements definition and design development activities so that they could be integrated into existing Australian operational and sustainment infrastructure.
Current Status	**Cost Performance** The project remains within its current approved budget. **Schedule Performance** The project remains on schedule in order to meet IOC by December 2010 and FOC by December 2012 noting the challenges discussed above. **Capability Performance** The capability requirements for the project are expected to be fully satisfied, noting the risks discussed later relating to Instrument Landing System and the Navigation capability.

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	Mar 07	Mar 07	0
Second Pass	Mar 07	Mar 07	0

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
US Government	Procurement of F/A-18F Super Hornet Aircraft, Training and Support Systems	FMS	FMS	May 07

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
Air 5349 Phase 2	Phase 2 will acquire within-visual-range air-to-air missiles, a new variant of a beyond-visual-range air-to air missile, and medium-range air-to-surface missiles for the Australian Super Hornet. New infra-red flares are also being acquired for the Australian Super Hornet.

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage: System Integration & Test	Benchmark	7	8	8	8	8	8	8	55
	Current Project	8	8	8	8	8	8	7	55
	Explanation	Schedule: Higher than benchmark confidence in schedule for this stage. Operations and Support: Operating system elements are being procured but not yet integrated.							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
3,545.8	312.6	484.7	(33.3)	4,309.8

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Jul 08	(33.3)	Transfer	Guidance Transfer to DSG Facilities element.
Total	(33.3)	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
4,309.8	1,275.4	3,034.4

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
559.6	934.7	375.1

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
352.0	FMS	The FMS variation is due to acceleration of US Navy activities resulting in contracts being signed earlier than originally forecast. The Commonwealth variation is due an FMS equity buy-in for spares and repairable parts.
33.0	Commonwealth Delays	
(9.9)	FOREX Variation	
375.1	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
US Government	2,850.3	3,104.9	F/A-18F Super Hornet Aircraft	24	24
			Wiring provisions for the Growler capability	0	12
			Spare Engines	6	6
			Forward Looking Infra-Red pods	0	18
			Tactical Operation Flight Trainers	0	2
			Low Cost Trainers	0	2
			Integrated Visual Environment Maintenance Trainers	0	2
			Support System	1	1
Explanation	▪ Original FMS Case value based on accelerated schedule with some scope items not included in initial version of the FMS Case. ▪ Initial FMS Case based on leasing the trainers. Subsequent costings indicated that the Commonwealth owning the training devices provided better value for money. ▪ In May 2009, Government approved an initial investment to wire 12 F/A-18F Super Hornet aircraft with wiring for potential future conversion to EA-18G Growler configuration. ▪ Two FMS Case amendments have been made to capture both the residual scope items and the Growler wiring enhancement.				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
FMS	3,104.9	N/A
Explanations	Contract expenditure in base date dollars has not been provided. FMS Letters of Offer and Acceptance values are estimates of the expected cost of the goods and services being provided by the US Government and are stated in then year dollar terms i.e. with price escalation built in. Payments are therefore made in escalated dollar amounts and it would be difficult to de-escalate individual payment transactions to a base date dollar amount. The cost to resource this activity would outweigh the benefits to be gained by its inclusion.	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
Software Design	Aircraft software	Feb 08	Feb 08	Feb 08	0
System Requirements	Aircraft	N/A	N/A	N/A	N/A
	Automated Maintenance Environment	Oct 08	Oct 08	Oct 08	0
	Electronic Warfare data library	Jul 08	Jul 08	Jul 08	0
	Tactical Operation Flight Trainers	Oct 08	Oct 08	Oct 08	0
	Low Cost Trainers	Oct 08	Oct 08	Oct 08	0
	Integrated Visual Environment Maintenance Trainers	Oct 08	Oct 08	Oct 08	0
Preliminary Design	Aircraft	N/A	N/A	N/A	N/A
	Automated Maintenance Environment	Nov 08	Nov 08	Nov 08	0
	Electronic Warfare data library	Oct 08	Dec 08	Dec 08	2
	Tactical Operation Flight Trainers	Note 1			
	Low Cost Trainers	Note 1			
	Integrated Visual Environment Maintenance Trainers	Note 1			
Critical Design	Aircraft	Jul 08	Sep 08	Sep 08	2
	Automated Maintenance Environment	Feb 09	Mar 09	Mar 09	1
	Electronic Warfare data library	Dec 08	Mar 09	May 09	5
	Tactical Operation Flight Trainers	Apr 09	Apr 09	Apr 09	0
	Low Cost Trainers	Apr 09	Apr 09	Apr 09	0
	Integrated Visual Environment Maintenance Trainers	Jan 09 – Oct 09	Jan 09 – Oct 09	Jan 09 – Oct 09	0
Variance Explanations	▪ No Aircraft Systems Requirement Review or Preliminary Design Review for the project as the aircraft is a MOTS design. ▪ The Aircraft Critical Design Review was delayed due to the Instrument landing System integration requiring re-design. ▪ The Electronic Warfare data library preliminary design review was delayed due to the US Navy adopting a new design process, and the issue of classified data being unable to be released ▪ The Critical Design Review for the Automated Maintenance Environment slipped by one week. ▪ The Integrated Visual Environment Maintenance Trainers follow a spiral development path with several combined Preliminary/Critical Design Reviews beginning in January 2009 and continuing through until October 2009. Note 1: Preliminary and Critical Design Reviews were combined to meet delivery targets.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	Instrument Landing System antennae qualification	Jul 08	Apr 09	May 09	10
	Instrument Landing System - Aircraft Integration Test	Jan 09 – Mar 09	Mar 09 – Apr 09	May 09 – June 09	3
	Aircraft software integration	Mar 09 – Jul 09	Mar 09 – Dec 09	Mar 09 – Dec 09	5
	Electronic Warfare data library	Mar 09	Oct 09		7
	Automated Maintenance Environment	Aug 09	Aug 09	Aug 09	0
Acceptance	1st Aircraft Production Test (Boeing)	Jul 09	Jul 09	Jul 09	0
	Aircraft Post-Production Test and Evaluation (US Navy)	Jul 09 – Oct 09	Jul 09 – Dec 09	Jul 09 – Dec 09	2
	Electronic Warfare data library	May 09	Dec 09	Dec 09	7
	Automated Maintenance Environment	Aug 09	Aug 09	Aug 09	0
Variance Explanations	▪ Instrument Landing System antennae qualification and integration tests delayed due to a test failures of the antennas and the need to redesign. ▪ Airframe Integration Test – Slip due to failure of Instrument Landing System antennae, ▪ Software Integration – classified. ▪ The Electronic Warfare data library testing was delayed due to the US Navy adopting a new design process, and the continuing issue of classified data being unable to be released. ▪ Post-production test and evaluation affected by the delays in the instrumented landing system qualification and aircraft software integration.				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
IOC	Dec 10	Dec 10	0	N/A

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC	Dec 12	Dec 12	0	N/A

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
There is a possibility that the schedule will be affected by the availability of an immature support system, delays in the aircraft software, and facilities at Amberley.	▪ Utilise US Navy Support for initial support requirements. ▪ Liaise with the facilities contractor through Defence Support Group to better align the facilities completion sequence with the needed dates.
There is a possibility that the training devices will be accepted and certified late due to the lateness in the finalisation of the aircraft software testing leading to a delay to the commencement of Australian-based aircrew and maintenance training.	▪ Reprogram the commencement of Australian-based training. ▪ Extend the US-based training to cover more aircrew and maintainers. ▪ Change the initial Australian-based training program to remove reliance on training devices.

There is a possibility that the new training facility for the Aircrew Training Devices will be later than needed delaying installation, acceptance and certification of the Aircrew Training Devices.	▪ Liaise with the facilities contractor through DSG to better align the facilities completion sequence with the needed dates.
There is a risk that the FOC date of December 2012, will be affected by the requirement for an additional civilian-compatible en-route navigation and non-precision approach aid capability in the aircraft not being satisfied resulting in a reduction in operational flexibility.	▪ The US Navy has planned to integrate a GPS-based area navigation and approach capability into the Super Hornet software set in the 2012 timeframe. Current plans to maintain commonality with US Navy configuration will satisfy the issue.

4.2 Major Project Issues

Description	Remedial Action
The Instrument Landing System antennae initially failed vibration qualification testing.	▪ The antenna mounting was redesigned and regression testing is underway. ▪ Boeing fitted blanking plates to the first two aircraft to maintain production schedule and will retrofit the antennae prior to aircraft delivery.

4.3 Linked Projects

Project	Description of Project	Description of Dependency
Air 6000 New Air Combat Capability	Air 6000 introduces a new air combat capability with the functions of air superiority and strike currently provided by the ADF F/A-18 and F-111 fleets.	Air 5349 was established to de-risk the transition from the current ADF air combat capability to the new air combat capability being acquired under Project Air 6000.
Air 5402 Air to Air Refuelling Capability	Provision of five Multi-Role Tanker Transport aircraft and associated supplies and support.	Air-to-air refuelling support for extended range/duration missions.

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
A reasonable presence of Australian Super Hornet Project Staff in the US is required to enable the Commonwealth adequate insight, influence and progress reporting of the US Navy and Boeing activities.
The accelerated procurement of major materiel is possible with off-the-shelf items currently in production, but the establishment of a sustainment solution is a challenge and requires early management oversight.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
The first RAAF aircraft rolled off the assembly line in July 2009.

MULTI ROLE HELICOPTER
AIR 9000 Phase 2, 4 and 6

This project was first reported in the 2008–09 DMO MPR

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	MAJGEN Tony Fraser
Branch Head	BRIG Charles Crocombe
Project Director	COL Andrew Mathewson

History	Name	Start	End
Project Manager	COL Andrew Mathewson	Jan 08	Current
	Mr Mark Remmers	Jul 01	Jan 08

1.2 Project Context

Project	Explanation
Description	The $4,199 million Multi-Role Helicopter (MRH) Program is a key component of the ADF Helicopter Strategic Master Plan, Air 9000, that seeks to rationalise the number of helicopter types in ADF service. The MRH Program consists of three phases of Air 9000. Phase 2 is the acquisition of an additional Squadron of troop lift aircraft for Army. Phase 4 will replace Army's Black Hawk helicopters in the Air Mobile and Special Operations roles, and Phase 6 will replace Navy's Sea King helicopters in the Maritime Support Helicopter role. All three phases are grouped under the Air 9000 MRH Program.
Background	The Additional Troop Lift project was first foreshadowed in the Defence White Paper 2000. The MRH Program consists of Phases 2, 4 & 6. Phase 2 was approved initially, providing 12 additional Troop Lift helicopters for Army. Phases 4 & 6 were approved subsequently with Phase 4 as the replacement of the Black Hawk fleet, again for the troop lift capability, and Phase 6 as the replacement of the Sea King fleet, providing maritime support capability for Navy. In total, the Air 9000 MRH Program will acquire 46 MRH90 aircraft and support systems. Support capabilities, such as Electronic Warfare Self Protection Support System, MRH Software Support Centre, MRH Instrumentation System and a Ground Mission Management System, will be acquired along with training systems and in-service support. The Phase 2 Acquisition Contract was signed in June 2005 with the subsequent Sustainment and Program Agreement contracts signed in July 2005. Air 9000 Phase 4 addresses the replacement of the Australian Army's fleet of 34 S-70A-9 Black Hawk helicopters. Air 9000 Phase 6 addresses the replacement of Navy's six Sea King helicopters in the Maritime Support Role. In November 2005 the Defence Capability and Investment Committee agreed that the way forward was to seek a combined first and second pass approval for both Phases 4 and 6 as part of a single approval process. Cabinet endorsement was gained in April 2006 in a combined first and second pass process for Phase 4 and Phase 6. The agreed method of procurement, a two stage Contract Change Proposal (CCP), resulted in the execution of options contained in the Program Agreement for the procurement of additional aircraft approved under Phases 4 and 6. The Air 9000 MRH Program Office signed an initial CCP for the Acquisition, and Sustainment and Program Agreement Contracts in June 2006. A further CCP for development of associated systems including: Electronic Warfare Self Protection Support System, MRH Software Support Centre, MRH Instrumentation System and a Ground Mission Management System; as well as two part task trainers and a

	number of aircraft options were signed in October 2006. The three Air 9000 Phase 2/4/6 contracts viz. Program Agreement Contract, Acquisition Contract and Sustainment Contract incorporates both of the above CCPs. On acceptance of two MRH90, appropriate training, maintenance and supply support an In-Service Date of December 2007 was achieved with aircraft operating under a Special Flight Permit granted by the Chief of Air Force. This triggered the Sustainment Contract to come into effect and all three contracts are now currently active. Training Aids to support the (mature) sustainment training capability such as Full Flight and Mission Simulator and Ground Training Devices will be procured under separate contracting arrangements. A contract for the design, development and delivery of two MRH90 Full Flight and Mission Simulator was signed with CAE Australia in December 2007. Industry solicitation for the procurement of Ground Training Devices is scheduled for first half of 2009. Sustainment of the Full Flight and Mission Simulator will be under the existing ADF- CAE Australia simulator sustainment contract. Further ground-based training devices will be subject to supply and support under a separate procurement process. A training service contract will also be let to provide Air 9000 mature stage training using the Full Flight and Mission Simulator and Ground Training Devices procured by Air 9000.
Uniqueness	The MRH90 aircraft is based upon the German Army variant of the NH90 Troop Transport Helicopter. The MRH90 is a four-bladed, twin engine, primarily composite structure, military utility helicopter. The MRH90 design uses well established aerospace technologies, but will introduce new technologies into Army and Navy, primarily in the areas of composite structure, helmet mounted sight and display and fly-by-wire flight control systems. The certification of the MRH90 and its systems is based on prior certification programs run for other NH90 variants, primarily the German Army variant. The MRH Program includes four prime contracts with two prime contractors. Acquisition, Sustainment and Program Agreement contracts are with Australian Aerospace Ltd, and Full Flight Mission Simulator Acquisition contract is with CAE Australia. Future contracts for Ground Training Devices and Sustainment Training have not yet been put in place. The management of this number of inter-related contracts provides a high level of project complexity. Note: The only contract covered by this Major Project Report is the Acquisition Contract with Australian Aerospace. The MRH Program is providing an MRH90 capability to two main users - Army and Navy. The capability delivery complexity this introduces has been mitigated through an agreement between Chief of Army and Chief of Navy for the Director of Aviation Capability Implementation – Army to manage transition into service for both Army and Navy. This provides the project with a single interface for introduction into service issues. The MRH Program Office Design Acceptance Strategy is dependent on Delegation Generale pour l'Armament prior acceptance of the NH90 variants and certification recommendation for the MRH90, noting that Delegation Generale pour l'Armament is the Military Airworthiness Authority of the French Republic. Delegation Generale pour l'Armament's and other National Qualification Organisations' prior acceptance of the NH90 provides confidence in the MRH90 platform for the ADF to leverage off as much of the MRH90 certification evidence will be the same as that provided for other variants of the NH90 family.
Major Challenges	Immaturity of the MRH90 capability: as an outcome of the June 2008 Airworthiness Board, a significantly increased level of MRH90 aircraft and system maturity needs to be demonstrated prior to applying for an Australian Military Type Certificate and Service Release. Insufficient aircraft systems' reliability, spares availability (see Note 1) and technical documentation (see Note 2) have combined to reduce the MRH90 capability maturity to date. Note 1: The initial provision of breakdown spares was insufficient to support MRH90 operations. Significant effort by both DMO and Industry has mostly mitigated this issue. Note 2: Initial versions of the Interactive Electronic Technical Publications have not been sufficiently mature to support efficient and effective maintenance activities and flight operations. Significant effort by both DMO and Industry has mostly mitigated this issue. Insufficient flying rate of effort: since In-Service Date (December 2007), the MRH90 system

	reliability has been sub-optimal. Flying rate of effort has been significantly reduced as a result of varying aircraft systems' unserviceability. Key contractual and capability milestones may be impacted by any continued reduced flying rate of effort. New capability and maintenance capacity: The MRH90 capability and maintenance support system are being introduced through Army's 5th Aviation Regiment (5 Avn Regt). 5 Avn Regt also continues to support Black Hawk and Chinook aircraft on operations and its priority on operations necessarily impacts on the MRH90 introduction into service and the development of MRH90 maintenance support system and capacity. This conflict of priorities has a consequent knock-on effect on MRH90 flying rate of effort. Delay in aircrew Transition Stage Training: due to the inability to generate adequate aircraft flying rate of effort, aircrew training is delayed. If increased flying rate of effort is not achieved the conduct of the pilot training courses scheduled for 2009 may be impacted. The first pilot training course is now to be completed as an Australian Military Type Certificate and Service Release pre-requisite.
Current Status	**Cost Performance** The project is currently progressing within the approved budget and the capability is anticipated to be delivered within the approved budget. Some payment milestones have been replanned to reflect the progressive delivery of capability. **Schedule Performance** The Air 9000 MRH Program remains broadly on schedule. However, the delivered aircraft have achieved a lower rate of effort (hours flown) than planned and this has increased the risk to the program schedule for the transition of the MRH90 capability into service. Major milestones remain on schedule including the Navy Initial Operating Capability (IOC) June 2010, however, it is likely that the Army IOC planned for April 2011, may be delayed by up to six months. To date, five MRH90 helicopters have been accepted by the DMO and are operating with Army's 5th Aviation Regiment Townsville. A further seven MRH90 are scheduled for delivery in Calendar Year 2009. The first 12 aircraft will require an in-service retrofit (at Contractor expense) to bring them up to the full Phase 2/4/6 capability baseline. The first fully compliant Phase 2/4/6 aircraft are due for delivery in early 2010. **Capability Performance** Following achievement of In-Service Date (and acceptance of the first five aircraft) with agreed partial achievement of the contracted MRH capabilities, there has been significant work by both Industry and the MRH Program Office to define and implement a series of capability block enhancements to bring the MRH90 to contracted standards. This includes a retrofit program, at no additional cost to the Commonwealth, to progressively bring all aircraft up to the contracted standard. Aircraft system reliability and support system issues have contributed to a poor flying rate during 2008 and 2009. This poor flying rate has delayed aircraft system development and training. These issues are being addressed and are unlikely to affect the Final Operational Capability.

1.3 Project Approvals

Approval		Original	Achieved	Variance
First Pass	Phase 2	NA	NA	N/A
	Phase 4/6	NA	Apr 06	N/A
Second Pass	Phase 2	NA	Aug 04	N/A
	Phase 4/6	NA	Apr 06	N/A

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
Australian Aerospace	Supplies to be delivered under the Acquisition contract are as follows: ▪ 46 MRH 90 aircraft; ▪ Electronic Warfare Self Protection Support System; ▪ Ground based Mission planning and Management System; ▪ MRH Software Support Centre; ▪ an integrated MRH Instrumentation System; ▪ a training system.	VARIABLE	ASDEFCON (Strategic)	Phase 2 Jun 05 Phase 4/6 Jun 06

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
N/A	N/A

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage: Acceptance Testing	Benchmark	8	8	8	8	9	8	8	57
	Current Project	10	8	8	8	8	8	7	57
	Explanation	▪ Schedule: The first two MRH aircraft and support systems were accepted into service. ▪ Technical Difficulty: MRH is between "Integrated" and "Tested", as MRH is yet to achieve complete acceptance testing on all systems and sub-systems. ▪ Operations and Support: While elements of system support are defined and procurement is occurring, MRH have yet to reach the point where all elements are procured and ready for integration into the support system.							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
3.3[1]	497.1	386.9	3,311.9	4,199.2

[1] This project's original DMO budget amount is that prior to achieving Second Pass Government approval.

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Aug 04	953.9	Scope	Second Pass Approval.
Jun 06	2,565.5	Scope	Incorporation of Air 9000 Phase 4 (Black Hawk Upgrade/Replacement) and Air 9000 Phase 6 (Maritime Support Helicopter).
Oct 06	(219.0)	Transfer	The funding relates to facilities elements of the project that will be managed by DSG.
Oct 08	(20.0)	Transfer	Transfer to DSG for Facilities Infrastructure.
Oct 08	31.5	Scope	RCI is funding for Full Flight and Mission Simulator Facilities.
Total	3,311.9	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
4,199.2	1,125.2	3,074.0

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
297.6	307.3	9.7

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
6.6	Bring forward of work from 2009/10	Early achievement of milestone payment for flight mission simulator.
3.1	Overseas industry	Spares procurement payments attributed to this financial year.
9.7	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
Australian Aerospace	846.3	2,487.5	MRH90 aircraft	12	46
			MRH Instrumented System[(1)]	0	1
			Electronic Warfare Self Protection Support System	1	1
			MRH Software Support Centre	0	1
			Ground Mission Management System: Deployable Units Interim Units Fixed Sites	 2 0 0	 16 2 4
Explanation	Phase 4 and 6 scope incorporated into contract at signature of a CCP in June 2006. Note 1: Three of the MRH90 aircraft are capable of being fitted with the Instrumented System.				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
Australian Aerospace	2,487.5	921.2
Explanations	N/A	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Requirements	MRH aircraft - Phase 2	Aug 05	Oct 05	Sep 05	1
	MRH aircraft - Phase 4/6	Apr 07	Apr 07	May 07	1
	MRH Software Support Centre	N/A	Mar 07	Apr 07	1
	Electronic Warfare Self Protection Support System	N/A	N/A	Nov 05	N/A
	Ground based Mission planning and Management System	Oct 05	Oct 05	Feb 07	16
	MRH Instrumented System	N/A	Jun 07	Jul 07	1
Preliminary Design	MRH aircraft - Phase 2	Jan 06	Jan 06	Apr 06	3
	MRH aircraft - Phase 4/6	N/A	N/A	Jun 08(2)	N/A
	MRH Software Support Centre	N/A	Jun 07	Jun 07	0
	Electronic Warfare Self Protection Support System	Mar 06	Mar 06	May 06	2
	Ground based Mission planning and Management System	Jul 06	Apr 07	Jun 07	11
	MRH Instrumented System	N/A	Jun 07	Jul 07	1
Critical Design	MRH aircraft - Phase 2	May 06	May 06	Jun 06	1
	MRH aircraft - Phase 4/6	Aug 08	N/A	Oct 08(2)	2
	MRH Software Support Centre	N/A	Oct 07	Sep 07	(1)
	Electronic Warfare Self Protection Support System	Sep 06	Sep 06	Oct 06	1
	Ground based Mission planning and Management System	Nov 06	Nov 07	Jul 08	20
	MRH Instrumented System	N/A	Jun 08	Jun 08	0
Variance Explanations	Delays in the Systems Engineering process have resulted from the developmental nature of the aircraft system, with the MRH90 variant being unique in some ways. Note 2: All elements of the Phase 4/6 requirements with the exception of the Pintle Machine Gun Mount (PMGM) were completed on these dates. The PMGM requirements are in the process of being removed from the general Phase 4/6 systems engineering process and a dedicated PMGM systems engineering process is being separately developed with the contractor.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
Test Readiness Review	MRH aircraft - Phase 2	Jul 06	Nov 06	Dec 06	5
	MRH aircraft - Phase 4/6	N/A	N/A		N/A
	MRH Software Support Centre	N/A	Oct 08	Nov 08	1
	Electronic Warfare Self Protection Support System	N/A	N/A	Nov 07	N/A
	Ground based Mission planning and Management System	N/A	N/A		N/A
	MRH Instrumented System	Nov 08	May 09	Jul 09	8
Acceptance	Type Acceptance Review Special Flight Permit 1	Oct 07		Dec 07	2
	Type Acceptance Review Special Flight Permit 2	Jun 08		Jun 08	0
	Extension Special Flight Permit 2	Feb 09		Feb 09	0
	Australian Military Type Certificate	Dec 08	Mar 10		15
Aircraft Acceptance	MRH aircraft #01 (First aircraft)	Dec 08		Dec 08	0
	MRH aircraft #05 (Most recent)	Dec 08		Dec 08	0
	MRH aircraft #06 (Next aircraft)	Feb 09		Jul 09	5
	MRH aircraft #46 (Final aircraft)	Jul 14		Jul 14	0

Variance Explanations	The first Airworthiness Board (for Special Flight Permit1) was conducted in December 2007 and granted in December 2008. Achievement of the Australian Military Type Certificate has proved problematic due to insufficient levels of Rate of Effort. Rate of Effort is required to validate that in-service support arrangements for the fleet are sufficient to cope with current numbers of aircraft and are growing in maturity to meet fleet requirements. Further, the numbers of trained aircrew have been limited by the low Rate of Effort and are a criterion of Australian Military Type Certificate. With respect to MRH Instrumented System Test Readiness Review being delayed, a contract change was put in place to allow closure of action items and development of Acceptance Test procedures, between Detailed Design Review and Test Readiness Review, to a high level of maturity that would not have otherwise been achieved. MRH#06 will be the first aircraft delivered in an updated configuration defined as Product Baseline # 002 (PBL002). Acceptance of these aircraft could not be conducted until Design Acceptance of the PBL002 build standard, which is due to occur in early July 2009.

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
IOC (Navy)	Jul 10	Jul 10	0	N/A
IOC (Army)	Apr 11	Oct 11	6	The MRH Project Management Stakeholder Group agreed to the declaration of a likely program delay of "up to six months to the IOC (Army) milestone". This potential delay is being closely managed with the aim being to minimise any delay to this program. It is assessed that this potential delay will not effect the achievement of any of the other MRH90 capability milestones.

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC (Navy)	Dec 12	Dec 12	0	N/A
FOC (Army)	Jul 14	Jul 14	0	N/A

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
There is a chance that the schedule to achieve Australian Military Type Certificate and Service Release in 2010 will be adversely affected the inability to generate the required aircraft rate of effort.	Resolve technical and spares issues that restrict aircraft availability. Streamline Commonwealth and Industry support processes to maximise available flight opportunities.
There is a chance that the schedule to achieve Australian Military Type Certificate and Service Release in 2010 will be adversely affected by failing to achieve a sufficiently mature MRH System.	Measure progress against capability Key Performance Indicators. Maximise opportunities to use certification processes of other NH90 nations. Maintain focus on achieving capability milestones and targets.
There is a chance that Transition Stage Aircrew Training objectives will be affected by the failure of the Commonwealth to generate the required Rate Of Effort prior to Australian Military Type Certificate.	Place higher priority on training activities. Maximise use of Recognition of Prior Learning for students to reduce training requirements. Increase the pool of instructors as soon as possible. Make best use of available training opportunities with European operators of NH90.

4.2 Major Project Issues

Description	Remedial Action
Insufficient breakdown spares to support MRH90 operations.	Diversion of spares from NH90 production lines to support operations. Pre-position spare parts at operating unit. Proactive ordering of spares ahead of scheduled maintenance activities. Engagement with NH90 users worldwide.
Interactive Electronic Technical Publications inadequate to support maintenance activities and flight operations.	Establishment of an Industry technical support team in Townsville. Streamline the approval process for future versions of publications.

4.3 Linked Projects

Project	Description of Project	Description of Dependency
N/A	N/A	N/A

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
The key lessons pertain to the early establishment of the Sustainment organisations. Both Commonwealth and Industry teams need to be set up well in advance of the delivery of the first of type for projects. The provision of accepted aircraft to an Operational Squadron has led to a range of lessons in regard to command and control of assets and people, stakeholder management and the relationship with Industry. The impact of attaining limited Intellectual Property rights has been critical to the ongoing development of the capability and achievement of value for money in further contract negotiations. It has also limited the provision of data for integration with other platforms (such as the Landing Helicopter Deck ships).

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
Acceptance of MRH#06 in July 2009.
Acceptance of MRH#07 in August 2009.
Acceptance of MRH#08 in September 2009.

AIRBORNE EARLY WARNING AND CONTROL AIRCRAFT

AIR 5077 Phase 3

Also known as **'Project Wedgetail'**

This project was first reported in the 2007–08 DMO MPR

2008–09 Updates are reported in **bold purple** formatted text

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Warren King
Division Head	AVM Chris Deeble
Branch Head	Mr Bill Spencer
Project Director	AVM Chris Deeble

History	Name	Start	End
Project Manager	AVM Chris Deeble	Jul 06	Current
	Mr Kim Gillis	Apr 06	Jun 06
	AVM (Retired) Norm Gray	Jul 04	Mar 06
	AVM Norm Gray	Jan 01	Jun 04
	Mr John Popham	Jan 99	Dec 00
	GPCAPT Paul Ekin-Smyth	Dec 97	Dec 98

1.2 Project Context

Project	Explanation
Description	The **$4,154 million** Air 5077 Phase 3 project will provide the ADF with an airborne early warning and control capability, with the provision of six aircraft and associated supplies and support. As an integral part of a layered ADF Air Defence System, the airborne early warning and control capability will enhance surveillance, air defence, fleet support and force coordination operations in defence of Australian sovereignty and national interests.
Background	Government gave the equivalent of first pass approval for Phase 3 of this project in December 1997. Following a competitive Initial Design and tendering activity, the Government gave the equivalent of second pass approval in December 2000 and a contract was signed with The Boeing Company (Boeing) the next day for supply of four aircraft and associated supplies and support. In April 2004, Government gave approval to amending the contract for supply of an additional two aircraft. The airborne early warning and control 'Wedgetail' is based on Boeing's next generation 737 aircraft, modified to accommodate various sophisticated mission systems. The primary sensor on the aircraft is a phased-array radar – with no moving parts - that can scan through 360 degrees. In March 2007, Boeing presented the results of the schedule replan to the Commonwealth following the company's announcement, in February 2007, of a two-year slip in the program. This slippage results from problems associated with sub-system integration; supplier hardware availability; mission computing, radar and electronic support measures maturity and stability; and aircraft modification. In May 2008, Boeing advised a further delay to the program resulting from ongoing problems with radar and electronic support measures development and system integration. In December 2008, Boeing and the Commonwealth agreed, under a Deed, to enter into a modified test and operational evaluation program aimed at determining the extent to which the aircraft system meets the specification and how well it will perform operationally. The DMO Program Office, Boeing and Northrop Grumman, supported by DSTO and US Government agencies, also cooperated in the conduct of an independent assessment of

	radar performance by Massachusetts Institute of Technology (MIT) Lincoln Laboratories to determine the extent of the performance shortfall based on flight test data. An operational utility demonstration was successfully conducted in Australia in April 2008 and provided insight into the operational potential of the AEWC capability. These activities are planned for completion by October 2009 at which time an Executive Summit will be held to determine the way ahead for the project.
Uniqueness	Project Wedgetail is a highly developmental project. The phased array radar, the heart of the surveillance capability, has never previously been integrated into an operational system. Northrop Grumman Corporation, the suppliers to Boeing of the phased array radar, has worked to an extremely tight schedule of putting into production and integrating this unique radar, which was still undergoing initial design at the time of contract signature. Similar schedule acceleration issues have also been encountered on other mission critical systems. The ADF will be the first to operate an aircraft of this configuration and capability and significant effort has been devoted by the Royal Australian Air Force in developing operational doctrine and tactics for its deployment.
Major Challenges	Integration of the radar and other mission critical systems such as electronic support measures, communication systems and data links has proved to be more complex than originally anticipated. Initial planning for the project was optimistic, resulting in an aggressive schedule that had been compressed to such a high level that there was no margin for re-work or risks being realised. Continuing challenges are being realised in BAESYSTEMS Australia **ESM development and execution against schedule and remains under close scrutiny by the both the Program Office and Boeing**. Technical challenges with the Radar and Identification Friend or Foe subsystem **have continued** to drive completion of Test and Evaluation **in** 2009. **The outcomes of the modified test and operational evaluation program, together with the MIT Lincoln Laboratories review, will be key to assessing the overall project progress and technical risk.** Overall technical and schedule risk remains high to very high.
Current Status	**Cost Performance** The project remains within current approved budget. The DMO has invoked the payment withhold provisions of the contract. This situation will not improve until we have a stable and agreed schedule, and agreed Earned Value baseline. **Schedule Performance** **Under the agreement to enter into a modified test and operational evaluation program, acceptance testing was planned to commence in January 2009. However, due to ongoing problems with system maturity and stability, the start of test was delayed and has continued at a slower rate than planned. Consequently, the Executive Summit to decide the way ahead for the project, which was originally planned for June 2009, is now planned for October 2009.** **Boeing plans to deliver an initial capability to support training and initial operations in November 2009, and full capability aircraft from March-May 2010. Defence believes that there is still residual risk in these delivery dates but continues to work with Boeing to achieve the earliest possible in-service date.** The revised prime contract schedule remains highly dynamic and has **still** not been agreed by the Commonwealth. **Capability Performance** Integrated system performance, particularly in respect of the radar, electronic support measures and mission computing sub systems, is currently not meeting specification. Boeing and its subcontractors are continuing to work on remediating the shortfalls and the Commonwealth has not granted any relief to Boeing on meeting contracted technical performance. **However, remediation of all radar performance shortfalls is not expected to be achieved by final delivery of the system.**

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	N/A	Dec 97	N/A
Second Pass	N/A	Dec 00	N/A

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
The Boeing Company	Provision of an AEW&C capability comprising four aircraft and associated supplies and support.	Variable	DEFPUR 101	Dec 00

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
N/A	N/A

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage:	Benchmark	**7**	**7**	**7**	**8**	**7**	**7**	**7**	50
Critical Design Review	Current Project	**5**	**7**	**7**	**8**	**7**	**6**	**7**	47
	Explanation	**Schedule: Boeing currently plans to deliver a fully capable aircraft in March 2010, 40 months later than contract baseline.** **Commercial: The Commonwealth assesses that there are significant risks to Boeing's delivery plans.**							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
2,170.4[1]	**652.8**	**271.9**	1,059.1	**4,154.2**

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Jul 98	(170.4)	Transfer	Transfer to Project Olympus.
Nov 98	807.9	Transfer	Merging of Project Olympus, which had been established separately to acquire classified elements of the AEW&C capability.
Jun 99	(166.0)	Budgetary Adjustment	Variation for overfunding for price indexation and foreign exchange at time of approval.
Mar 02	(3.9)	Transfer	Transfer to supplement Overseas Allowances.
Jun 04	225.6	Scope	Increased scope, approved by Government in April 2004, for the acquisition of the 5th and 6th aircraft.
Aug 04	(2.4)	Budgetary Adjustment	Administrative Savings harvest.
Aug 04	(14.0)	Transfer	Transfer to Facilities.
Jun 05	(1.0)	Transfer	Transfer to Facilities.
Aug 05	(4.8)	Budgetary	Skilling Australia's Defence Industry harvest.

[1] This project's original DMO budget amount is that prior to achieving Second Pass Government approval

		Adjustment	
Jul 08	388.1	DMO Performance	Real adjustment to funding of Price Variations.
Total	1,059.1	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
4,154.2	**2,527.8**	**1,626.4**

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
38.0	**16.8**	**(21.2)**

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
(5.2)	**FMS**	**Non achievement of forecast FMS expenditure, delays due to System Acquisition Contract slippage and underachievement in mobilising the AEWC In Service Support contract due to delays in contract signature. Other minor under achievements in External Service Providers, Travel and Project Administration project cost elements.**
(4.7)	**Commonwealth Delays**	
(11.3)	**Overseas Industry**	
(21.2)	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
The Boeing Company	2,257.7	**2590.7**	Boeing 737-700 IGW Aircraft	4	6
			Airborne Mission System Sets	6	6
			Operational Flight Trainer	1	1
			Operational Mission Simulator	1	1
			Mission Support System (Fixed)	2	2
			Mission Support System (Deployable)	2	2
			AEW&C Support Facility	1	1
Explanation	$306.7m (Base) for the acquisition of the 5th and 6th aircraft, plus a number of minor changes to the contract that have been incorporated as risk mitigation actions.				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
The Boeing Company	**2,590.7**	**1,908.8**
Explanations	Progress Payments – DMO has invoked the payment withhold provisions of the contract. This situation will not improve until we have a stable and agreed schedule, and agreed Earned Value baseline.	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
Preliminary Design	Airborne Mission System	Jul 02		Jun 02	(1)
	Operational Mission Simulator	Jan 03		Apr 03	3
	Mission Support System	Mar 03		Apr 03	1
	Operational Flight Trainer	Aug 03		Jul 03	(1)
	Airborne early warning and control Support Facility	Nov 03		Oct 03	(1)
Critical Design	Airborne Mission System	Feb 03		Dec 02	(2)
	Operational Mission Simulator	Nov 03		Nov 03	0
	Mission Support System	Dec 03		Nov 03	(1)
	Operational Flight Trainer	May 04		Apr 04	(1)
	Airborne early warning and control Support Facility	Oct 04		Sep 04	(1)
Variance Explanations	Variances to Design Reviews were due to various minor causes.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	Airborne Mission System	Mar 06	**Jul 09**	**Jan 10**	**46**
	Operational Mission Simulator	Mar 06	Oct 10	Oct 10	55
	Operational Flight Trainer	Dec 05	Dec 05	Dec 05	0
	Mission Support System	Jul 06	Oct 08	**May 09**	**34**
	AEW&C Support Facility	Dec 06	**May 11**	**May 11**	**53**
Acceptance	Airborne Mission System	Nov 06	**Feb 10**	**Jul 10**	**44**
	Operational Mission Simulator	May 06	Mar 11	Mar 11	58
	Operational Flight Trainer	Mar 06	**Nov 08**	**Feb 09**	**35**
	Mission Support System	Aug 06	**Sep 09**	**Nov 09**	**39**
	AEW&C Support Facility	Mar 07	**Aug 11**	**Aug 11**	**53**
Variance Explanations	Operational Flight Trainer Acceptance Test and Evaluation – Disagreement between Boeing and Commonwealth over specification requirements. All other items – Problems associated with sub-system integration; mission computing, radar and electronic support measures maturity and stability; and supplier hardware availability.				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
IOC	Dec 07	Dec 11	48	Delays to system delivery due to problems associated with sub-system integration, supplier hardware availability, radar and electronic support measures maturity, and aircraft modification. This variance is based on the DMO's assessment of a Boeing schedule which has not yet been accepted by the DMO.

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC	Dec 08	Dec 12	48	As per explanation for table 3.3.

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
The major risks to the project fall within the following categories: ▪ Schedule; and ▪ Attainment of contracted technical performance. Schedule and technical performance risks arise from lack of technical maturity of key on-board sensor systems, incomplete software development, system integration and acceptance testing.	Engage and influence the prime contractor and major sub-contractors to maintain appropriate focus and commitment to deliver contracted performance to a credible and resourced schedule. Exercise contractual remedies.

4.2 Major Project Issues

Description	Remedial Action
Current major project issues fall within the following categories: ▪ Technical performance short falls; ▪ **Schedule delays; and** ▪ Contract management. Technical performance shortfalls arise due to some sub-systems not meeting contracted performance requirements. **Notwithstanding significant progress made in the acceptance test phase, schedule delays continue to be encountered.** Contract management issues relate to : ▪ **Schedule delays arising out of problems associated with subsystem maturity and stability and integrated system performance.** ▪ **Finalisation of In Service Support Contract.**	Engage and influence the prime contractor and major sub-contractors to maintain appropriate focus and commitment to deliver contracted performance to a credible and resourced schedule. **Adopt 'Incremental' delivery approach.** **Exercise contractual remedies.** **Maintain engagement with the prime contractor to achieve alignment of in-service support with the delivery of the first aircraft and associated support equipment.**

4.3 Linked Projects

Project	Description of Project	Description of Dependency
AIR 5376 F/A-18 Hornet Upgrade	Upgrade of the F/A-18 Hornet communications, navigation and mission computing systems.	Air to air data communications in support of the air defence mission.
AIR 5402 Air to Air Refuelling Capability	Provision of five Multi-Role Tanker Transport aircraft and associated supplies and support.	Air-to-air refuelling support for extended range/duration airborne early warning and control missions.
AIR 5333 2CRU and 3CRU Replacement (Vigilare)	Replace the fixed, ground-based Aerospace Surveillance and Battlespace Management command and control capability.	Coordination between airborne early warning and control and ground-based control units.
AIR 5405 Mobile Regional Operations Centre	Replace the deployable, ground-based Aerospace Surveillance and Battlespace Management command and control capability. Not yet approved.	Coordination between airborne early warning and control and deployed ground-based control unit.
JP 2008 MILSATCOM	Provision of a military satellite communications system.	Air-to-surface and air-to-air communications support.
JP 2030 Phases 5B and 7B Air Command Support System	Provision of enhancements to the Air Command Support System.	Command and control interface for the airborne early warning and control Mission Support System.
JP 2072 Battlespace Communications	Provision of an enhanced battlespace communications system for the land environment. Not yet approved.	Terrestrial communications support to the deployable airborne early warning and control Mission Support System.

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
In the context of pre-project planning, the need to better appreciate the effort involved in being a customer of a first-of type program.
Underestimating the length of time required and effort involved in undertaking these phases when applied to a complex, highly developmental system.
Better appreciating the challenges involved in contractor management in a complex developmental project.
Recognising the need for pro-active risk management and the use of high-end risk management tools.
The need for industry to pay greater attention to adequately resourcing complex and highly developmental projects.
Early recognition of the need for proactive stakeholder engagement throughout the project.
The need to provide adequate resources with sufficient lead-time to develop and execute the evaluation and negotiating phases for the in-service support component of a first-of type capability.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
As at September 2009, Boeing has yet to complete the modified test and evaluation program (originally scheduled for June 2009), making achievement of the planned November 2009 and March 2010 dates for delivery of initial and final capabilities highly unlikely.
While full details are yet to be determined, some aspects of the radar subsystem performance are not likely to meet specification at final delivery and will take additional time to rectify.
In August 2009, the Commonwealth entered into negotiations with Boeing for a commercial settlement over the delay and likely radar shortfalls, but has expressly reserved all its rights under the existing contract pending the outcome of the October 2009 Executive Summit.

AMPHIBIOUS DEPLOYMENT AND SUSTAINMENT

JP 2048 Phase 4A/4B

This project was first reported in the 2008–09 DMO MPR

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Warren King
Program Manager	Mr Phillip Brown
Project Manager	Capt Michael Houghton

History	Name	Start	End
Program Manager	Mr Phillip Brown	Aug 07	Current
	Mr Kim Gillis	2002	2007

1.2 Project Context

Project	Explanation
Description	The $3,542 million JP 2048 Phase 4A/B project will provide the ADF with an increased amphibious deployment and sustainment capability through the acquisition of two Landing Helicopter Docks (LHDs) and associated supplies and support. These 27,000 tonne LHDs will together be able to land a force of over 2,000 personnel by helicopter and watercraft, along with all their weapons, ammunition, vehicles and stores.
Background	The Defence Capability Plan 2004-14 identified a requirement to replace the Heavy Landing Ship HMAS *Tobruk* (JP 2048 Phase 4A) and one Amphibious Landing Ship, either HMAS *Manoora* or *Kanimbla* (JP 2048 Phase 4B). In the Defence Capability Plan 2006-16, Phases 4A and 4B of JP 2048 were amalgamated. A Request For Information was undertaken to gather vessel capability and industry capacity information from international and Australian ship designers and shipbuilders. A Risk Reduction and Design Study and a preliminary Request for Quotation were also undertaken to provide commercial, technical, financial and schedule information for First Pass. First Pass approval was obtained in August 2005 with the identification of two existing LHD designs that could meet the capability requirements (Armaris' Mistral and Navantia's BPE) and the identification of potential Australian shipbuilders. After First Pass, a 'Design Development Activity' was conducted at the designers' respective premises to clarify the necessary Australian environmental and technical requirements, resulting in 'Australianised' designs. During this process, two shipbuilder/designer teams were formed with Tenix Defence working with Navantia and Thales Australia with Armaris. A Request for Tender was released in April 2006 to the shipbuilders for the construction of the 'Australianised' designs. Both builders submitted compliant tenders which were evaluated, and second Pass approval for the Tenix-Navantia solution was obtained in June 2007. A contract was signed in October 2007 between the Commonwealth and Tenix Defence (now BAE Systems Australia Defence), for the acquisition of the two Spanish designed *Canberra* Class LHD ships and support systems; the contract came into effect in November 2007.
Uniqueness	While the LHDs are based on an existing Spanish BPE design, the "Australianisation" changes, the incorporation of an existing SAAB Combat System, and the development and integration of the internal and external communication systems will result in a unique vessel. Despite the experience gained in amphibious operations with the current amphibious ships in the RAN, the LHDs will bring a new and unique capability to the ADF by virtue of their size,

	aviation, well dock, and communications capabilities. A unique build strategy is being employed. The LHD hulls will be built, including the majority of the fit-out, by Navantia at the Ferrol and Fene Shipyards in Spain. They will be transported to Australia as individual lifts on a 'float on/float off' heavy lift ship. Construction of the superstructure and its consolidation with the hull will be conducted by BAE Systems Australia Defence at their Williamstown (Victoria) Shipyard in Australia. The superstructure contains the high level Combat and Communications Systems equipment that will need to be maintained and upgraded in Australia. BAE Systems Australia Defence will also undertake the final out-fit, set-to-work, and trials.
Major Challenges	The project is in early stages of the Contract with Preliminary Design and Detailed Design Reviews being conducted and expected to be completed by the end of 2009. As such, the project has not experienced any major issues likely to affect the delivery dates of the LHDs. However, it has experienced a number of minor issues concerning the design integration. During the initial stages of the Contract, the project noticed a slow ramp-up of contractor resources. This has since been addressed through additional recruitment, although some 'catch up' activities are still required. Tenix Defence was acquired by BAE in June 2008. Intellectual Property issues have now been resolved between the Commonwealth, BAE and Navantia however control of commercially sensitive Intellectual Property remains an on-going management issue for all parties. While the LHD ships are based on the existing Spanish BPE design, the Australian combat and communication capability requires integration work to be undertaken. The task of integration of the Australian elements, such as the combat system and internal/external communications systems, has proved to be more complex than initially thought. Additional time has been required to address integration issues and has caused some Preliminary and Detailed Design Reviews to be deferred slightly. As part of Preliminary Design Reviews, a number of technical issues have arisen. Resolution of these matters is expected to be addressed during the remaining Preliminary and Detailed Design Reviews, with agreed resolution on a case by case basis by the end of the Detailed Design Reviews. None of the issues raised to date are anticipated to impact on the full capability. One of the additional challenges for this project remains the potential for regulatory changes and/or requirements creep on the capability requirements. The project has a fixed budget for the approved requirements, and any changes to regulations that require a change to the vessel or requested capability changes are likely to impact on the project's performance, cost, and schedule outcomes.
Current Status	**Cost Performance** The project remains within its current approved budget. **Schedule Performance** The project is still on track for delivering the two LHDs by planned dates of 2014 and 2015. Minor changes to the Preliminary and Detailed Design reviews dates are not expected to impact on the final delivery dates. **Capability Performance** The amphibious capability sought through the provision of two LHDs is as follows: ▪ Carriage, in addition to the crew, of approximately 1,200 personnel in the force ashore with a further 800 personnel providing helicopter operations, logistics, command and intelligence as well as other supporting units; ▪ Space and deck strength sufficient to carry around 100 armoured vehicles, including tanks, and 200 other vehicles (approximately 2400 lane metres); ▪ Hangar space for at least 12 helicopters and an equal number of landing spots to allow a company group to be simultaneously landed; ▪ 45 days endurance for crew and embarked force including sustainment, medical, rotary wing and operational maintenance and repair support to these forces whilst ashore for 10 days; ▪ Command and control of the land, sea and air elements of a Joint Task Force; and ▪ The ability to conduct simultaneous helicopter and watercraft operations in conditions up to Sea State 4. The project is on track for delivering these capabilities.

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	N/A	Aug 05	N/A
Second Pass	Mar 07	Jun 07	3

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
BAE Systems Australia Defence (formerly Tenix Defence)	Design, production, testing, supply and acceptance into naval service of two amphibious LHD and associated supplies and Integrated Logistic Support.	Variable	ASDEFCON	Oct 07

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
JP 2048 Phase 3	Watercraft system acquisition to be used in conjunction with the Phase 4A/4B LHD Mission System. These watercraft will be the ship to shore connector for the LHDs.
JP 2048 Phase 4C	Phase 4C acquisition of a strategic sealift capability.
JP 2048 Phase 5	Landing Craft Heavy Replacement capable of small scale independent operations and augmenting larger amphibious and sealift ships.

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage: Preliminary Design Review	Benchmark	6	6	7	6	6	7	7	45
	Current Project	6	7	6	6	7	7	6	45
	Explanation	▪ Cost – Costs are well known and understood and are currently tracking within budget. ▪ Requirement – Generally the requirement is being realised, however there are some areas where further assessment and stakeholder engagement is required. ▪ Technical Difficulty – The design and its validation are well advanced primarily due to the platform being largely MOTS ▪ Operations and Support – Procurement of training and spares yet to be contracted.							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
3.1[1]	293.4	281.0	2,964.5	3,542.0

[1] This project's original DMO budget amount is that prior to achieving Second Pass Government approval.

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Aug 04	(0.1)	Budgetary Adjustment	Administration Savings harvest.
Sep 04	4.8	Scope	To fund a risk reduction activity for the Project to obtain design data and develop designs to meet Australian essential requirements.
Nov 05	29.6	Scope	First pass Approval.
Nov 07	2,920.8	Scope	Project received Second Pass approval to acquire two Amphibious Ships that will provide the ADF with increased amphibious deployment and sustainment capability to support an enhanced deployed force.
Oct 08	9.4	Transfer	Transfer of funding for technical studies from DSTO.
Total	2,964.5	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
3,542.0	379.9	3,162.1

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
142.0	136.2	(5.8)

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
(5.8)	Local industry	Slippage of three milestones as more time was allocated to the design review activities.
(5.8)	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
BAE Systems Australia Defence	2,268.1	2,268.1	LHD ships and associated integrated support systems	2	2
Explanation	N/A				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
BAE Systems Australia Defence	2,268.1	302.7
Explanations	N/A	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Requirements	Mission System (Includes Platform / Combat Systems)	Feb 08	Feb 08	Feb 08	0
	Support System	Apr 08	Apr 08	Apr 08	0
Preliminary Design	Communication	Oct 08	Oct 08	Dec 08	2
	Navigation	Oct 08	Oct 08	Dec 08	2
	Platform System	Nov 08	Nov 08	Nov 08	0
	Combat System	Dec 08	Apr 09	Apr 09	4
	Whole of Ship	Jan 09	May 09	May 09	4
	Support system	Mar 09	May 09	May 09	2
Detailed Design	Communication	May 09	Sep 09	Sep 09	4
	Navigation	Jun 09	Jun 09	Jun 09	0
	Platform system	Jun 09	Jun 09	Jun 09	0
	Combat system	Jul 09	Oct 09	Oct 09	3
	Whole of ship	Jul 09	Nov 09	Nov 09	4
	Support system	Aug 09	Dec 09	Dec 09	4
Variance Explanations	Due to the complexity of the integration of the combat, communications and platform systems, more time has been allocated to the design review activities. The construction of main hull sections commenced this year as planned. Construction of the superstructure, where many of the integration issues reside, is not planned to commence until June 2010 and the deferred Design Reviews are unlikely to affect the construction schedule and final delivery date.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	LHD Ships #1 and 2	Mar 15	Mar 15	Mar 15	0
Acceptance	LHD Ship#1 Project Acceptance	Jan 14	Jan 14	Jan 14	0
	LHD Ship#2 Project Acceptance	Aug 15	Aug 15	Aug 15	0
	LHD Final Acceptance	Sep 15	Sep 15	Sep 15	0
Variance Explanations	N/A				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
LHD#1 IOC	Jun 15	Jun 15	0	N/A
LHD#2 IOC	Nov 16	Nov 16	0	N/A

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC	Nov 16	Nov 16	0	N/A

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
Regulatory changes: there is a chance that the delivery of the LHDs will be affected by regulatory changes leading to performance, cost, schedule and supportability impacts.	▪ Monitor closely and address changes at the Project Management Stakeholder Group. ▪ Seek Contingency funding for changes. ▪ Seek waivers as necessary.
Requirements creep: there is a chance that the delivery of the LHDs will be affected by requirements creep leading to performance, cost, schedule and supportability impacts.	▪ Rigorous change management control. ▪ Defer changes to the Capability Enhancement Period post delivery of the ships.
Functionality of the Combat System: there is a chance that the delivery of the LHDs may be affected by the ability of the combat system to meet performance requirements.	▪ Undertake a functional analysis of the system to identify potential deficiencies. ▪ Conduct a rigorous evaluation of the technical solutions at Design Reviews. ▪ Monitor Performance closely and address any changes to equipment or performance through the Project Management Steering Group.
Damage to Electric Propulsion Pods: there is chance that the delivery of the two LHDs may be affected by damage to the electric propulsion pods during installation and sea trials.	▪ Assess the likelihood of damage to the pods during construction, set-to-work and initial operation; and assess the impact it may have on the schedule due to the availability of spares. ▪ Develop a business case for the procurement of necessary spares, for consideration by the Project Management Steering Group.
Insufficient Funds for Integrated Logistics Support Training and Spares Procurement: there is a chance that the delivery of two LHDs may be affected by the cost of training and spares to support the LHD exceeding the allocated budget.	▪ Refine the Support System Specification to ensure that it adequately specifies the support levels to be achieved. ▪ Carefully scrutinise the Logistic Support Analysis that generates the training and spares recommendations to ensure that it cost effectively meets the specification ▪ Resolve major scope and cost issues through the Project Management Stakeholders Group.

4.2 Major Project Issues

Description	Remedial Action
Intellectual Property management between BAE and Navantia.	An Intellectual Property Deed was signed by Tenix, BAE Systems, Navantia, and the Commonwealth detailing how Intellectual Property will be managed for the LHD Project. The management of Intellectual Property will be monitored through Intellectual Property audits.
Integration complexity.	Due to the complexity of the integration of the combat, communications and platform systems, more time has been allocated to the design activities. Additional time has also been allocated for the design review activities with the establishment of technical forums to carefully review and assess design issues prior to the conduct of the formal review.

4.3 Linked Projects

Project	Description of Project	Description of Dependency
JP 2048 Phase 3	Watercraft system acquisition to be used in conjunction with the Ph 4A/4B LHD Mission System. These watercraft will replace the capability inherent in the current generation of watercraft systems.	Amphibious watercraft required to be integrated with the LHD platform and be able to transport personnel & equipment from LHDs to shore without utilising fixed port facilities, or prepared landing areas.
Land 75	Battlefield Command Support System Project.	The Battlefield Command Support System will provide Army with interoperability with the new Battle Management System and the LHD will be required to support this.
Sea 1442	Maritime Communications Modernisation.	The project was established to modernise and integrate the communications infrastructure in the Royal Australian Navy Fleet, and establish the framework for the future modernisation of additional elements of the fleet such as the LHD.
JP 2089 Phase 2	Tactical Information Exchange Domain (Data Links).	The project is intended to implement Tactical Information Exchange solutions on various platforms including Link 16 and Variable Messaging Format in the LHDs.

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
N/A

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
The keel for the first ship was laid in September 2009.

ARMED RECONNAISSANCE HELICOPTER
AIR 87 Phase 2

This project was first reported in the 2007–08 DMO MPR

2008–09 Updates are reported in **bold purple** formatted text

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	MAJGEN Tony Fraser
Branch Head	BRIG Charles Crocombe
Project Director	**Mr Bruce Whiting**

History	Name	Start	End
Project Manager	**Mr Bruce Whiting**	**Dec 08**	**Current**
	COL Anthony McWatters	Jan 07	**Dec 08**
	Mr Graeme Toms (acting)	Aug 06	Dec 06
	COL Gary Michajlow	Jan 06	Aug 06
	COL Malcolm Motum	Jan 00	Dec 05

1.2 Project Context

Project	Explanation
Description	The **$2,101 million** Air 87 Phase 2 Tiger Armed Reconnaissance Helicopter (ARH) Project was approved to provide a reconnaissance and fire support capability for the ADF. The Project has contracted for delivery of 22 aircraft including an instrumented aircraft, a Full Flight and Mission Simulator, two Cockpit Procedures Trainer(s), Groundcrew Training Device(s), Electronic Warfare Mission Support System, Ground Mission Equipment, with supporting stores, facilities, and ammunition.
Background	The Project received Government approval in March 1999 to replace the Army's aerial reconnaissance and fire support capability, which is currently based on the 1960s technology Bell Kiowa and Iroquois helicopters. Defence's acquisition strategy specified substantial Australian Industry Involvement in the project, and in February 2002 Australian Aerospace Ltd was awarded a fixed price Acquisition contract and firm price Through Life Support contract. The first four aircraft were manufactured and assembled in France and the remaining 18 aircraft were manufactured in France and assembled in Brisbane. One ARH is fitted with flight test instruments to assist the test and evaluation of ARH capability upgrades. The training system relies heavily on simulation devices using the Full Flight and Mission Simulator and Cockpit Procedures Trainer(s) which were built in France, then shipped to Australia. The Full Flight and Mission Simulator and one Cockpit Procedures Trainer are installed at Oakey (Queensland); the second Cockpit Procedures Trainer will be installed at Darwin (Northern Territory) in the near future. The project has experienced delays in achieving the Initial Operational Capability (IOC) critical contractual milestone, which was due in June 2007, resulting in the Commonwealth exercising its contractual right to stop all payments on the Acquisition Contract while maintaining payments on the Through Life Support Contract. Several factors contributed to the delay in achieving that milestone which in turn resulted in insufficient numbers of aircraft, training devices and logistics support in service to enable the required training outcomes. Australian Aerospace served a notice of dispute in October 2007 and the parties entered into a formal Dispute Resolution process over issues affecting both the Acquisition and

	Through Life Support contracts. The dispute resolution process resulted in both parties signing a Deed of Agreement in April 2008 which established a revised Acquisition Contract Price and Delivery Schedule, a revised Through Life Support Contract pricing structure that transitioned it to a Performance Based Contract, and established networks for work done by third-party support subcontractors. The re-plan includes integration of a program necessary to retrofit all ARH to the final configuration where all mission systems are certified for employment by Army crews (known as the retrofit program). Partial payments to Australian Aerospace on the ARH Acquisition Contract were recommenced in April 2008, with full payment due on signing of the contract change proposals. **Changes to the Acquisition Contract arising from the signing of the Deed of Agreement were agreed between the parties in February 2009, with Full payment recommencing from this date.** **The commensurate major documentation amendment through a Contract Change Proposal was approved in May 2009, and the Contract Amendment was issued in June 2009.**
Uniqueness	The Australian Tiger ARH design is based on the Eurocopter French and German Armies Tiger helicopters. The ARH design varies from the French and German designs through changes made to the following systems: ▪ Secure radio communication systems, ▪ Digital Map System, ▪ Integration of the Hellfire Missile weapon system, ▪ 70 mm rocket modifications, ▪ Storage Bay and Digital Video Recorder, ▪ Roof Mounted Sight multi-target tracking system, and ▪ Helmet Mounted Sight and Displays in both cockpits. The ADF's Airworthiness certification of the ARH Tiger aircraft relies on the French airworthiness certification process undertaken by the French acquisition agency (Delegation General Pour l'Armament). The ADF's Director General Technical Airworthiness recognises the French acquisition agency as a competent certification agency, and subsequently accepts the French acquisition agency certification of common Tiger systems used in the Australian ARH Tiger. In doing so, the French acquisition agency certification of the French aircraft became an integral part of the ADF's ARH certification plan. Consequently, delays in the French program flowed through to the ADF's ARH program and delivery of operational capability to the Army. This has caused slippage in the aircraft and system certification, simulator development and aircrew training. The delays in the program have resulted in the contractor failing to achieve the IOC critical milestone.
Major Challenges	**As was the case in 2007/08, the major challenge for the project remains ensuring the Prime Contractor (Australian Aerospace) delivers the remaining capabilities in accordance with the rebaselined Acquisition Contract schedule thereby avoiding schedule slippage. Commonwealth test and evaluation activities are critical to achieving capability delivery.** **As identified in 2007/08, the most significant issue for the program is still the immature maintenance and supply support networks which are impacting the availability of serviceable Repairable Items at the required configuration to support the in-service fleet and retrofit program. Australian Aerospace signed the last two critical subcontracts with its suppliers for ongoing maintenance and supply support in June 2009.**

Current Status	**Cost Performance** **The Project is still expected to deliver the required capability within the approved budget.** **Schedule Performance** **The first delivery of an operational capability to Army is the Initial Operational Test and Evaluation Readiness Milestone in September 2009 some 27 months later than originally planned. As at 30 June 2009, 15 ARH have been accepted by the Commonwealth; six are undergoing retrofit to the Initial Operational Test and Evaluation Readiness configuration; two are being used for type acceptance activities (includes the instrumented aircraft and the first Initial Operational Test and Evaluation Readiness configuration aircraft); four are being used for training; and three are being used for training purposes in the operational squadron in Darwin in readiness for delivery of the Initial Operational Test and Evaluation Readiness aircraft. The Cockpit Procedures Trainer at Oakey was accepted in December 2008 and is being used for aircrew training.** **The rebaselined schedule has all 22 ARH planned to be accepted by September 2010 with the Final Acceptance of supplies under the Acquisition Contract planned for June 2011.**
	Capability Performance **The rebaselined schedule includes all remaining engineering activities required to deliver a fully compliant ARH System. Full compliance or Service Release of all Engineering Change Proposals is planned for January 2011.** **The Full Flight and Mission Simulator has been upgraded to the final aircraft configuration with accreditation to be completed in July 2009 before being returned to training. The Cockpit Procedures Trainer for Darwin is currently undergoing test and evaluation and is planned to be accepted by March 2010.** **Training operations continue in Darwin and are proving valuable in exercising the maintenance and supply support chains early so that deficiencies can be identified and corrective actions taken before the operational capability is delivered post September 2009.** **As at 30 June 2009 the ARH fleet had flown 4300 hours.**

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	N/A	N/A	N/A
Second Pass	N/A	Mar 99	N/A

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
Australian Aerospace	Deliver the ARH System comprising of : 22 ARH; Training System; Support Systems.	Variable	SMART 2000	Dec 01

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
N/A	N/A

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage: System Integration & Test	Benchmark	7	8	8	8	8	8	8	55
	Current Project	9	7	8	7	8	7	9	55
	Explanation	**Schedule: In Service Date achieved in December 2004 with remainder of schedule well understood. Cost: Some risks are yet to be retired that may require access to contingency budget allocations. Estimate at Completion within Project approvals. Requirement: Integration and testing has verified achievement of the majority of the endorsed requirements. Technical Understanding: Not all logistics data and arrangements have been delivered to support current and future capability. Technical Difficulty: System integration and acceptance testing nearing completion. Performance issues understood. Commercial: Contractor performance is satisfactory but improvement is required in order to ensure critical milestone achievement. Operations and Support: ARH System elements have commenced transition to In-Service Managers.**							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
1,584.0	**405.7**	**202.7**	(91.0)	**2,101.4**

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Oct 02	(18.2)	Transfer	Transfer to DSG Oakey Redevelopment Project to develop ARH specific infrastructure.
Dec 03	(59.1)	Transfer	Transfer to DSG 1 Aviation Relocation Project (Darwin) to develop ARH specific infrastructure.
Aug 04	(2.2)	Budgetary Adjustment	Administrative Savings harvest.
Sep 04	(3.0)	Transfer	Transfer to DSTO to fund studies in support of the ARH.
Jun 05	(4.0)	Transfer	Transfer to DSG to fund Air 87 facilities constructed as part of the Darwin 1 Aviation Relocation Project.
Aug 05	(4.5)	Budgetary Adjustment	Skilling Australia's Defence Industry harvest.
Total	(91.0)	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
2,101.4	**1,461.9**	**639.5**

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
125.1	**152.0**	**26.9**

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
26.9	**Commonwealth and Local Industry**	**Achievement ahead of plan. Forecast estimated before contract amendment put in place for amended schedule of payments.**
26.9	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
Australian Aerospace	**1,139.9**	**1,330.5**	ARH Fleet		
			ARH	22	22
			ARH Software Support Capability	1	1
			Training System		
			Full Flight and Mission Simulator	1	1
			Cockpit Procedures Trainers	2	2
			Groundcrew Training Devices	6	6
			Ground Segment Operational and Support Systems		
			Electronic Warfare Mission Support System	1	1
			Ground Mission Equipment Fixed Site Systems	5	5
			Ground Mission Equipment Deployable Systems	7	9
			Maintenance Management System	1	1
Explanation	Additional Ground Mission Equipment sets were identified to meet Army's operational and fixed site requirements. **The 2007/08 report Price ($m Base) at Signature of $1,087.3m was incorrect as it was calculated using the exchange rate of the day rather than the contractually approved foreign exchange rate conversions. The Price ($m Base) at Signature using the contract exchange rates equates to $1,139.9m.**				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
Australian Aerospace	**1,330.5**	**N/A**
Explanations	**Contract expenditure in base date dollars has not been provided. Defence's financial management system, ROMAN, maintains authoritative data on the total amount expended against the project and related contracts, but this project does not manage ROMAN transactions in a way that facilitates separation into base date and variation payments against individual contracts in that system.**	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Requirements	ARH System	Mar 02		Feb 03	11
	Aircrew Training Devices	Jun 02		Feb 03	8
System Design	ARH System	Jun 02		Feb 03	8
	ARH System - Delta System Design Review	Mar 03		Apr 03	1
	Aircrew Training Devices	Apr 03		Jul 03	3
Preliminary Design	ARH Tiger	Oct 02		May 03	7
	Aircrew Training Devices	Mar 03		Oct 04	19
Critical Design	ARH Tiger	Mar 03		Jul 04	16
	Aircrew Training Devices	Sep 03		Jun 05	21
Variance Explanations	**ARH System** Reliance on the certification of the French Tiger variant was critical to the Australian design review and acceptance program. The DMO's ability to leverage from the French program was adversely impacted because the French program had not achieved design approval outcomes in the timeframe expected. As the ARH is a variant of the French and German Tiger helicopters, the ADF Technical Airworthiness Authority planned to utilise the existing certification work undertaken by the French acquisition agency (Delegation General Pour l'Armament). Certification of the ARH is based on the French acquisition agency as a competent certification agency and the ADF Technical Airworthiness Authority subsequently recognised the French acquisition agency as such for certification of common Tiger systems in the ARH. In doing so, the French acquisition agency certification of the French Tiger variant became an integral part of the ADF certification plan. Delays experienced in the Franco-German program directly impacted on the design development and Australian Military Type Certificate achievement. The maturity of the ARH design has required ongoing engineering changes to the approved ARH product baseline presented to the Airworthiness Board at the In Service Date. As a result subsequent flight testing is required to confirm contract compliance and operational acceptance of incorporated design changes to enable removal of Australian Military Type Certificate and Service Release limitations. **Aircrew Training Devices** The Full Flight and Mission Simulator required customisation to both the visual system and the motion systems following contract signature in order to account for capability deficiencies associated with the proposed simulator design. A major cause of the delay in delivering training devices can be attributed to the efficacy with which the software provided from the aircraft manufacturer's test program is being managed to produce a high fidelity simulator.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	Full Flight and Mission Simulator Contractor In-plant	Jul 04		**Oct 07**	**39**
	Cockpit Procedures Trainer Oakey Contractor In-plant and On-Site	Jul 04		Jun 08	47
	Cockpit Procedures Trainer Darwin Contractor In-plant and Army In-plant	Jul 04	**Jan 09**	Dec 08	53
Acceptance	**ARH**				
	Type Acceptance Review Special Flight Permit	Oct 04		Jun 05	8
	Australian Military Type Certificate	Jun 05		Oct 05	4
	Aircrew Training Devices - Final Acceptance Test and Evaluation				
	Full Flight and Mission Simulator (Transition Training capability)	Feb 05		Nov 07	33
	Full Flight and Mission Simulator (Full Training capability)	Feb 05	**Dec 09**	**Nov 09**	**57**
	Cockpit Procedures Trainer Oakey	Feb 05	**Jan 10**	**Jan 10**	**59**
	Cockpit Procedures Trainer Darwin	Feb 05	**Feb 10**	**Apr 10**	**62**
	Acceptance				
	ARH #11	Jul 06		Apr 08	21
	ARH #22	Apr 08	**Sep 10**	**Sep 10**	**29**
Variance Explanations	**The Current Planned dates are those agreed with the Contractor, Australian Aerospace, during the Dispute resolution process and consequential approved Contract Change Proposal and form the Payment Milestones under the rebaselined Acquisition Contract. The Contractor is managing the delivery of the remaining Acquisition Contract capability Milestones in accordance with the Integrated Master Schedule.** **ARH** **All 22 ARH are systematically being upgraded through a retrofit program in order to bring them up to the contracted specification at no additional cost to the Commonwealth. The retrofit program is complex requiring aircraft components to be removed and cycled through an upgrade program with the Original Equipment Manufacturer before being re-fitted to an aircraft. Currently the acceptance of the 22nd ARH is expected to be achieved in September 2010.** **Aircrew Training Devices** **The Full Flight and Mission Simulator Contractor In-Plant Test and Evaluation achievement date reported in the 2007/08 reported that Contractor In-Plant Test and Evaluation was initially conducted in France in late 2005 however, testing only verified approximately 20% of the contacted requirement. Further testing was completed in October 2007 following the device's shipment from France and installation at Oakey with the Commonwealth accepting the device as fit for transition training in December 2007.** **The Full Flight and Mission Simulator has been upgraded to the final aircraft configuration and is on track to have its accreditation and recurrent fidelity checks completed in accordance with the agreed rebaselined Acquisition Contract milestone schedule.**				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
IOC	Jun 07	Sep 09	27	The full contracted requirements for IOC were not achieved in June 2007 primarily due to delays in training. The contract dispute resolution has focussed the Contractor on providing the aircraft, support systems and trained personnel that, in concert with Army's collective training and test and evaluation programs, generate an operational capability as soon as possible. Rebaseline of the Acquisition Contract and the integrated planning currently underway are seeking to recover schedule and implement milestones that best align with Army's plans for introduction into **service under Plan Peregrine** and operational release of capability. The contract changes required to execute this **were agreed in Feb 2009 and project document amendments completed in June 2009 with the Prime Contractor.** The forecast date for IOC achievement is based on the critical new milestone, Initial Operational Test and Evaluation Readiness, that will enable Army to commence operational evaluation in a collective training environment from October 2009.

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC	Jun 09	**Dec 12**	**42**	As per Table 3.3, contract changes **were negotiated with the Prime Contractor which required a corresponding update to the approved MAA for the project. Whilst the final aircraft is expected to be delivered by September 2010 and project deliverables complete by June 2011, the FOC will not be achieved until Decemeber 2012. The apparent 12 month delay from the 2007–08 MPR to this report for FOC is due to a more accurate measure of when the complete ARH regimental unit is a fully trained operational capability rather than the point at which operationally capable aircraft and systems are delivered by the project. There have been no major changes to actual project schedule since the 2007–08 MPR. The date for FOC is not a contracted requirement but rather the date at which Operational Release is planned to be achieved under Army's Plan Peregrine. The revised FOC date of December 2012 was agreed during the development and subsequent approval of Amendment No. 1 to the Air 87 Phase 2 MAA in August 2009.**

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
A major risk to the project is schedule slippage in the process of entering the aircraft into service and achieving full systems certification by Initial Operational Test and Evaluation Readiness in September 2009.	**Project Office to maintain dedicated Project Planners to develop and maintain a Project Office Master Schedule linked to key activities in the Prime Contractor's Integrated Master Schedule. Regular Project Management Office meetings are held with the Prime Contractor to monitor and maintain schedule progression.**
Skilled personnel, particularly in engineering and Test and Evaluation, are at a critical level. This is the highest priority risk under management.	**Risk remains active, however is now assessed as medium.**

4.2 Major Project Issues

Description	Remedial Action
The Tiger was a far more developmental aircraft than envisaged at contract signature. **The finalisation of the Acquisition Contract has been affected by not having a single ARH System configuration leading to an impact on schedule and supportability.**	**Functional capability elements in the rebaselined Acquisition Contract have better defined exit criteria for Milestones.**
Development of gap training requirements caused by an evolving system configuration.	**Issue closed, now incorporated in the issue above.**
Timely establishment of supply and maintenance support networks. **Issue updated to read:** **The ARH Rate of Effort has been affected by not having adequate maintenance and supply support networks established and working effectively leading to an impact on schedule, cost and supportability.**	**Establishment of maintenance support subcontracts in the exit criteria for key Milestones.**
Assuring continuing staff supplementation to the Armed Reconnaissance Helicopter Project Office to ensure project outcomes are delivered.	Additional resources are being applied from other project and support areas within the Branch and Division as required.

4.3 Linked Projects

Project	Description of Project	Description of Dependency
N/A	N/A	N/A

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
Aircraft still undergoing development by their parent Defence force or Original Equipment Manufacturer should not be classed as off-the-shelf.
Resolve or escalate minor disputes as they arise to prevent escalation to major contract dispute.
Use integrated teams with strong processes and empowered staff facilitated by appropriate contractual arrangements.
Delays in the French program flowed through to the ADF's ARH program and delivery of operational capability to the Army. This has caused slippage in the aircraft and system certification, simulator development and aircrew training. The delays in the program have resulted in the contractor failing to achieve the IOC critical milestone.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
The 16th ARH was accepted in July 2009. Initial Operational Test and Evaluation readiness milestone achieved 30 September 2009. Full Flight and Mission Simulator upgrade completed and accepted.

AIR TO AIR REFUELLING CAPABILITY
AIR 5402

This project was first reported in the 2008–09 DMO MPR

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	AVM Colin Thorne
Branch Head	AIRCDRE Steven Drury
Project Director	Mr Ewan Ward

History	Name	Start	End
Project Manager	Mr Ewan Ward	Sep 04	Current
	Ms Heather Eylward	Oct 01	Sep 04

1.2 Project Context

Project	Explanation
Description	The $2,088 million Air 5402 project will provide the ADF with five new generation Airbus A330 Multi Role Tanker Transport aircraft (MRTT), to be known as the KC-30A in RAAF service. The MRTT will be equipped with both hose & drogue and boom refuelling systems capable of in-flight refuelling of current and future aircraft, including F/A-18 Classic and Super Hornets, F-111, Hawk Lead-In Fighter, Wedgetail Airborne Early Warning and Control, C-17 Globemaster III, and Joint Strike Fighter. The MRTT will also provide significant Air Logistics Services capability for carriage of up to 270 passengers and cargo. The acquisition also establishes the infrastructure necessary to deliver services including engineering, maintenance, spares management, technical data, software and training support for the new fleet.
Background	Government gave the equivalent of second pass approval in May 2003 for a new generation air-to-air refuelling capability. An open Request for Tender was released in June 2003 for both the Acquisition and Through Life Support Contracts. In April 2004, Government announced that the Military Transport Aircraft Division of the European Aeronautic and Space Company Construcciones Aeronauticas S.A. (EADS CASA), teamed with Qantas Defence Services, had been selected as the preferred tenderer for the supply of five Airbus A330 MRTT aircraft and their associated support. The Acquisition Contract was signed with Spanish company EADS CASA in December 2004. The Through Life Support Contract was signed with Qantas Airways Limited in February 2007. In April 2009, the Military Transport Aircraft Division of EADS was amalgamated with the Airbus Military Division, and commenced trading as Airbus Military. The A330 MRTT is based on the Airbus A330-200 medium/long-range twin aisle commercial aircraft. The first (prototype) aircraft is modified and tested by Airbus Military in Madrid, Spain. The remaining four aircraft are modified by Qantas, under subcontract to Airbus Military, at the Australian Conversion Centre, located at Brisbane Airport, Australia. A Contract Change Proposal (CCP) was signed in March 2006 for the procurement of a Full Flight Mission Simulator, Integrated Procedures Trainer and a Simulator Training Facility. A CCP was signed in December 2006 for changes to the cockpit layout to accommodate redesign of the refuelling operator console and associated changes to the cockpit access door and forward lavatory. Implementation of these changes on the first aircraft required

	the conversion and test activities to be divided into two phases: ▪ Phase 1 involves the structural modification of the aircraft, including installation of boom and pods for civil certification. ▪ Phase 2 involves the installation of the military systems, installation of the refuelling operator console and completion of cabin modifications for full military certification and qualification of the modified aircraft.
Uniqueness	Air 5402 is the lead customer of the A330 MRTT platform, including the lead customer for the Airbus Military developed Advanced Refuelling Boom System. Whilst Airbus Military has previously developed and delivered underwing pod equipped A310 MRTT aircraft to the German and Canadian Air Forces, the A330 MRTT is a significantly more complex developmental effort to design, build and test the first of type, highly integrated military mission and refuelling systems. In parallel, Airbus Military is required to develop the publications, training devices and training material to support introductory training of aircrew and maintenance staff and for transition to the Through Life Support Contractors for ongoing support of the new tanker capability.
Major Challenges	Airbus Military's ability to meet the contracted schedule milestones continues to be the greatest challenge due to an underestimation of the overall scope and complexity of work and system improvements introduced during the development. In addition, Airbus Military has been challenged by the under-performance of major subcontractors responsible for military system software development and major refuelling hardware components development. Delays experienced with the aircraft development have impacted the associated design, development and verification of the Support System; particularly, in the areas of training and publications. Airbus Military has, however, met many significant challenges during the reporting period including: completion of the development of the Aerial Refuelling Boom System on the EADS A310 Boom Demonstrator aircraft, conduct of developmental testing of the aerial refuelling pod and boom systems on the A330 MRTT; completion of civil certification of military provisions; set up of complex industrial network to support aircraft conversion in Australia and substantial progress towards completion of conversion of the second aircraft at the Australian Conversion Centre. Other challenges expected during the next reporting period include: completion of the flight test program for the first aircraft, completion of conversion of the second aircraft at the Australian Conversion Centre and its subsequent return to Madrid, Spain, to augment conduct of test, certification and customer acceptance.
Current Status	**Cost Performance** The project remains within the approved Budget. **Schedule Performance** Certification and qualification test and evaluation on the first aircraft in Madrid, Spain is currently expected to commence in the third quarter of 2009, approximately 14 months behind the contract baseline schedule. Conversion of the second aircraft in Brisbane, Australia, is currently expected to be completed during the third quarter of 2009 prior to ferrying the aircraft to Spain to support test and evaluation activities in Madrid. The third aircraft has been ferried from Madrid to Brisbane and is currently being prepared for conversion. **Capability Performance** Civil certification of the performance and handling of the modified aircraft has been completed, including verification that the modified aircraft is free from aerodynamic vibration throughout the flight envelope. Operational workload assessment of the military communications and navigation suites has identified changes to improve efficiency of tanker operations. The Mission Planning System is lagging the remainder of the Mission Avionics System; however, solutions have been identified but not yet implemented.

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	NA	NA	NA
Second Pass	NA	May 03	NA

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
Airbus Military (formerly EADS CASA)	Provision of a new generation air to air refuelling capability comprising five A330 MRTT aircraft and associated supplies and support.	Variable	ASDEFCON	Dec 04

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
N/A	N/A

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage:	Benchmark	7	8	8	8	8	8	8	55
System Integration and Test	Current Project	6	8	8	9	8	7	8	54
	Explanation	The Project is reaching the end of the extensive System Integration and Test Phase as the lead customer of the A330 MRTT capability. The contractor has experienced delays in progression through this phase. Technical Understanding of system and support needs is higher than what would be expected at this stage. Commercial risk is being managed.							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
2,076.6	451.8	(151.7)	(289.1)	2,087.6

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Jun 04	(149.4)	Budgetary Adjustment	Defence Capability direction re currency mix at approval and Government decisions.
Aug 04	(1.2)	Budgetary Adjustment	Administrative Savings harvest.
Aug 05	(3.0)	Budgetary Adjustment	Skilling Australia's Defence Industry harvest.
Nov 05	(135.5)	Transfer	Transfer to DSG for delivery of MRTT infrastructure at RAAF Amberley and at other RAAF bases.
Total	(289.1)	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
2,087.6	874.4	1,213.2

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
315.0	314.7	(0.3)

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
(0.2)	FMS	Variation in payments is due to schedule delay, pushing requirement out to Financial Year 2009/10.
(0.1)	Overseas Industry	Variation in payments is due to delay in invoicing.
(0.3)	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
Airbus Military	1,413.4	1,513.8	Airbus A330 MRTT	5	5
			Simulator Devices Facility	0	1
			Full Mission Simulator	0	1
			Integrated Procedures Trainer	0	1
			Part Task Trainer	1	1
			Other Supplies		
Explanation	Simulator Devices Facility, Full Missions Simulator and Integrated Procedures Trainer were unable to be completed during negotiation of Acquisition Contract. They were incorporated under a contract change proposal.				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
Airbus Military	1,513.8	850.3
Explanations	N/A	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Requirements/ Design	MRTT Aircraft	Feb 05	Feb 05	Mar 05	1
System Requirements	Simulation Devices	May 06	May 06	Oct 06	5
Preliminary Design	MRTT Aircraft	Jun 05	Jun 05	Jun 05	0
	Simulation Devices	Sep 06	Sep 06	Jun 07	9
	Simulation Devices Facility	Sep 06	May 07	Jul 07	10
Critical Design	MRTT Aircraft	Feb 06	Mar 06	Jun 06	4
	Simulation Devices	Mar 07	Jan 08	Jan 09	22
	Simulation Devices Facility	Apr 07	Nov 07	Jan 09	21
Final Design	MRTT Aircraft	N/A	Sep 06	Jul 07	10
Variance Explanations	The MRTT Aircraft Critical Design Review was conducted over a series of meetings from February to May 2006. Although design for the majority of the aircraft systems had been satisfactorily completed, the design for key elements of the aircraft mission system was not yet mature. “Practical Completion” of the Critical Design Review Milestone was achieved in June 2006; with a follow-on milestone (designated as the Final Design Review). Concurrently, evaluations of the new Remote Aerial Refuelling Operator				

	console identified the need for changes to the cockpit layout. These changes were agreed as part of the Critical Design Review close-out and required a change to the conversion and test process, which was split into two phases: Phase 1 for structural conversion and civil certification, and Phase 2 for installation of the military avionics and military certification. Closure of the residual activities to achieve the Final Design Review proved problematic. These were progressively completed over the following 12 months. Delays to completion of the MRTT Aircraft design process had a knock-on impact to completion of the Simulation Devices Critical Design Review. Completion of the Critical Design Review for the Simulation Devices Facility was delayed due to redesign to accommodate increased security requirements.

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	MRTT Aircraft	Aug 08	Dec 08	Mar 10	19
	Simulation Devices	Feb 09	Dec 09	Dec 10	22
Acceptance	MRTT Aircraft	Dec 08	Feb 09	Jun 10	18
	Simulation Devices and Simulation Devices Facility	May 09	Jan 10	Apr 11	23
	Full Mission Simulator Final Accreditation	Feb 10	May 10	Oct 11	20
Variance Explanations	System Integration Test & Evaluation is ongoing for the first-of-type MRTT Aircraft. Originally planned as a single-phase activity, the test program was split into two phases to accommodate changes to the Remote Aerial Refuelling Operator console (as described above). The first phase, for civil certification of the modified aircraft, was successfully completed in February 2008. The second phase, for military certification and qualification of the modified aircraft commenced end of December 2008, approximately six months late due to the combination of delays to the first and second conversion phases. Acceptance Test & Evaluation of the first MRTT Aircraft will be conducted as part of the Customer Acceptance Process following completion of all system integration testing and aircraft preparation for delivery. Delays to completion of the MRTT Aircraft test process has a knock-on impact to completion of testing of the Simulation Devices.				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
MRTT	Dec 09	Late 2010 / Early 2011	12	Delay to achievement of Initial Operational Capability is due to delays to the development, certification and qualification of the first-of-type aircraft. Some schedule is expected to be recovered through the return of the second aircraft to Madrid (following conversion in Australia) for conduct of training and additional test activities. Delays will require alternative arrangements for provision of aerial refuelling services to meet Air Force operational and training commitments.

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
MRTT	Mar 11	3rd Quarter 2012	18	Schedule recovery is not expected through to completion of conversion of the 5th aircraft in Australia due to the increased scope and complexity of the conversion. Delays will impact the introduction into service of the new MRTT capability and delay achievement of the expected operational readiness.

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
Refuelling system technical, integration or performance envelope issues impacting acceptance of the aircraft.	Actively monitor system design, development and testing and enforce performance goals.
Design and implementation of Human Machine Interface of newly developed systems is not acceptable impacting acceptance of the aircraft.	Continue to contribute to the Human Engineering Program to provide timely feedback. Actively manage and control Human Machine Interface development with Subject Matter Experts to ensure contracted requirements are met.
Lack of air to air refuelling operational experience by key stakeholders impacting the design and certification of the final product.	Provide expert support from RAAF and United States Air Force for review of design. Highlight possible short comings to authorities and provide expert oversight of certification process. Involvement of USAF boomers in certification and qualification activities. Airbus Military engagement of additional boom refuelling expertise.
Delivery of a sub-optimal Mission Planning System impacting final capability.	Clarification and agreement on a finite set of requirements with Airbus Military. Also liaise with other customers to maintain a common set of requirements across the customer base to assist with maintaining a common configuration.
Unforeseen hardware or software issues encountered in the fuel system components developed by sub-contractors impacting schedule and/or performance.	Monitor development at reviews and ensure Airbus Military enforces contractual specifications. Ensure Airbus Military has a fallback plan to deliver a minimum capability whilst the full requirements are being met in the longer term.
Unavailability of Simulation Subject Matter Experts for acceptance testing impacting acceptance of the Simulation Devices.	Coordinate requirements with the testing working group, identify solutions and provide training as necessary.

4.2 Major Project Issues

Description	Remedial Action
Difficulty in developing a reliable schedule.	Continue to contribute to development of a joint project schedule and foster commitment by both parties to the schedule. Conduct detailed schedule analysis at each project Management Review.
Conversion of the second aircraft at the Australian Conversion Centre at Brisbane Airport is behind schedule.	Significant additional resources have been injected by Airbus Military (from Madrid) and by Qantas to complete the remaining modification at the Australian Conversion Centre more quickly. Up to three shifts have been implemented to increase the tempo of the work required to be completed. Processes have been refined to improve work flow. Additional facilities have been provided to support the extra staff at the Australian Conversion Centre.
Hardware and software of major refuelling components are still in development by the subcontractor.	Airbus Military is providing time in the test program to allow the subcontractor to introduce the required upgrades in stages. There is also senior management commitment from both Airbus Military and the sub-contractor to meet their contractual obligations.
Conduct of initial training is impacted by (the planned) lag between completion of testing of the first (prototype) aircraft and completion of development and accreditation of training devices.	Identify and implement workarounds including the use of engineering test benches. Increase skill levels of personnel selected for initial course.
The maturity of the Mission Planning System has lagged the remainder of the Military Mission System.	Clarification and agreement on a finite set of requirements with Airbus Military. Agree staged release to minimise impact on ground and flight test schedule. Determine requirements necessary for initial introduction into service (currently in progress).

4.3 Linked Projects

Project	Description of Project	Description of Dependency
N/A	N/A	N/A

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
First of Type: this lesson is a confirmation of lessons across Defence projects; that is, the development and introduction into service of a first-of-type military (aircraft) mission and support system is always harder than it first appears.
Technical (design) maturity assessment: a tender definition activity was undertaken following selection of the preferred supplier and prior to contract negotiations. However, due to time constraints and the breadth of review activities, it was not possible to conduct a comprehensive technical review and maturity assessment. As a consequence, an aggressive system design schedule was agreed that subsequently proved difficult to achieve due to lower design maturity – and hence higher development effort - on some systems. The additional development effort was accommodated under the change to a two-phased conversion and test process. In hindsight, once it became apparent that Australia was the lead customer for the A330 MRTT, a more robust design maturity assessment should have been undertaken under a funded design development process prior to contract award.
Requirements management: whilst this project preceded improvements in the capability definition documents (Operational Concept Document, Functional Performance Specification and Test Concept Description), the intent of these documents was included in tender documentation and refined during contract negotiation for inclusion in the Acquisition Contract. The Contractor's internal requirements management process did not adequately support a robust process for customer clarification of the operational intent leading to protracted development and rework. There is a need to ensure that a robust process exists to achieve a common understanding of derived requirements and operational intent, and that it is agreed in the early stages of the project life-cycle.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
N/A

C-17 GLOBEMASTER III HEAVY AIRLIFTER
AIR 8000 Phase 3

This project was first reported in the 2007–08 DMO MPR

2008–09 Updates are reported in **bold purple** formatted text

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	AVM **Colin Thorne**
Branch Head	AIRCDRE Steven Drury
Project Director	GPCAPT Andrew Doyle

History	Name	Start	End
Project Manager	**WGCDR Warren Bishop**	**Jan 09**	**Current**
	GPCAPT Andrew Doyle	Jul 07	**Jan 09**
	GPCAPT Axel Augustin	Jan 06	Jul 07

1.2 Project Context

Project	Explanation
Description	The **$2,055 million** Air 8000 Phase 3 Project is to provide the ADF with a global heavy airlift capability based upon four Boeing C-17 Globemaster III heavy lift aircraft. The project also includes the acquisition of associated logistics support provisions, role equipment, training devices and facilities required to completely attain the Heavy Airlift capability.
Background	The project received combined first and second pass Government approval in March 2006 to acquire up to four C-17 aircraft, complete with logistics support through the C-17 Globemaster Sustainment Partnership. Critical project approval considerations incorporated an acquisition method utilising a sole source to the Boeing Company, through the United States Government FMS process, to access pre-existing contracting arrangements. The aircraft are capable of providing a global Heavy Airlift Capability for the ADF covering the movement of military personnel and outsized cargo that cannot be transported by the ADF's Hercules aircraft. Previously, this capability had been provided through commercial arrangements.
Uniqueness	The aircraft acquired were Military Off-The-Shelf with no Australian-unique modifications.
Major Challenges	The major risk for the project is to deliver mature logistics support to match the aircraft delivery schedule. To date, no major risks have been realised in this project.
Current Status	**Cost Performance** All four C-17 Globemaster aircraft have been delivered within budget. **Schedule Performance** All four C-17 Globemaster aircraft have been delivered ahead of schedule. Role Expansion activities are progressing on schedule with Air Drop and Aero Medical Evacuation trials conducted successfully. **Capability Performance** Significant project activity remains to deliver outstanding long lead-time logistics support provisions, role equipment, training devices and facilities required to completely attain the Heavy Air Lift capability. Full Operating Capability will be achieved when permanent C-17 Globemaster facilities have been established at major Royal Australian Air Force bases, and the training systems have been set up in Australia, anticipated to be by 2011.

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	N/A	Mar 06	N/A
Second Pass	N/A	Mar 06	N/A

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
US Government	Procurement of C-17 Globemaster III Aircraft, Training and Support Systems.	FMS	FMS	May 06

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
N/A	N/A

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage: Acceptance Into Service	Benchmark	**9**	**10**	**10**	**10**	**10**	**9**	**9**	67
	Current Project	**10**	**9**	**9**	**9**	**10**	**9**	**9**	65
	Explanation	**With accelerated acquisition of C-17 and related supplies some contracts are still to be finalised and supplies are still being refined, delivered and accepted into service.**							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
1,864.4	**148.3**	**42.1**	0	**2,054.8**

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
N/A	N/A	N/A	N/A
Total	N/A	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
2,054.8	**1,307.5**	**747.3**

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
21.9	**11.8**	**(10.1)**

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
(1.0)	Cost saving	Price savings on the C-17 aircraft and other FMS sourced C-17 equipment, resulting in the FMS Trust Account balance being in advance of US Government expenditure activity, hence no additional FMS payments were required this Financial Year. Underspend against non-prime contract activities also contribute to this year-end variance.
(5.7)	FMS	
(3.0)	Commonwealth delays	
(0.4)	FOREX variation	
(10.1)	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
US Government	1,568.3	**1,547.7**	C-17 Globemaster III Aircraft	4	4
			F117-PW Jet Engine	18	18
			Training Devices, Aircraft Training System, and Spares (Simulator)	1	1
			Common Support Equipment Lay-In	1	1
			Contractor Logistics Support	1	1
			Large Aircraft Infrared Counter-measure Systems	4	4
			Training Evaluation Performance Aircraft Training Set	1	1
Explanation	Original Contract value based on accelerated schedule with some scope items not included in initial version of FMS Case. Three FMS Case amendments have been made to date to capture these residual scope items.				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
FMS	**1,547.7**	**N/A**
Explanations	**Contract expenditure in base date dollars has not been provided. FMS Letters of Offer and Acceptance values are estimates of the expected cost of the goods and services being provided by the US Government and are stated in then year dollar terms i.e. with price escalation built in. Payments are therefore made in escalated dollar amounts and it would be difficult to de-escalate individual payment transactions to a base date dollar amount. The cost to resource this activity would outweigh the benefits to be gained by its inclusion.**	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Requirements	C-17 Globemaster III Aircraft	(1)			
	Australian Visual Database		Apr 08	Apr 08	0
	Virtual Cargo Load Model		Aug 07	Aug 07	0

Preliminary Design	C-17 Globemaster III Aircraft	(1)			
	Weapon System Trainer Simulated Avionics Package		Apr 07	Apr 07	0
	Australian Visual Database		Nov 08	**Dec 08**	**1**
	Virtual Cargo Load Model		Aug 07	Aug 07	0
Critical Design	C-17 Globemaster III Aircraft	(1)			
	Weapon System Trainer Simulated Avionics Package		Aug 07	Aug 07	0
	Australian Visual Database		Nov 08	**Apr 09**	**5**
	Virtual Cargo Load Model		Nov 07	Nov 07	0
Variance Explanations	Note 1: C-17 Globemaster III Aircraft design reviews not required as it is Military Off-The-Shelf i.e. Mature Design with no ADF unique changes.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	C-17 Globemaster III Aircraft	(2)			
	Simulated Avionics		Jul 08	**Jan 10**	**18**
Acceptance	C-17 Globemaster III Aircraft A41-206		Nov 06	Nov 06	0
	C-17 Globemaster III Aircraft A41-207		May 07	May 07	0
	C-17 Globemaster III Aircraft A41-208		Feb 08	Dec 07	(2)
	C-17 Globemaster III Aircraft A41-209		Mar 08	Jan 08	(2)
	Australian Visual Database On Site Review		Oct 09	Oct 09	0
	Weapon System Trainer		Dec 09	Dec 09	0
	Virtual Cargo Load Model		Jul 08	**Oct 08**	**3**
Variance Explanations	Note 2: C-17 Globemaster III Aircraft Developmental Test & Evaluation (DT&E) not required as it is Military Off-The-Shelf i.e. Mature Design with no ADF unique changes. Simulated Avionics DT&E – Sub-contractor Intellectual Property issues resulted in delay in Simulated Instruments integration, although no delay is anticipated in overall Aircrew Simulator delivery date. Aircraft A41-208 and A41-209 were completed early by the manufacturer (Boeing).				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
IOC	Aug 07	Sep 07	1	Variance is minimal at approximately ten days. Nil operational implication.

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC	Dec 11	Jan 11	(11)	FOC is achieved when the C-17 Globemaster facilities and FOC related milestones are completed. The majority of these milestones are forecast to be earlier than originally planned and the last milestone is “Maintenance Training Device commissioned” which is forecast to be completed by January 2011. Therefore, FOC is also predicted to be achieved by January 2011 ahead of schedule.

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
Due to accelerated nature of the Heavy Air Lift Project, there is a risk that long-lead specialist role equipment will not be available for desired C-17 operations.	**This risk has been retired.**
Due to accelerated nature of the Heavy Air Lift Project, there is risk in delivery of mature effective logistics support to allow sustained C-17 operations of all four aircraft.	**This risk has been retired.**

4.2 Major Project Issues

Description	Remedial Action
To date, no major issues have been encountered.	N/A

4.3 Linked Projects

Project	Description of Project	Description of Dependency
N/A	N/A	N/A

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
Considerable acceleration of the standard acquisition cycle is possible when the major supplies being procured are off-the-shelf production items. However, acceleration of establishment of support systems may be more difficult and should attract early management focus.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
An administrative adjustment has been made to remove accumulated price and exchange gain of $89.8m from the Project Budget. The Project Budget (December 2009 price basis) is now $1,965m.

F/A-18 HORNET UPGRADE
AIR 5376 Phase 2

This project (Phase 2.2 only) was first reported in the 2007–08 DMO MPR

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	AVM Colin Thorne
Branch Head	AIRCDRE Roy McPhail
Project Director	GPCAPT Ian Nesbitt

History	Name	Start	End
Project Manager	GPCAPT Ian Nesbitt	Dec 07	Current
	GPCAPT Nigel Fort	Dec 05	Dec 07
	GPCAPT William Malkin	Dec 03	Dec 05
	GPCAPT Axel Augustin	Jan 01	Dec 03
	GPCAPT Roy McPhail	Jan 00	Jan 01
	GPCAPT Clive Rossiter	N/A	Jan 00

1.2 Project Context

Project	Explanation
Description	The $2,042 million Air 5376 Phase 2 Project is to upgrade the F/A-18 fleet to incorporate enhancements which will allow the aircraft to more effectively perform its air defence strategic concept tasks. This capability is being implemented in three distinct stages, the first enabling the aircraft to more effectively perform its air defence role, the second enhancing pilot situational awareness, and the final stage providing additional aircraft self protection. In addition to the physical upgrade of the F/A-18 Fleet, each stage includes an upgrade to the aircraft software to enable the upgraded hardware and commensurate upgrades to ground support and training systems.
Background	In October 1981 Australian Government selected the F/A-18 to fill the RAAF's multi-role fighter requirement. F/A-18 fleet deliveries commenced in May 1985 with the 75th delivered in May 1990. Since then the need to address equipment obsolescence and improve the F/A-18 capabilities, in line with operational requirements, resulted in the development of the F/A-18 Hornet Upgrade Program Air 5376 (known as the HUG program). Project Air 5376 Phase 2 is comprised of three main sub phases; Phase 2.1 Radar upgrade, Phase 2.2 Avionics upgrade, and Phase 2.3 Electronic Warfare upgrade. Due to the significance of the upgrades an additional sub phase was created for the commensurate upgrade of the Hornet Aircrew Training System (HACTS). Air 5376 Phase 2.1 upgraded the F/A-18 fleet to incorporate enhancements that enabled the aircraft to more effectively perform their air defence role. This sub phase included provision of new fire-control radar, and an Electronic Protection Collaborative Development Program with the US Navy to developing Electronic Protection techniques for the new fire-control radar. Air 5376 Phase 2.2 is an Avionics upgrade, providing aircrew with enhanced situational awareness, by upgrading the avionics suite with installation of the following equipment: ▪ LINK 16 Secure data link. The particular LINK 16 equipment to be fitted to the F/A-18 is known as the Multifunction Information Distribution System;

	▪ An upgraded Counter Measures Dispenser Set; ▪ Multi-Purpose Display Group Upgrade (colour displays); ▪ Upgraded digital moving map system known as the Tactical Air Moving Map Capability; ▪ Joint Mission Planning System; and ▪ Joint Helmet Mounted Cueing System. Air 5376 Phase 2.3 is an Electronic Warfare upgrade, providing additional aircraft self protection by: ▪ Replacement of the Radar Warning Receiver with an updated Raytheon Radar Warning Receiver for all RAAF F/A-18 aircraft; ▪ Supplementation of the Counter Measures Dispenser System capability with a SAAB Counter Measures Dispenser System thereby increasing expendable capacity; ▪ Supplementation of the jammer capability with the Elta jammer pod; and ▪ Enhancement of the aircraft Data Recording capability. The Air 5376 Phase 2 HACTS upgrade involves replacement of the obsolete Hornet Operational Flight Trainers with: ▪ Three Tactical Operational Flight Trainers (2 at Williamtown, 1 at Tindal) configured to simulate Air 5376 Phase 2.2 configuration aircraft; ▪ Instructor Operator Stations; ▪ Instructor/Student Debrief Stations; and ▪ Tactical Readiness Trainers.	
Uniqueness	The Project Office performs the role of prime integrator for all Air 5376 Phase 2 sub phases. Boeing (St Louis) is contracted for the aircraft integration aspects. The US Navy, through FMS, is responsible for developing core aircraft software upgrades. New equipment is sourced directly from suppliers, either via FMS or direct commercial contracts. Contracts and FMS cases are placed incrementally as requirements mature. Therefore, the Commonwealth retains a significant portion of risk through out the life of the project. Air 5376 Phase 2.2 included a collaborative program with the Canadian Forces for the development of the upgraded colour displays, achieving significant efficiencies for both countries. Air 5376 Phase 2.3 is installing some equipment which is not common with the US Navy and has not been integrated onto an F/A-18 A/B aircraft previously.	
Major Challenges	The major challenge associated with Air 5376 Phase 2.2 was the development of colour displays under a collaborative initiative with the Canadian Forces. This activity was the pacing item in respect to schedule and the Canadian Forces were responsible for the colour display program until the completion of the design phase. There are major challenges associated with Air 5376 Phase 2.3 due to the Project Office role as prime systems integrator, particularly considering the commercial and security complexities of integrating disparate systems sourced from a diverse range of commercial and national entities. The key risks relate to the development and integration of aircraft and system software, as the systems have not previously been integrated and installed in other F/A-18 Hornet fleets. The primary strategy to alleviate the software risks is an iterative development and testing regime, which draws on US Navy subject matter experts and the project resident team at the US Navy software development and testing facility. This strategy enables the early identification of any integration issues. The HACTS devices are heavily software-based, and the source code used to create the simulations is subject to export control from the US. At this stage only a small portion of software has been cleared for release to Australia. This limits the ability of the Australian contractor, Raytheon Australia, to provide software changes to meet changing simulation requirements. This has been highlighted during incorporation of Australian Unique Software Loads as a result of Hornet Upgrade activities.	
Current Status	Phase 2.1	**Cost Performance** The Project was completed within budget. **Schedule Performance** The Project was completed ahead of schedule. **Capability Performance** Capability has been accepted into service.

	Phase 2.2	**Cost Performance** The Project has achieved Technical Completion within budget. **Schedule Performance** All Hornet aircraft have been accepted within schedule. **Capability Performance** Capability has been accepted into service.
	Phase 2.3	**Cost Performance** The Project has now signed all major contracts and remains within budget. **Schedule Performance** Interim Electronic Warfare was delivered on schedule. **Capability Performance** Capability Development Group and Air Force have accepted the Interim Electronic Warfare Capability, proving the operational support concept for the Radar Warning Receiver.
	HACTS	**Cost Performance** The project has delivered contracted capability within budget. **Schedule Performance** HACTS was delivered on schedule. **Capability Performance** Ongoing upgrades are required to HACTS to introduce emerging Hornet capabilities being introduced by other Hornet and Weapon upgrades.

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	N/A	N/A	N/A
Second Pass	N/A	May 98	N/A

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
The Boeing Company(Prime)	Design and Integration	Firm / Fixed	DEFPUR101	Various
US Government	Various Equipment	Firm / Fixed	FMS	Various
Raytheon Australia	Procurement of Aircrew Training Simulators	Firm / Fixed	ASDEFCON	May 04
SAAB AB (publ)	Procurement of Counter Measures Dispenser Set and pylon modification kits	Firm / Fixed	ASDEFCON (mixed)	Various
Elta Systems Ltd	Procurement of Electronic Counter Measures Jammer	Firm / Fixed	ASDEFCON	May 08
Boeing Defence Australia and BAE Systems Australia	Aircraft modification production	Time & Materials and Firm / Fixed	Mixed	Various

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
N/A	All Sub Phases are addressed in this Report.

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Phase 2.1 Stage:	Benchmark	10	10	10	10	10	10	10	70
Project Completion	Current Project	10	10	10	10	10	10	10	70
	Explanation	Project is complete.							
Phase 2.2 Stage:	Benchmark	10	10	10	10	10	10	10	70
Project Completion	Current Project	10	9	10	10	10	10	10	69
	Explanation	Project is complete, maturity score reflects final closure of FMS Cases and Contracts yet to be achieved.							
Phase 2.3 Stage:	Benchmark	7	8	8	8	8	8	8	55
System Integration & Test	Current Project	8	7	7	7	8	8	7	52
	Explanation	▪ Schedule: Ahead of schedule for benchmark stage ▪ Costs: Major contracts still being finalised in line with iterative contracting strategy. ▪ Requirement: Design aspects of one subsystem not yet finalised. ▪ Technical Understanding: Support aspects are understood, however only partial capability in service. ▪ Operational Support: Minor elements of support and test equipment yet to be delivered.							
HACTS Stage:	Benchmark	9	10	10	10	10	9	9	67
Service Release	Current Project	9	7	9	10	9	9	9	62
	Explanation	▪ Cost: Funding estimates for finalisation activities require refinement. ▪ Requirement: Devices have been fully tested however some issues remain to be resolved before full training utility is realised. ▪ Technical Difficulty: Noting that the HACTS is based on an off-the-shelf US Navy training system, the US Navy is being engaged to assist in resolution of discrepancies discovered during Acceptance testing.							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
1,300.0	302.1	186.4	253.1	2,041.6

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Feb 99	23.9	Transfer	Transfer from other phases of AIR 5376.
Aug 00	11.3	Transfer	Transfer from AIR 5376 Phase 1 for HACTS.
Jul 01	(132.1)	Scope	White paper considerations.
Oct 02	(0.2)	Transfer	Transfer to Facilities.
Oct 03	9.3	Scope	Scope increase for HACTS.
Aug 04	(0.7)	Budgetary Adjustment	Administrative Savings harvest.
Aug 04	(1.2)	Scope	Transfer to Facilities.

Dec 04	(67.0)	Scope	Transfer for Radio Frequency Jammer.
Aug 05	(2.7)	Budgetary Adjustment	Skilling Australia's Defence Industry harvest.
May 07	412.5	Scope	Scope increase to include Hornet Electronic Warfare Self Protection Suite upgrade being conducted under Phase 2.3.
Total	253.1	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
2,041.6	1,353.4	688.2

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
95.0	95.7	0.7

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
0.7	FMS	FMS Payments made against Cases were higher in value than amounts planned to occur.
0.7	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
Phase 2.1					
The Boeing Company	N/A	N/A	Aircraft Modification kits	71	71
			Full scale production program	1	1
			Upgraded benchtop training aid	3	3
			Integrated Maintenance Training System	3	3
US Government	N/A	N/A	Radars	71	71
Phase 2.2					
The Boeing Company	N/A	N/A	Design and Development	1	1
			Prototype Aircraft	0	2
			Aircraft Modification kits	0	69
			Upgraded Colour Displays, sets	0	69
			Integrated Maintenance Training System	0	1
			Spare Colour Displays	0	25
US Government	N/A	N/A	Joint Mission Planning System	24	24
			Multifunctional Information Distribution System	Classified	Classified
			Joint Helmet Mounted Cueing System	73	73
			Counter Measures Dispensing Unit	73	73
			Advanced Memory Unit	73	73
			Aircraft Software	1	1
			Spares	Various	Various
Boeing Defence Australia / BAE Systems Australia	N/A	N/A	Fleet Modification	69	69

Phase 2.3					
The Boeing Company	N/A	N/A	Design and Development	1	1
			Aircraft Flight Test Kits	2	2
			Pylon Flight Test kits	4	4
			Aircraft Modification kits	0	73
			Pylon Modification kits	0	244
			Pylon umbilical Modification kits	0	42
			Pylon Adaptors	0	36
			Integrated Counter Measures Control Panel	0	2
Elta Systems Ltd	N/A	N/A	Electronic Counter Measures Pods	32	32
			Support and Test Equipment	Various	Various
SAAB AB (publ)	N/A	N/A	Design and Development	1	1
			Counter Measures Dispenser Set	0	76
			Pylon Modification kits	0	76
			Mission Data File Generator	0	1
US Government	N/A	N/A	Radar Warning Receivers	66	73
			Software	1	1
			Risk Reduction Program	1	1
			In Service Support	0	1
Boeing Defence Australia / BAE Systems Australia	N/A	N/A	Validation and Verification Aircraft Modification	3	3
			Interim Electronic Warfare Aircraft Modification	14	14
Boeing Defence Australia	N/A	N/A	Fleet Modification	68	68
HACTS					
Raytheon Australia	N/A	N/A	Tactical Operational Flight Trainers	3	3
			Tactical Readiness Trainers	0	3
			Software	1	1
			Tactical Operational Flight Trainers hardware upgrade	0	1
			Spares	Various	Various
Explanation	Base date dollars have not been provided for this project. As the prime systems integrator, the Commonwealth is undertaking a strategy of incremental contracting of work packages as they are defined. This results in varying base dates for almost 50 separate work packages contracted. As a result expressing real price increases/ decreases at a total prime contract level in base date dollars is not feasible.				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
N/A	N/A	N/A
Explanations	Contract expenditure in base date dollars has not been provided for this project. Because of the inability to populate table 2.6 for Contract Prices at base date dollar figures, progress payments in base date dollar terms is not feasible.	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Requirements	Phase 2.1	N/A	N/A	N/A	N/A
	Phase 2.2	Feb 02	Feb 02	Feb 02	0
	Phase 2.3	Jan 07	Jan 07	Jan 07	0
	HACTS	Sep 04	Sep 04	Sep 04	0

Preliminary Design	Phase 2.1	N/A	N/A	N/A	N/A
	Phase 2.2	Sep 02	Sep 02	Sep 02	0
	Phase 2.3 (SDR)	Jan 07	Jan 07	Jan 07	0
	HACTS	Jan 05	Jan 05	Jan 05	0
Critical Design	Phase 2.1	N/A	N/A	N/A	N/A
	Phase 2.2	Mar 03	Mar 03	Mar 03	0
	Phase 2.3	Jun 07	Jun 07	Jun 07	0
	HACTS	Mar 05	Mar 05	Mar 05	0
Variance Explanations	N/A				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	Phase 2.1	N/A	N/A	N/A	N/A
	Phase 2.2 (First Article Contract / Project acceptance)	Feb 05	Jan 05	Jan 05	(1)
	Phase 2.3 (System Integration Lab Test)	May 07	May 07	May 07	0
	HACTS (Factory Acceptance Test)	May 06	May 06	May 06	0
Acceptance	Phase 2.1	N/A	N/A	N/A	N/A
	Phase 2.2 (Aircraft Modification DMO Acceptance – A&B model)	Nov 05	Nov 05	Nov 05	0
	Phase 2.3 (Aircraft Verification and Validation)	Sep 08	Sep 08	Aug 08	(1)
	HACTS (Site Acceptance Test)	Jun 06	Jun 06	Jun 06	0
Variance Explanations	Modification of Validation and Verification aircraft completed earlier than anticipated.				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
Phase 2.1 IOC	N/A	N/A	N/A	N/A
Phase 2.2 IOC	Apr 07	Apr 07	0	N/A
Phase 2.3 IOC	Nov 09	Nov 09	0	N/A
HACTS IOC	N/A	N/A	N/A	N/A

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
Phase 2.1 FOC	N/A	N/A	N/A	N/A
Phase 2.2 FOC	Dec 07	Dec 07	0	N/A
Phase 2.3 FOC	Aug 11	Aug 11	0	N/A
HACTS FOC	N/A	N/A	N/A	N/A

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

	Description	Remedial Action
Phase 2.1	There are no outstanding risks associated with this sub phase as it is technically complete.	N/A
Phase 2.2	There are no outstanding risks associated with this sub phase as it is technically complete.	N/A

Phase 2.3	There is a chance that the upgraded F/A-18 A/B Electronic Warfare system will be affected by the inability to adequately test the Electronic Warfare threat libraries leading to an impact on safety.	Phase 2.3 Ground Systems Manager to develop a Memorandum Of Understanding with Airborne Self Protection Systems Program Office to purchase a new simulator and to identify lower level activities.
	There is a chance that the F/A-18 A/B Operational Flight Program test program will be affected by the late delivery of the first F/A-18 Electronic Counter Measures jammer pod leading to an impact on schedule and performance.	Closely monitor Elta System's progress in delivering the F/A-18 Electronic Counter Measures jammer pod.
HACTS	There is a chance that Australian Unique Software Loads will not be compatible with HACTS leading to an impact on performance project cost and schedule.	HACTS Program Office is developing mitigation strategies with Key Stakeholders to address the risk and enable future loading of Australian Unique Software Loads.
	There is a chance that HACTS capability will not be optimised and/or rectified leading to an impact on performance, cost and schedule.	HACTS Program Office and Prime contractor are developing a Common Identification Document to capture all Air Combat Group Issues and activities of concern. This document will enable all parties to communicate and prioritise treatment of any known risks.

4.2 Major Project Issues

	Description	Remedial Action
HACTS	The HACTS is unable to host the latest version of the Australian unique aircraft software load.	Continue to investigate issue through HACTS Original Equipment Manufacturer.

4.3 Linked Projects

Project	Description of Project	Description of Dependency
JP 2030	JP 2030 seeks to acquire a common aircraft Mission Planning System capability for F-111, AP-3C, LIF and F/A-18 aircraft. Air 5376 will consider the interface requirements necessary for data transfer between Mission Planning System and the F/A-18.	Air 5376 was dependent on JP 2030 for their Mission Planning System framework and standard hardware requirements when considering the interface requirements necessary for data transfer between Mission Planning System and the F/A-18.

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
Integrated Product Teams: Integrated Product Teams for all project disciplines (engineering, logistics, commercial, test and evaluation, and display development) were established with members from all major stakeholders (Commonwealth, Prime and Sub contractors, US and Canadian Government representatives). Integrated Product Teams met formally on a regular basis and significant issues were raised to an overarching management Integrated Product Team. As well as ensuring progress towards a common goal, the Integrated Product Teams enabled the implementation of many other Project initiatives that relied on quick and honest communication between all parties.
Joint risk and schedule Management: Through the Integrated Product Teams a common risk and schedule management methodology was implemented for the entire project. Boeing, as the prime integrator, provided a vehicle to manage both risk and schedule in a common tool. Pro-active management of risks was encouraged and many mitigation strategies, particularly in respect to display development, were implemented to avoid schedule delays.
Proactive contract management: Due to the incremental contracting nature of the project, joint and proactive contract management was essential. Regular commercial Integrated Product Teams provided an effective vehicle to manage the prime integration contract with Boeing and FMS cases with the US Government.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
IOC milestone for Phase 2.3 has moved to April 2010 due to delays in software design data from US Navy for the Operational Flight Program.

GUIDED MISSILE FRIGATE UPGRADE IMPLEMENTATION

SEA 1390 Phase 2.1

This project was first reported in the 2007–08 DMO MPR

2008–09 Updates are reported in **bold purple** formatted text

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	RADM Boyd Robinson
Branch Head	**CDRE Mick Uzzell**
Project Director	Mr Mal Adams

History	Name	Start	End
Project Manager	Mr Mal Adams	Sep 03	Current
	CAPT Mal Adams	Jan 02	Aug 03
	CAPT Peter Law	Apr 98	Jan 02
	CAPT John Walton	Jul 96	Jun 98

1.2 Project Context

Project	Explanation
Description	The **$1,537 million** Sea 1390 Phase 2 Guided Missile Frigate (FFG) Upgrade Project seeks to regain a comparative regional maritime capability by upgrading four (originally six) *Adelaide* Class FFGs, and to ensure that they remain effective and supportable until their removal from service between 2015 and 2021. RAN FFGs are a derivative of the US Navy *Oliver Hazard Perry* FFG-7 class Guided Missile Frigates. Each FFG is receiving an improved Anti-Ship Missile Defence system; an On Board Training System; an Electronic Support System; an upgraded Underwater Warfare System, upgraded diesel generators and other ship systems. The upgrade project is also establishing a shore-based Operator and Team Trainer system and a Warfare System Support Centre.
Background	The project's implementation phase commenced in June 1999, when the Prime Contract with Australian Defence Industry (now Thales Australia) was signed. The contract provides for Thales to have total contract performance responsibility and sole responsibility for the upgrade of each FFG. The role of the Systems Program Office in relation to the technical aspects of the upgrade has been and is generally limited to reviewing and commenting upon the activities proposed to be conducted by the prime contractor. As a result of the contractor taking substantially longer than the original schedule, the project was re-baselined in April 2004 and again in May 2006. The re-baselining deferred the delivery of all FFGs with the last ship being deferred by four and a half years. In November 2003 the Government determined that the Guided Missile Frigate fleet would be reduced from six to four ships with the two oldest FFGs to be removed from service, prior to their planned upgrade and life extension. In mid 2006 the prime contract was changed with scope reduced from six to four ships (oldest FFGs, HMA Ships *Adelaide* and *Canberra* not upgraded), settlement of delay claims, changes to the master schedule and milestones, and changes to provisional acceptance processes of upgraded ships from the prime contractor all contributed to the delays. The financial impact of this global settlement was reflected by a reduction in prime contract price of $40m. This recognises the engineering development investment and six ship sets of equipment were not affected by the reduction in the number of upgraded ships from six to four.

	Subsequent difficulties with compliance led DMO to refuse approval of contractors test procedures. In April 2005 Thales elected to proceed 'at its own risk' with a test and trial regime outside of the contractual terms. The contractor saw this as the only feasible approach to completing the project. The complexity of the program was initially underestimated. The performance specifications were not formalised and agreed before contract signature and this has impacted the delivery and agreement of the offered capability and development of the test program. Provisional Acceptance of HMA Ships *Sydney, Melbourne* and the Team Trainer, located at HMAS WATSON were achieved in December 2006, October 2007 and November 2007 respectively. HMAS *Darwin* **achieved** Provisional Acceptance in August 2008. HMA Ships *Sydney* and *Melbourne* now operate under Navy control and continue to work towards the achievement of Initial Operational Release by Navy. This has been delayed by performance shortcomings/deficiencies in the underwater warfare systems and electronic support system. The prime contractor continued to rectify these shortcomings/ deficiencies before contractual acceptance. The combat system Operator and Team Trainers are being used for Navy training. In October 2007, HMAS *Sydney* conducted Evolved Sea Sparrow Missiles firings on a US Navy range off Hawaii, US. This demonstrated several key components of the FFG Upgrade; namely, the Evolved Sea Sparrow Missile System, along with the new Vertical Launching System Mk41, Australian Distributed Architecture Combat System and software confirming their capability against hostile air threats. HMAS *Newcastle*, the last FFG to be upgraded, commenced its upgrade in October 2007; completing the docking phase of the upgrade in April 2008 and at 30 June 2008 was undertaking combat system installation and production work, with the set to work and initial harbour acceptance trials of the platform systems scheduled for August 2008. The Prime Contractor has continued to maintain the revised schedule approved in June 2006 and **achieved** Provisional Acceptance of HMAS *Newcastle* **in May 2009**.
Uniqueness	This project presents challenges due to the complex and extensive weapon, sensor, combat, and command and control systems upgrades that are required to be integrated into an Australian developed combat data system architecture. The integration work includes the world's first FFG installation of a Vertical Launching System for firing Evolved Sea Sparrow Missiles and Mk 92 Mod 12 fire control system into the *Adelaide* class FFG. The FFG upgrade project includes the development of the Australian Distributed Architecture Combat System, which contains over one million source lines of newly developed computer code. This software development is occurring in conjunction with electronic system hardware development and integration. The Australian Distributed Architecture Combat System processes and displays radar, sonar and electronic support system data, assisted by a new Australian developed Radar Integrated Automatic Detection and Tracking system.
Major Challenges	**The majority of the high risk development and integration of software products have been addressed and have either been retired or are being managed. The majority of the contractual requirements for the electronic support and Underwater Warfare Systems have been met. DMO is working collaboratively with Navy and Thales Australia to deliver an Electronic Support and Underwater Warfare Systems that will meet the requirements of Navy's operations needs.**

Current Status	**Cost Performance** Project cost estimate remains within the current approved Project budget. **Schedule Performance** The Prime Contractor has continued to perform to the revised schedule approved in June 2006. **Capability Performance** **All four FFGs have now received their upgraded equipment. Since Provisional Acceptance, HMA Ships *Sydney*, *Melbourne* and *Darwin* have been in operation with Navy. Contractual acceptance of HMAS *Sydney* and *Darwin* and upgraded software was achieved in November 2008 in accordance with the provisions of a Deed of Amendment. The requirements of the Deed were met and Contractual Acceptance of FFG Upgraded Software was achieved in May 2009 following closure of open software problem reports. Contractual Acceptance of HMAS *Melbourne* was achieved in December 2008. HMAS *Newcastle*, the last FFG to enter the program, achieved Provisional Acceptance by the DMO and was handed back to Navy in May 2009.** **Tactical Data Information Link, LINK 16 functionality testing was achieved in August 08 and assessed suitable for operational use under waiver. The first 'live' LINK 16 Data Link to be established by a RAN unit was achieved in January 2009 between HMAS *Melbourne* and various US Navy units.** **A three phased 'incremental' approach for Initial Operational Release and Operational Release has been agreed by the DMO and Navy as the most pragmatic means by which to bring the FFG class to full operational employment. The first of these phases was achieved in April 2009 and all phases are planned to be achieved by December 2009 by which time full Initial Operational Release by Navy for the FFG Class as well as final Contractual Acceptance from Thales is expected to occur.**

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	N/A	N/A	N/A
Second Pass	N/A	Jun 99	N/A

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
Thales Australia (formerly Australian Defence Industry Ltd)	Procurement of upgrades to its FFGs; associated Supplies; provision of a Warfare Systems Support Centre; improvements to the RAN's Operator Trainer and Team Trainer; and logistic support infrastructure and relevant facilities.	Variable	DEFPUR 101	Jun 99

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
Sea 1390 Phase 4A	Purchase of the Mk698 Test Set for logistic support and all up round depot level maintenance of the Standard Missile 2 at Defence Estate Orchard Hills, Sydney.
Sea 1390 Phase 4B	Acquire and integrate the Standard Missile 2 into four RAN *Adelaide* Class FFGs at the Mid-Course Guidance standard, and acquisition of Initial Ship Outfit and Inventory Stock missiles.

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage:	Benchmark	**8**	**8**	**8**	**8**	**9**	**8**	**8**	**57**
Acceptance Testing	Current Project	**8**	**8**	**8**	**8**	**8**	**8**	**9**	**57**
	Explanation	**There is some necessary final Contract Acceptance testing to complete but systems are performing and requirements sell off is being finalised. Transition of operating and support systems to the operating environment and FFG SPO sustainment are well advanced. Navy Integrated Logistic Support Certification achieved.**							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
1,266.0[1]	**223.3**	**201.1**	(153.4)	**1,536.9**

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Nov 98	(0.1)	Budgetary Adjustment	Overseas travel not required.
Jul 99	(152.6)	Transfer	Transfer to Project Sea 1428 Ph 2A for the procurement of Evolved Sea Sparrow missiles on behalf of Sea 1390 Phase 2.
Aug 04	(0.7)	Budgetary Adjustment	Administrative Savings harvest.
Total	(153.4)	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
1,536.9	**1,297.0**	**239.9**

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
108.9	**124.8**	**15.9**

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
15.9	**Bring forward of work from 09/10**	**Milestones achieved ahead of that scheduled.**
15.9	Total Variance	

[1] This project's original DMO budget amount is that prior to achieving Second Pass Government approval.

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
Thales Australia	898.6	1,039.3	Upgraded Ships and concurrent refit	6	4
			Ships Sets	6	6
			Team Trainer	1	1
			Warfare Systems Support Centre	1	1
			Buildings 66, 67 and 80	3	3
			Upgrade Software	1	1
			Spares	0	(1)
			Operator Training	2	4
			Operator Trainer	0	3
			Underwater Warfare System Recorder	0	1
Explanation	The original contract was structured requiring price increases to be agreed at the time for each ships major refit concurrent with Upgrade production. Contract price increases (Contract base date $) can be categorised as follows: $59.8m (a) $19.3m (b) $(40.0)m (c) $89.7m (d) $128.8m Total Note a. Concurrent maintenance refit HMA Ships *Sydney, Melbourne, Darwin* and *Newcastle* Note b. Delay claims (in addition to the delay agreed under the May 2006 Deed of Settlement and release (global settlement). Note c. $(40)m reduction for Partial Termination at Commonwealth Convenience under May 2006 Deed of Settlement and Release (global settlement). Note d. Changes related to Commonwealth obligations for capability, capability enhancements, additional scope including spares packages and ship crew training. Note1: **$29.1 million** worth of spares not originally included in the contract.				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
Thales Australia	**1,039.3**	N/A
Explanations	**Contract expenditure in base date dollars has not been provided. Defence's financial management system, ROMAN, maintains authoritative data on the total amount expended against the project and related contracts, but this project does not manage ROMAN transactions in a way that facilitates separation into base date and variation payments against individual contracts in that system.** **Due the age of the project, this project originally recorded payments in DEFMIS, a financial management system that has since been superseded by Defence's current ROMAN system.** Note that Performance Incentive Fee was Outside Original Contract Price and Current Contract Price and Payment Schedule and therefore not included in the total contract price detailed above. The contract price at 30 June 2009 includes the cost of ship concurrent planned maintenance availabilities (ship repair). These costs are met by in-service support funds.	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Requirements	Completion of all Software Specification Reviews	Aug 00	Aug 00	May 01	9
Preliminary Design	Completion of all Preliminary Design Reviews	Oct 00	Oct 00	May 01	7
Critical Design	Completion of all Critical Design Reviews (Critical)	Apr 01	Nov 06	Apr 07	72
Variance Explanations	Software development and design was delayed due to Australian Defence Industry (now Thales Australia) repatriating the Combat System Design Authority role from Lockheed Martin in early 2001 and implementing the Australian Distributed Architecture Combat System. Thales then elected, as allowed by the Prime Contract, to deliver the contracted capability in three software baselines for technical risk mitigation. Critical Design Review to Baseline Build 2 software completed in December 2006. Critical Design Review for Baseline Build 3 software completed in April 2007.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	HMAS *Sydney*	Dec 02	**Sep 05**	**Sep 05**	**33**
	HMAS *Melbourne*	Jul 03	Feb 07	Jun 07	47
	HMAS *Darwin*	Feb 04	Feb 08	May 08	51
	HMAS *Newcastle*	Jul 04	Feb 09	Feb 09	55
Provisional Acceptance	HMAS *Sydney*	May 03	Dec 06	Dec 06	43
	HMAS *Melbourne*	Jan 04	Oct 07	Oct 07	45
	HMAS *Darwin*	Jul 04	Aug 08	Aug 08	49
	HMAS *Newcastle*	Jan 05	Jun 09	**May 09**	**52**
	Team Trainer	Apr 02	Feb 07	Nov 07	67
	Warfare Systems Support Centre	Apr 04	Nov 08	Nov 08	55
Acceptance	HMAS *Sydney*	Apr 04	Nov 08	Nov 08	55
	HMAS *Melbourne*	Sep 04	Nov 08	**Dec 08**	**51**
	HMAS *Darwin*	Mar 05	Nov 08	Nov 08	44
	HMAS *Newcastle*	Sep 05	Dec 09	Dec 09	51
	Team Trainer	Sep 06	Dec 09	Dec 09	39
	Warfare Systems Support Centre	Sep 06	Dec 09	Dec 09	39
Variance Explanations	Schedule delays to this program have resulted from the program complexity being underestimated from the outset. Two schedule re-baseline activities have been required; the latest as Contract Change Proposal 255, which encompassed: ▪ the Commonwealth partial termination for convenience of the Upgrade of HMA Ships *Adelaide* and *Canberra*; ▪ settlement of an Australian Defence Industry Ltd HMAS *Sydney* delay claim; ▪ a revised viable contract master schedule with a Contract Final Acceptance of December 2009 but within the variable fixed price; ▪ improved payment terms going forward; and ▪ more certainty in the process and criteria for contract Provisional Acceptance whilst maintaining Australian Defence Industry Ltd, trading as Thales Australia, capability upgrade contract obligations for the remaining program. Contract Change Proposal 255, signed in May 2006, closed out a major contract renegotiation effort. This has assisted in achieving performance improvements against the contract. Further schedule adjustment to project end date has not been required.				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
HMAS *Sydney*	May 03	**Apr 09**	**71**	**A three phased 'incremental' approach for Initial Operational Release and Operational Release has been agreed by the DMO and Navy as the most pragmatic means by which to bring the FFG class to full operational employment. Program complexity issues were addressed in preparation for Contractual Acceptance for HMA Ships *Sydney*, *Darwin* and *Melbourne* in November / December 2008.**
HMAS *Melbourne*	Jan 04	**Apr 09**	**63**	
HMAS *Darwin*	Jul 04	**Apr 09**	**57**	
HMAS *Newcastle*	Jan 05	**Aug 09**	**55**	**HMAS *Newcastle* achieved Provisional Acceptance in May 2009. It is intended that Initial Operational Release will be coincident with *Sydney*, *Darwin* and *Melbourne* at Initial Operational Release Phase 2.**

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
HMAS *Sydney*	Jul 04	**Dec 09**	**65**	**A three phased 'incremental' approach for Initial Operational Release and Operational Release has been agreed by the DMO and Navy as the most pragmatic means by which to bring the FFG class to full operational employment.**
HMAS *Melbourne*	Dec 04	**Dec 09**	**60**	
HMAS *Darwin*	Jun 05	**Dec 09**	**54**	
HMAS *Newcastle*	Dec 05	**Dec 09**	**48**	

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
Thales Australia may not meet Combat System Software product and schedule contract requirements.	**This risk has now been substantially reduced with the FFG Upgrade software achieving Contractual Acceptance in May 2009 and requirements metrics showing good progress.**
There is a chance that FFG capability support will be affected by an inability to establish effective software support and configuration management arrangements for upgraded systems software leading to an impact on supportability and performance.	**Establish business case and in service support contract.**
There is a chance that FFG Upgraded systems will be affected by inadequate/deficient Reliability Availability and Maintainability (RAM) data leading to an impact on supportability and performance.	**FFG SPO to acquire expert logistics support to review Thales FFG Upgrade contract delivered ILS information and report. Procure additional spares as necessary. Integrated Logistics Support Navy certification achieved April 2009.**
There is a chance that Operational Support will be affected by a sub-optimal Warfare Systems Support Centre facility configuration leading to an impact on supportability and performance.	**Undertake review of existing infrastructure. Implementing short term changes. Undertaking a needs analysis for future requirements.**

4.2 Major Project Issues

Description	Remedial Action
Project may not meet current Navy Technical Regulatory requirements/expectations within the bounds of the Contract.	**No longer a major issue. Safety cases for HMA Ships *Sydney*, *Darwin* and *Melbourne* have been endorsed. HMAS *Newcastle* has been submitted for endorsement. Regulatory Review Group has been retained for oversight.**
For Operational Release, the Electronic Support System (C-Pearl) contracted performance may not be met.	**An Electronic Support Stakeholder Group was formed in December 2007 to work collaboratively in problem solving and reaching contracted performance levels. The Commonwealth, Thales Australia and Rafael personnel have worked collaboratively to remedy performance shortcomings and determine a way ahead for C-Pearl Electronic Support as a matter of urgency.**
For Operational Release, the Torpedo Defence Systems integration and performance may not be met and is primarily associated with system grooming and population of supporting libraries.	**DSTO, engaged to support analysis and further testing, conducted thorough analysis of trials data, with DSTO assistance to Prime and Sub-Contractor at DSTO facilities and Land Based Test Site, Sydney.**
For Operational Release, the Hull Mounted Sonar (Spherion) performance may not be met.	**DSTO engaged to support analysis and further testing. Overseas trials have indicated small improvements in performance. Engaged Navy and RAN Technical Evaluation and Analysis Authority assistance for performance assessment.** **Working collaboratively with the Prime and Subcontractor, DSTO and RAN Technical Evaluation and Analysis Authority in an Integrated Product Team framework to assess and resolve system perceived deficiencies.**

4.3 Linked Projects

Project	Description of Project	Description of Dependency
Sea 1390 Phase 4B Standard Missile 1 Missile Replacement	Acquire and integrate the Standard Missile 2 missile into four RAN *Adelaide* Class Guide Frigates at the Mid-Course Guidance standard, and acquisition of Initial Ship Outfit and Inventory Stock missiles.	Sea 1390 Phase 4B builds on the capability from Sea 1390 Phase 2 and depends on the capability to be sufficiently mature for the inclusion of this additional capability. The initial in-service date for the Guided Missile Frigate Standard Missile 2 lead ship is 2009.

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
Requirements and specifications must be well defined and agreed before contract signature. Where detailed specifications cannot be defined fully prior to contract signature, such as when systems definition and new design work must be undertaken within a developmental project phase, then the end capability requirements and priorities must be well defined and agreed.
A fundamental issue to consider at the time of capability and project definition is how the capability should be acquired. If the project is developmental, then consideration should be given to methods other than a fixed price contract for achieving the capability. Contracts should include appropriate clauses that recognise the complexities of verifying and validating a software development project. Multi platform upgrades should allow for implementation and testing/acceptance of the first platform without committing to a full class upgrade of all platforms. Conducting an upgrade of an existing capability concurrent with scheduled maintenance availability requires very detailed planning and careful consideration of the supporting contract clauses.

Procurements that include significant change to software-intensive systems and complex system integration have many inherently high-risk activities, which must be analysed and appropriate risk mitigation processes applied. Such risks are often under-estimated in the planning phase.
The contract schedule must be accepted by all parties as realistic and achievable from the outset. Each party must be committed to achievement of the schedule and aware of the consequences of non-achievement, plus any provisions for delay outside the contractor's control. The contract should contain: ▪ milestones which enable the Commonwealth to unambiguously assess Contractor performance from the outset of the Contract; ▪ with the exception of non-recurring engineering effort, payment of all or a substantial part of the contract price should be subject to achievement of clear project milestones; ▪ milestones should reflect delivery of contracted requirements to the Commonwealth, not just reaching intermediate points on the timeline; ▪ milestones which enable use of the equipment and supplies (such as integrated logistics support and training) should be given similar weight as delivery of the equipment itself; ▪ payment on achievement of milestones should be conditional on achievement of previously scheduled milestones; ▪ payment of milestones should also be tied to remedies under the contract to allow the Commonwealth to seek redress; and ▪ clear entitlements of the Commonwealth to access all contractor project data (including internal workforce planning data) so as to be able to make informed assessments if a milestone is not achieved.
For very large developmental contracts, project managers must ensure that the contractor maintains sufficient focus and resourcing on documenting what is being delivered and how to use it (through ILS, configuration management and training). Milestones must be structured so that the contractor is not tempted to focus on equipment deliverables only. Payment for equipment milestones should be conditional on achievement of related ILS milestones. The contract should be clear on configuration management requirements of ILS products in an incremental delivery software development project. This should align to milestones and remedies in the contract.
Objective acceptance criteria are required to ensure there is no scope for dispute as to whether the criteria have been met. Criteria for determining contractual achievement should support those criteria used by Defence for determining achievement by DMO of the measures of effectiveness in the MAA.
Major maritime software development should be incremental and delivery does not have to be aligned with the platform modification program.
Implement a progressive acceptance methodology from the outset for all project data/ documentation supplies and requirements acceptance objective quality evidence in order to progressively increase confidence of all stakeholders involved with regard to project outcomes.

Section 6 – Addendum

6.1 Addendum

Material Events Post 30 June 2009
A collaborative approach has continued between Thales Australia, DSTO and DMO to better understand the classification and auto display for the underwater warfare systems. Equipment is now temporarily installed at Edinburgh to facilitate underwater warfare system data replay and system tuning. **Outstanding contractor sea trials were successfully completed and numerous system performance issues demonstrated as resolved in August 2009. This included updates to the Electronic Support software/ firmware and successful system performance trials at sea. The results of these trials are being considered by the Navy for the ship's Operational Release. An 'incremental' approach for both Initial Operational Release and Operational Release as agreed by the DMO and Navy continues to be aggressively pursued.** **Contractual Acceptance of the last ship to proceed through the FFG Upgrade program, HMAS *Newcastle*, was achieved in September 2009 well ahead of the contracted date of December 2009. Contractual Acceptance of the Electronic Support Operator Trainer was achieved in September 2009. Contract Final Acceptance for all deliverables of the FFG Upgrade contract remains on schedule for December 2009.**
The forecast IOC date for HMAS Newcastle is now scheduled to be achieved in December 2009.
The forecast FOC date for the FFG Upgrade program will be more likely in mid-late 2010.

F/A-18 HORNET UPGRADE STRUCTURAL REFURBISHMENT
AIR 5376 Phase 3.2

This project was first reported in the 2008–09 DMO MPR

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	AVM Colin Thorne
Branch Head	AIRCDRE Roy McPhail
Project Director	GPCAPT Ian Nesbitt

History	Name	Start	End
Project Manager	WGCDR Damien Keddie	Dec 07	Current
	WGCDR Ian Nesbitt	Jan 05	Nov 07
	WGCDR John Adams	Jan 04	Dec 04
	WGCDR Steve Drury	Jan 02	Dec 03

1.2 Project Context

Project	Explanation
Description	The $938 million F/A-18 Hornet Upgrade Air 5376 Phase 3.2 project is a structural modification project that is required to address structural deficiencies identified during the F-18 International Follow-On Structural Test Program. The project is divided into two structural refurbishment program, each providing a different amount of fatigue life to the aircraft to allow the Hornet fleet to reach its Planned Withdrawal Date as explained below: ▪ A number of aircraft will have their centre barrels (the primary load bearing structure in the aircraft) replaced along with a few other discrete modifications and inspections providing continued airworthiness from 72% to 100% of the intended structural fatigue life. This program is called Structural Refurbishment Program (SRP) 2. ▪ The remainder of the Hornet fleet will undergo a range of other discrete structural modifications providing continued airworthiness from 72% to 85% of the intended structural fatigue life. This program is called SRP1D.
Background	The F/A-18 Hornet was designed to reach a structural fatigue life of 6,000 hours based on a US Navy fatigue usage spectrum. However, RAAF fatigue usage is more severe than the US Navy fatigue usage meaning that RAAF Hornets would exhaust their fatigue life far earlier than the manufacturer's specified 6,000 hours. Without some further analysis and structural modification, the RAAF Hornet would not reach its Planned Withdrawal Date. In order to address this issue the RAAF, in collaboration with Canada, initiated the F-18 International Follow-On Structural Test Program to determine the fatigue life of the aircraft and identify modifications to ensure the continued safe operation up to 6,000 flying hours. The results of the F-18 International Follow-On Structural Test Program showed that both RAAF and Canadian Forces Hornet fleets required major mid-life structural modifications to reach a structural fatigue life of 6,000 hours. A number of the proposed modifications are being incorporated on the Hornet fleet during the Hornet Upgrade Air 5376 Phase 3.1 Project providing continued airworthiness up to 72% of the intended structural fatigue life. Phase 3.2 incorporates further structural modifications as described in the Project Description above providing sufficient fatigue life for the Hornet fleet to reach its Planned Withdrawal Date. L-3 Communications MAS (Canada) Inc. based in Mirabel, Canada was the contractor selected for design and prototyping of the Hornet Upgrade Phase 3.2 modifications. L-3 Communications MAS (Canada) Inc. was selected due to its experience in designing, prototyping and installing almost identical modifications on the Canadian Hornet fleet.

Uniqueness	This project does not introduce any new capability to the Hornet aircraft fleet. It is a large structural modification program designed to ensure the structural fatigue life of the fleet is sufficient to meet the Planned Withdrawal Date. Therefore, the project does not have an Initial Operational Capability or Final Operational Capability.
Major Challenges	The nature of structural refurbishment of an ageing aircraft is such that unknown conditions may be revealed in the process of disassembly. This may result in more extensive refurbishment work becoming necessary and its unpredictable nature poses a challenge to the production schedule. As a further consequence of the disassembly required during structural refurbishment, additional parts may be required to replace those that are found to be unserviceable. Obtaining these parts in time to maintain the production schedule is a major risk confronting the project.
Current Status	**Cost Performance** 19 aircraft have been modified to SRP1D configuration and three aircraft have been modified to SRP2 configuration. All modified aircraft have been accepted within budget. **Schedule Performance** All modified aircraft have been accepted within schedule. The remaining aircraft to be modified are scheduled for completion by December 2012 for SRP1D and June 2010 for SRP2. **Capability Performance** Modified aircraft meet the project technical specification and have been accepted back into service.

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	N/A	N/A	N/A
Second Pass	N/A	Oct 03	N/A

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
L-3 Communications MAS (Canada) Inc.	Design and Integration, prototype installation, modification kits parts SRP1D (3 aircraft) and SRP2 production	Fixed Price / Time & Materials	ASDEFCON	Dec 04
Boeing Defence Australia	Aircraft modification production (16 SRP1D aircraft)	Time & Materials	DEFPUR Hybrid	Jun 04
BAE Systems Australia	Aircraft modification production (2 SRP1D aircraft)	Time & Materials	ASDEFCON	Jan 08
BAE Systems Australia/ L-3 Communications MAS (Canada) Inc. *(Consortium)*	Aircraft modification production (21 SRP1D aircraft)	Fixed Price / Time & Materials	ASDEFCON	Apr 09
US Government	Modification Parts	FMS	FMS	Aug 04

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
N/A	N/A

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage: Acceptance Into Service	Benchmark	9	10	10	10	10	9	9	67
	Current Project	10	9	10	10	10	8	10	67
	Explanation	Schedule: Project is ahead of schedule for benchmark stage. Cost: Cost risk retired, higher score cannot be achieved until project closure is completed. Commercial: Contractor is delivering as scheduled and contracted. Operations and Support: Operating system not applicable to this refurbishment project.							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
156.6	129.1	(20.4)	672.5	937.8

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Aug 04	(0.1)	Budgetary Adjustment	Administration Savings harvest.
Aug 05	(1.0)	Budgetary Adjustment	Skilling Australia's Defence Industry harvest.
Oct 06	673.6	Scope	Second Pass Approval to provide structural refurbishment for additional F/A-18 aircraft to ensure sufficient aircraft life until the transition to the New Air Combat Capability.
Total	672.5	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
937.8	252.2	685.6

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
82.5	88.0	5.5

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
3.2	Bring Forward of work from 2009/10	Overspend due to early SRP1/1D production, wing condition assessment carried out during SRP2, early achievement of milestones (brought in from 2009/10). FOREX variation is due to adverse exchange rates. Lower parts and emergent work costs on SRP2 aircraft has reduced EOFY variance.
0.6	Commonwealth delays	
1.7	FOREX Variation	
5.5	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
L-3 Communications MAS (Canada) Inc.	N/A	N/A	SRP2, initial engineering and first prototype aircraft	1	1
			Incorporation of a structural package inclusive of three modifications;	0	1
			Engineering support and production pre-planning activities	0	1
			Program management activities including the design and manufacture of production tooling;	0	1
			SRP2 modifications on second prototype aircraft	0	1
			SRP2 modifications on eight production aircraft	0	8
			SRP1D suite of seven modifications on the prototype aircraft	1	1
			SRP1D suite of seven modifications on two aircraft	0	2
Boeing Defence Australia	N/A	N/A	Program planning and commencement	1	1
			SRP1D suite of seven modifications on 16 aircraft	0	16
BAE Systems Australia/ L-3 Communications MAS (Canada) Inc.	N/A	N/A	SRP1D suite of seven modifications on two aircraft	2	2
			SRP1D suite of seven modifications on 21 aircraft	0	21
US Government	N/A	N/A	Centre Barrels and modification kits	4	34
Explanation	Base date dollars have not been provided for this project. As the prime systems integrator, the Commonwealth is undertaking a strategy of incremental contracting of work packages as they are defined. This results in varying base dates for over 30 separate work packages contracted. As a result expressing real price increases/decreases at a total prime contract level in base date dollars is not feasible.				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
N/A	N/A	N/A
Explanations	Contract expenditure in base date dollars has not been provided for this project. Because of the inability to populate table 2.6 for Contract Prices at base date dollar figures, progress payments in base date dollar terms is not feasible.	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Requirements	SRP1D Modifications	Apr 03	N/A	Apr 03	0
	SRP2 Modifications	Jun 03	N/A	Mar04	9(1)
Preliminary Design	SRP1D Modifications	Jan 04	N/A	Jan 04	0
	SRP2 Modifications	Feb 05	N/A	Feb 05	0
Critical Design	SRP1D Modifications	Jul 04	N/A	Dec 04	5
	SRP2 Modifications	Oct 05	N/A	Oct 05	0
Variance Explanations	Note(1): the first version was delivered in June 2003, however was rejected in February 2004 due to administrative delays in defining the SRP2 scope.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	SRP1D Prototype Modifications – DMO Acceptance	Jan 06	N/A	Jan 06	0
	SRP2 Prototype Modifications – DMO Acceptance	Dec 07	N/A	Feb 08	2
Acceptance	N/A	N/A	N/A	N/A	N/A
Variance Explanations	The first SRP2 prototype aircraft was delayed by two months due to emergent issues discovered during prototype rebuild.				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
IOC	N/A	N/A	N/A	Refer to Table 1.2 Project Uniqueness.

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC	N/A	N/A	N/A	Refer to Table 1.2 Project Uniqueness.

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
Long-term Hornet aircraft availability may be affected by Ageing Aircraft issues, leading to an impact on performance.	Develop a business case to detail requirements of a further structural refurbishment program to address Ageing Aircraft issues.
Lack of Maintenance Managed Items needed during the rebuild of modified aircraft leading to an impact on schedule, cost, and performance.	Renegotiate Maintenance Managed Items critical need dates with installation contractor. Negotiate Maintenance Managed Items provision with Item Managers. Cannibalise Maintenance Managed Items from other aircraft in work.

4.2 Major Project Issues

Description	Remedial Action
There are no major issues impacting the project at the time of submitting this document.	N/A

4.3 Linked Projects

Project	Description of Project	Description of Dependency
Air 5376 Phase 3.1	Air 5376 Phase 3.1, the first of a two-staged structural refurbishment program, seeks to extend the structural fatigue life of the F/A-18 Hornet through incorporation of several discrete structural modifications and inspections.	Air 5376 Phase 3.1 must be incorporated on each aircraft before that aircraft can undergo modification by Air 5376 Phase 3.2.

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
Closely monitor the return of repairable parts for the production installation phase to ensure no delays are experienced during the rebuild of each aircraft being modified. The more severe action that could be taken is to direct that repairable parts are not removed during the aircraft modification.
The data generated by DSTO as part of the centre barrel test-to-destruction programme will result in a considerable cost saving to the project (due to a reduction the number aircraft requiring SRP2) and an increased flexibility in aircraft modification induction dates.
Modifying an ageing weapon system such as the Hornet aircraft can present emergent work such as corrosion and cracking in the aircraft structure which must be rectified while the aircraft is disassembled. Adequate project contingency budget must be programmed to accommodate such uncertainties.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
N/A

BUSHMASTER PROTECTED MOBILITY VEHICLE
LAND 116 Phase 3

Also known as **'Project Bushranger'**

This project was first reported in the 2007–08 DMO MPR

2008–09 Updates are reported in **bold purple** formatted text

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	Mr Colin Sharp
Branch Head	BRIG Mike Phelps
Project Director	Mr Joseph Cardillo

History	Name	Start	End
Project Manager	Mrs Norrell Swanson	Jul 07	Current
	Mr Jon Hill	Oct 05	Jul 07
	LTCOL Louise Abell	Jan 03	Oct 05
	LTCOL Mark Egglar	Jul 00	Dec 02
	Mr Kevin Heath	Oct 99	Jul 00
	LTCOL Mike Phelps	May 98	Oct 99
	LTCOL WD Feakes	1993	May 98

1.2 Project Context

Project	Explanation
Description	The **$931 million** Land 116 Phase 3 project is to deliver **737** vehicles in seven variants; troop, command, mortar, assault pioneer, direct fire weapon, air defence and ambulance as well as **up to 184** trailers. These vehicles will provide protected land mobility to Army units and Royal Australian Air Force Airfield Defence Guards. In addition to the acquisition of the vehicles through the Approved Major Capability Investment Program, a number of enhancements are being made to the vehicles through the Rapid Acquisition process. These enhancements do not form part of the Project Land 116 Phase 3, but do impinge upon the project.
Background	The Bushranger Project is being conducted in three phases: Phase 1 involved the motorisation of the infantry battalions of 6 Brigade, with 268 interim infantry mobility vehicles, based on the in-service Land Rover PERENTIE 4x4 and 6x6 vehicles and the procurement of an additional **25** support vehicles. Phase 2 consisted of Phase 2A the development of the infantry mobility vehicle specification and the release of an Invitation to Register Interest and Phase 2B the release of a Request for Tender and the trialling and evaluation of successful contender vehicles. Phase 3 is the full rate production of the protected vehicles. The Production Contract Option was executed on 1 June 1999 with Australian Defence Industries for the supply of 370 Bushmaster vehicles by December 2002. A range of problems emerged with design enhancements, cost, and schedule slippage in the contract, shortly after the Production Option was exercised, leading to renegotiation of the Contract in July 2002 for 299 vehicles. This phase has been divided into three separate production periods that reflects the increase over time in the quantity of vehicles being acquired. The Production Periods are as follows: Production Period One (PP1): During this period 300 vehicles in six variants were acquired; troop, command, mortar, assault pioneer, direct fire weapon and ambulance. This period reflects the final position of the original protected mobility requirement.

	Defence had contracted for 299 vehicles; however, it then sold 25 vehicles back to Thales for sale to the Netherlands and received 26 vehicles from Thales as consideration. Production Period Two (PP2): **During this period** 144 vehicles **were acquired** in five variants consisting of; troop, command, mortar, direct fire weapon and ambulance. This period reflected the change to the Army's structure under the Enhanced Land Force Phase 1. Defence had contracted for 143 vehicles; however, it then allowed Thales to divert 24 vehicles from the production line for sale to the United Kingdom, thereby delaying delivery to Defence. Defence received one additional vehicle from Thales as consideration. Production Period Three (PP3): **Currently in progress, this is the acquisition of an additional 293 vehicles** to meet the Medium Protected Mobility vehicle component of Land 121 Phase 3 Project Overlander. This will include all six variants and an air defence variant. In addition purpose designed Bushmaster trailers will also be acquired. As a result of operational experience a number of enhancements are being made to the Bushmaster vehicle to enhance crew survivability. This includes 116 Protected Weapon Stations, 116 Automatic Fire Suppression Systems and 116 purpose-design Spall Curtains which are being progressively fitted to vehicles under a Rapid Acquisition. These additional items are being acquired through Thales using the acquisition contract but are not part of Land 116 Phase 3. In December 2007 the Chief of Army redesignated the Bushmaster Infantry Mobility Vehicle as the Bushmaster Protected Mobility Vehicle. This report relates to Land 116 Phase 3 only.
Uniqueness	The Bushmaster Protected Mobility Vehicle has been developed and built in Australia by Thales to meet a niche requirement of Australian forces.
Major Challenges	**In 2008/09 challenges for the project included the negotiations with Thales for the procurement of additional vehicles for the PP3 requirement, and the subsequent contract amendment. This challenge was overcome collectively by the Project Office working with Thales.** **The obsolescence of the in-service communications harness and the identification of a replacement became an issue impacting on the rollout of vehicles to Army.** **It is expected that Operational Deployments will continue to have an impact on enhancements to vehicles in 2009/10. Challenges will include the integration of new requirements into the PP3 vehicles (i.e. Automatic Fire Suppression System and enhanced Protection).**
Current Status	**Cost Performance** **As at 30 June 2009 the project achieved expenditure in accordance with the forecast plan. The project scope will be achieved within the approved budget.** **Schedule Performance** **The project is on schedule with all 144 PP2 vehicles delivered. Negotiations for the acquisition of additional Bushmaster vehicles to meet the PP3 requirement were completed in August 08 and 41 vehicles have been delivered. The Request for Tender for the procurement of Protected Mobility Vehicle compatible trailers was issued in December 2008 and closed in May 2009. Tender evaluation is currently being conducted.** **Capability Performance** All variants are meeting their required specifications. **The specifications for the Air Defence variant have been finalised. As a result of operational experience all vehicles are in the process of being enhanced to incorporate additional safety and protection measures such as Automatic Fire Suppression System.**

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	N/A	N/A	N/A
Second Pass	N/A	Nov 98	N/A

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
Australian Defence Industries (now Thales Australia)	Provision of Bushmaster vehicles.	Variable	DEFPUR 101	Jun 99

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
N/A	N/A

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage: Acceptance Testing	Benchmark	**8**	**8**	**8**	**8**	**9**	**8**	**8**	57
	Current Project	**8**	**8**	**8**	**8**	**9**	**8**	**8**	57
	Explanation	**The maturity score has not changed as it is now based on PP3 which includes a new variant, development of a Protected Mobility Vehicle trailer, the replacement communications harness and acceptance testing.**							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
295.0	**110.1**	**10.2**	515.4	**930.7**

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Jul 07	154.8	Scope	Additional Protected Mobility Vehicles for Enhanced Land Force requirements.
Aug 07	360.6	Scope	Additional Protected Mobility Vehicles for Overlander requirements.
Total	515.4	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
930.7	**475.3**	**455.4**

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
84.9	**83.6**	**(1.3)**

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
(1.3)	**Local Industry**	**Variance due to delays by contractors.**
(1.3)	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
Thales Australia	170[1]	N/A	Bushmaster Protected Mobility Vehicles	370	N/A
Contract post 2002 Deed of Settlement					
Thales Australia	219	219	PP1 Bushmaster vehicles	299	300[2]
	118	118	PP2 Bushmaster vehicles	143	**144[3]**
	126	126	Long lead time items and material for future PP3 vehicles		[4]
	54	54	Additional Rapid Acquisition operational enhancements		[5]
	0	**98**	PP3 Bushmaster vehicles	**0**	**293[3]**
	517	**616[6]**	Total	442	**737**
Explanation	Note 1. The date of original tender, and therefore the base dollar date of the original contract, was October 1995 and contained the number of vehicles contracted in June 1999. Note 2. One additional vehicle provided by Thales as consideration for sale of vehicles to the Netherlands. Note 3. **Contract Amendment 22 included the additional PP2 vehicle as consideration for schedule relief for an overseas order and the incorporation of the final negotiated quantity of 293 vehicles for PP3.** Note 4. **During** negotiations with Thales for the additional PP3 vehicles, the project has prepared for the continuity of production by acquiring long lead time items and material incorporated into the contract in February 2008. Note 5. As outlined in the Background Information, the acquisition contract is the contractual mechanism used to purchase the operational enhancements valued at $54m being acquired through the Rapid Acquisition process. These do not form part of Land 116 Phase 3 but have been included here for a complete understanding of the value of the current contract. **Note 6. Total does not add due to rounding.**				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
Thales Australia	**616**	**N/A**
Explanations	**Contract expenditure in base date dollars has not been provided. Defence's financial management system, ROMAN, maintains authoritative data on the total amount expended against the project and related contracts, but this project does not manage ROMAN transactions in a way that facilitates separation into base date and variation payments against individual contracts in that system. Due the age of the project, this project originally recorded payments in DEFMIS, a financial management system that has since been superseded by Defence's current ROMAN system.**	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Requirements	Troop Vehicle	N/A		Aug 03	N/A
	Assault Pioneer Vehicle	N/A		Oct 06	N/A
	Command Vehicle	N/A		Jan 06	N/A
	Mortar Vehicle	N/A		**Feb 09**	N/A
	Direct Fire Weapon Vehicle	N/A		**Feb 09**	N/A
	Ambulance Vehicle	N/A		**Feb 09**	N/A
Preliminary Design	Troop Vehicle	Oct 99		Oct 99	0
	Assault Pioneer Vehicle	Nov 99		Feb 00	3
	Command Vehicle	Oct 99		Oct 99	0
	Mortar Vehicle	May 03		Mar 03	(2)
	Direct Fire Weapon Vehicle	May 03		Mar 03	(2)
	Ambulance Vehicle	Jul 03		May 03	(2)
Critical Design	Troop Vehicle System Verification Review	Oct 02		Sep 02	(1)
	Assault Pioneer Vehicle Initial Production Vehicle Review	Oct 04		Dec 06	26
	Command Vehicle Initial Production Vehicle Review	Oct 04		Mar 06	17
	Mortar Vehicle Initial Production Vehicle Review	Apr 06		May 07	13
	Direct Fire Weapon Vehicle Initial Production Vehicle Review	Apr 06		Apr 07	12
	Ambulance Vehicle System Verification Review	Oct 05		Feb 07	16
Variance Explanations	Initial testing of the first variant revealed a number of deficiencies against the specification that required rectification and design changes prior to acceptance and production. This had a consequential effect on the system and design review progress for the subsequent variants. As a result additional testing was required which impacted on completing critical design review and contractor test and evaluation.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	Troop Vehicle	Jun 04		Dec 04	6
	Command Vehicle	Sep 04		Mar 06	18
	Assault Pioneer Vehicle	Oct 04		Dec 06	26
	Mortar Vehicle	Apr 06		May 07	13
	Direct Fire Weapon Vehicle	Apr 06		Apr 07	12
	Ambulance Vehicle	Aug 07		Feb 08	6
Acceptance	All PP1 vehicles except Ambulance	Jun 06		Jul 07	13
	PP1 – Ambulance	Jul 07		**May 08[(6)]**	**10**
	Troop Vehicle	May 06		**Jun 09**	**37**
	Command Vehicle	Jul 06		**Jun 09**	**35**
	Assault Pioneer Vehicle	Jan 07		**Jun 09**	**29**
	Mortar Vehicle	May 07		**Jun 09**	**25**
	Direct Fire Weapon Vehicle	Mar 07		**Jun 09**	**27**
	Ambulance Vehicle	Jul 07		**Jun 09**	**23**
Variance Explanations	Additional reviews and testing requirements impacted the ability of Thales to conduct Production Acceptance Testing and Evaluation in the original timeframe. The situation was also impacted by the priority to support vehicles deployed on operations. **Technical issues that resulted in design changes impacted on the ability to finalise Production and Acceptance Testing and Evaluation.** **Note 6: Date was incorrectly reported in last years report.**				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
IOC - PP1	N/A	Dec 04	N/A	IOC was achieved in December 2004 when full rate production delivery commenced for PP1 vehicles.
ISD - PP1	Jul 07	Mar 08	8	The original In Service Date for the PP1 vehicles was July 2007. All variants met In Service Date with the exception of the 12 Ambulance variants which were delivered in March 2008 due to their technical complexity.
IOC/ISD - PP2	**Jul 08**	**Nov 08**	**4**	**This was due to the restructure of Army under Enhanced Land Force not fully completed and the unavailability of the communications harness. Army have accepted the initial vehicles without the communications capability.**
IOC/ISD - PP3	**Oct 11**	**Oct 11**	**0**	**N/A**

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC - PP1	Oct 07	**Dec 09**	**26**	**Communications harness equipment not available until late 2009 and will be required to be retrofitted to the vehicles before issue to Army.**
FOC - PP2	**Apr 09**	**Apr 10**	**12**	
FOC - PP3	**Apr 12**	**Apr 12**	**0**	**N/A**

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
There is a chance that vehicle changes will be sought as a result of current operations which will draw staff effort impacting on performance, cost and schedule.	**This risk has been retired. PP3 specifications have been updated to include additional protection requirements resulting from operational experience.**
There is a chance that the issue of PP3 vehicles to Army will be affected by delays in the processing of Engineering Change Proposals leading to an impact on cost and schedule.	**Liaise with the contractor to prioritise resources to manage the Engineering Change Proposal process.**
There is a chance that the Protected Mobility Vehicle mission profile will be affected by the requirement for sustained towing of a trailer leading to an impact on schedule, performance and safety.	**Contractor to conduct a trials program to evaluate the likelihood of design changes to Protected Mobility Vehicle.**
There is a chance that the Protected Mobility Air Defence Variant development will be affected by complex requirements in the specifications leading to an impact on performance, cost and schedule.	**This will be managed with the conduct of fit out exercises, the development of a mock up vehicle, prototype reviews and through the engagement of stakeholders before commencing production.**
There is a chance that the specifications of the Protected Mobility Air Defence Variant will be affected by changes to current Ground Base Air Defence doctrine during design and development leading to an impact on schedule and performance.	**Stakeholders will be engaged on a regular basis to ensure the impact of any proposed changes to doctrine are fully considered before implementation.**
There is a chance that the delivery of the Protected Mobility Vehicle to the Commonwealth will be affected by overseas sales leading to an impact on schedule.	**Thales has provided an undertaking to consult with the Commonwealth where any potential schedule conflict arises from other customer enquiries.**

4.2 Major Project Issues

Description	Remedial Action
The **un**availability of communications wiring harness has **affected** the release of **Protected Mobility Vehicles** to Army **leading to an** impact on schedule and cost.	**An alternative communications harness is being procured.**
The construction of project direct funded facilities has been affected by construction delays leading to an impact on cost and schedule.	**DSG, as the agency responsible for all facilities construction, is providing the project with regular updates on the status of the project funded facilities they are managing.**
Substantial delays in the processing and implementation of Engineering Change Proposals by the original equipment manufacturer are impacting on schedule and supportability.	**Engagement with the original equipment manufacturer is conducted on a regular basis to advance the status of all Engineering Change Proposals and set priorities for implementation.**
The capability of the Protected Mobility Vehicle is being impacted by the reduced number of headset being provided with the alternative communications harness leading to an impact on performance.	**Additional headsets will be procured to meet capability requirements.**

4.3 Linked Projects

Project	Description of Project	Description of Dependency
N/A	N/A	N/A

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
In the early planning phases of the project, the operational concept and functional performance requirements were not clearly defined, making it difficult to understand and undertake appropriate cost-capability trade-offs.
Cost Estimating – there was a lack of industry capability to provide adequate cost estimates and inability by Defence to evaluate the validity of the cost data.
Testing program – significant contingency planning should be conducted for compliance testing of a new capability.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
A further 6 vehicles for project Land 121 have been delivered since 30 June 2009 taking the total number of vehicles delivered to the Commonwealth to 491 as at 30 September 2009.
FOC for Production Period 1 and 2 vehicles has been deferred to May 2010 and July 2010 respectively due to delays in availability and installation of communication harness.

HIGH FREQUENCY MODERNISATION

JP 2043 Phase 3A

This project was first reported in the 2007–08 DMO MPR

2008–09 Updates are reported in **bold purple** formatted text

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	**Mr Mark Devlin**
Branch Head	**Ms Myra Sefton**
Project Director	Mr Andrew Schmidt

History	Name	Start	End
Project Manager	Mr Andrew Schmidt	Jul 04	Current
	Mr John Gordon	Aug 97	Jul 04
	Mr Alan Wilson	Nov 95	Aug 97
	Captain Ian Noble	May 93	Nov 95

1.2 Project Context

Project	Explanation
Description	The **$661 million** JP2043 Phase 3A project provides for the procurement of a Modernised High Frequency Communications System for Defence long-range communications. The Fixed Network component comprises four High Frequency stations, one station in each of the Riverina (New South Wales), Townsville (Queensland), Darwin (Northern Territory) and North West Cape (Western Australia) areas together with primary and backup Network Management Facilities in Canberra. The project will also provide upgrades to selected ADF sea, land and air mobile platforms to make them compatible with the top-level capabilities of the modernised network. The Fixed Network capability will be provided in two major stages. The first stage (the Core System) replaced the existing Navy and Air Force High Frequency networks and is now supporting ADF operations. The second stage of the Fixed Network capability (the Final System) will provide increased automation and enhanced functionality and is still undergoing development.
Background	Defence Communications Corporate Plan of May 1991 directed that existing ADF High Frequency networks be rationalised and modernised. Satellite communications is now the primary system for high and medium data rate communication with mobile ADF platforms (Mobiles) such as ships, aircraft and vehicles, however High Frequency provides a secure alternative means of long range communications for Satellite communications fitted platforms and a primary long-range communication capability for platforms not Satellite communications fitted. The High Frequency Modernisation Project was established in May 1993 and originally envisaged four implementation phases: ▪ Phase 1 (completed 1994) – a preparatory phase including a Network Definition Study to determine the basic requirement and an Invitation to Register Interest process; ▪ Phase 2 (completed 1996) – a more detailed definition phase involving parallel Project Definition Studies undertaken by short-listed Phase 1 companies following a Request for Proposal process; ▪ Phase 3A (commenced 1997)– an implementation phase involving selection of the Prime Contractor through a restricted Request for Tender process, provision of a modernised High Frequency communication network and its follow-on support, and High Frequency upgrades to an initial range of Mobiles; and ▪ Phase 3B (cancelled 1999) – an implementation Phase involving High Frequency upgrades to selected remaining Mobiles.

<table>
<tr><td></td><td>
The Phase 3A Prime Contract was signed in December 1997 with Boeing Australia (now Boeing Defence Australia). It is variable price, initially comprising 40 per cent milestone payments and 60 per cent earned value payments. This was subsequently amended to milestone payments only, after substantial delays to progress were experienced by the Contractor. A Network Operation Support Contract with Boeing Australia was executed at the same time as the Prime Contract, to take effect from Final Acceptance of Prime Contract deliverables.

The Prime Contract has undergone several major amendments and currently provides for the implementation in two stages:
▪ a Core System (accepted October 2004), to provide an upgraded Fixed Network having a capability no less than that provided by the networks being replaced; and
▪ a Final System including enhanced features for the upgraded Fixed Network and a Mobiles upgrade component.

Project approval provides for 87 platforms to be upgraded. The Prime Contract was originally scoped for First-of-Type installations and Upgrade Modification Kits for a total of 56 Platforms. However amendments made in 2004 reduced the Contract scope to a single First-of-Type Upgrade (CH47 Chinook helicopter), five High Frequency Upgrade Kits for follow-on Chinook installations, plus two Generic High Frequency Upgrade Systems. The Generic Systems will be used to demonstrate functional performance and to verify the suitability of System software and hardware components for platform use prior to implementation of Mobiles upgrades.

The Mobiles within approved project scope are listed below.

<table>
<tr><th>Platform Type</th><th>Qty</th></tr>
<tr><td>CH47 Chinook</td><td>6</td></tr>
<tr><td>Black Hawk</td><td>35</td></tr>
<tr><td>Mine Hunter Coastal</td><td>6</td></tr>
<tr><td>Armidale Class Patrol Boats</td><td>14</td></tr>
<tr><td>Hydrographic Ships</td><td>2</td></tr>
<tr><td>Army Land Strategic High Frequency</td><td>14</td></tr>
<tr><td>RAAF No. 1 Combat Communications Squadron</td><td>4</td></tr>
<tr><td>Defence Force School of Signals Watsonia (Simpson Barracks)</td><td>2</td></tr>
<tr><td>Defence Force School of Signals (Cerberus)</td><td>1</td></tr>
<tr><td>Deployable Mine Countermeasures & Clearance Diving Headquarters</td><td>3</td></tr>
<tr><td>Total:</td><td>87</td></tr>
</table>

The Australian National Audit Office carried out a performance audit of the project in 2007. Audit Report No. 34 2006–2007 was tabled in Parliament in May 2007.
</td></tr>
<tr><td>Uniqueness</td><td>
The High Frequency Modernisation 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. It also includes an extensive program to develop, install and integrate upgraded capabilities on selected Mobiles.

Because of the complex nature of the project, provision was made in the contract for the use of, what was at the time, relatively new methodology of Integrated Product Development Teams which included Contractor and Commonwealth personnel. These were included for project insight and to reduce risk particularly in the important areas of requirements clarification, systems engineering and acceptance, test and evaluation. While not as effective as originally expected the use of these teams did achieve moderate success.

The System being provided is designed to be one of the most advanced of its type in the world. It incorporates capabilities leading those in similar High Frequency communications systems in the United States and the United Kingdom.
</td></tr>
<tr><td>Major Challenges</td><td>
The project has suffered implementation delays but that part of the new communication system which has replaced the legacy systems previously operated by the Navy and Air Force has now been operational since 2004. The project is presently focussed on
</td></tr>
</table>

	providing enhanced capabilities and on Mobiles upgrades. The capacity to utilise the additional functionality provided by the Final System immediately following Final Acceptance will be limited by the status of the Mobiles upgrade program. 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 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. **Development of radio** specific software drivers to provide operational compatibility with the modernised High frequency System **will also be required.**
Current Status	**Cost Performance** The project is tracking within its approved budget. Some payments to the contractor have been withheld as a result of failure to meet contracted schedule milestones. **Schedule Performance** The Core System was accepted in October 2004 and achieved Initial Operational Release in November 2004, replacing all Defence legacy High Frequency Systems (with the last legacy site closed in November 2005). The delivery schedule for the Final System, including the single upgraded Chinook, was rebaselined following the execution of a Deed of Settlement and Release in February 2004 and a Deed of Agreement in May 2005. Boeing Defence Australia experienced delay in the delivery of the Final System capability and failed to meet a significant delivery milestone in October 2007. Subsequently the Commonwealth agreed to negotiate with Boeing Defence Australia on the basis of granting schedule relief in return for receiving appropriate compensation. Negotiations commenced in February 2008 and ended in June 2008 with the parties failing to reach agreement on an acceptable overall compensation package. **Following technical and schedule reviews that occurred between July and September 2008, the Commonwealth and Boeing Defence Australia agreed to recommence negotiations in October 2008. Negotiations were conducted at the senior executive level and resulted in a Deed of Settlement, Release and Amendment being signed in April 2009. This Deed provided for agreement to a revised schedule to contract completion as well as resolution of various contractual issues.** Delays have also impacted on the upgrade schedule for the Mobiles not yet in contract. These delays, together with platform availability problems, mean that the Mobiles program may extend to 2016. **Capability Performance** The Core System is currently providing a highly reliable service in support of operational ADF platforms, meeting or exceeding the specified availability. Compared to the replaced Navy and Air Force High Frequency Systems the Core System provides: ▪ greater automation; ▪ improved frequency management; ▪ joint communications planning tools; ▪ improved area of coverage; ▪ secure phone patches; ▪ centralised management & control; and ▪ reduced operations and maintenance staff. Operators and maintenance personnel report a good degree of satisfaction with the Core System. For the Final System, following the failure of negotiations in June 2008, the Commonwealth and Boeing Defence Australia conducted an independent technical review. **In its report, the technical review team noted that a significant proportion of the planned capability had already been successfully delivered and was in operational use. The team's primary conclusion was that the technical solution for the Final System is deliverable, albeit with some low level technical risk in achieving all performance requirements. From a technical viewpoint the report recommended that the program be pursued to completion.**

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	N/A	N/A	N/A
Second Pass	N/A	Aug 96	N/A

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
Boeing **Defence** Australia	Deliver a Modernised High Frequency Communications System.	Variable	DEFPUR 101 v46	Dec 97

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
N/A	N/A

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage: System Integration & Test	Benchmark	**7**	**8**	**8**	**8**	**8**	**8**	**8**	55
	Current Project	**6**	**7**	**8**	**9**	**8**	**7**	**9**	54
	Explanation	**Schedule: Delivery of Fixed Network Final System Capability is well behind original project schedule, but is being closely managed.** **Cost: Some cost risk (within bounds of contingency) remains until upgrades to in-scope Mobile platforms are finalised.** **Technical Understanding: Core system has been accepted by Defence and has been supporting ADF operations since late 2004. Current stage is to deliver improvement and enhanced capabilities.** **Commercial: Customer working relationship is very good but commercial/contractual issues continue to arise.** **Operations and Support: Core system has been operational and supported since late 2004. Final system is currently undergoing integration and test.**							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
505.0	**133.4**	**16.7**	5.5	**660.6**

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Jul 98	2.3	Transfer	Transfer from other phases of JP 2043.
Feb 99	0.1	Transfer	Transfer from other phases of JP 2043.
Feb 99	11	Scope	Scope change to include Wideband High Frequency Direction Finding capability.
May 02	0.9	Transfer	Transfer for installation at Robertson.
Feb 03	(6.1)	Transfer	Transfer to DSG as contribution to construction of Defence Network Operations Centre and infrastructure support.
May 03	(1.9)	Transfer	Transfer to Facilities.
Aug 04	(0.2)	Budgetary Adjustment	Administrative Savings harvest.
Aug 05	(0.6)	Budgetary Adjustment	Skilling Australia's Defence Industry harvest.
Total	5.5	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
660.6	**372.6**	**288.0**

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
6.9	**11.1**	**4.2**

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
2.9	**Bring forward of 09/10 work**	**Variations due to contractor achievement, cost savings in frequency rental, Commonwealth payment following dispute settlement and delays in development of Blackhawk mobile equipment.**
(0.1)	**Cost saving**	
2.7	**Commonwealth delay**	
(1.3)	**Local industry**	
4.2	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
Boeing Defence Australia	309.6	**315.7**	Fixed Network	1	1
			Mobiles	56	8
Explanation	There have been a number of Contract Change Proposals over the life of the contract which have increased or removed scope, resulting in a small increase to the contract price in base date dollars. These proposals have included adjustments related to the Fixed Network and a reduction in the number of Mobiles platforms to be upgraded, as well as the addition of the two Generic High Frequency Upgrade Systems which provide for the underlying design and development of hardware and software forming the basis of all upgrade systems. **The Contract value has reduced by $1.1m. This is due primarily to the removal of the Chinook CH47-D installation activities from the Prime Contract as a result of platform unavailability.**				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
Boeing Defence Australia	**315.7**	**N/A**
Explanations	**Contract expenditure in base date dollars has not been provided. Defence's financial management system, ROMAN, maintains authoritative data on the total amount expended against the project and related contracts, but this project does not manage ROMAN transactions in a way that facilitates separation into base date and variation payments against individual contracts in that system. Due the age of the project, this project originally recorded payments in DEFMIS, a financial management system that has since been superseded by Defence's current ROMAN system.**	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Requirements	Core System	Apr 98		Jun 98	2
	Final Systems (Fixed Network)	Jul 99		Jun 04	59
	Mobile Generic (In Contract)	Jul 99		Mar 05	68
Preliminary Design	Core System	Nov 98		Jan 00	14
	Final Systems (Fixed Network)	Jul 00		Aug 05	61
	Mobile Generic (In Contract)	Feb 00		Jul 05	65
Critical Design	Core System	Nov 99		Dec 00	13
	Final Systems (Fixed Network)	Dec 01		Nov 06	59
	Mobile Generic (In Contract)	Dec 02		Nov 06	47
Variance Explanations	System Requirements Review delayed due to requirements instability. The June 1999 Deed of Agreement acknowledges 'requirements instability'. Preliminary Design Review: Requirements instability & scope changes. Critical Design Review Final Systems and Mobile: Contractor delays with software development and system integration design.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	Final Systems (Fixed Network)	Sep 03		May 08	56
Acceptance	Core System	Mar 01		Jun 04	39
	DMO Acceptance – Core System	Nov 01		Oct 04	35
	Final Systems (Fixed Network)	Feb 04	**Jul 10**	**Jul 10**	**77**
	DMO Acceptance – Final System	May 04	**Jul 10**	**Jul 10**	**74**
	Generic Mobiles	Dec 03	**Dec 09**	**Dec 09**	**72**
Variance Explanations	Core System: Contractor delays with software development and system instability. Final Systems and Mobiles: Contractor delays with software development, resource shortages and technical reviews. **Note. A revised schedule was agreed with Boeing Defence Australia in the Deed of Settlement, Release and Amendment signed in April 2009. Current Planned and Forecast dates are based on this schedule.**				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
IOC – Final System	May 04	**Jul 10**	**74**	Contractor delays with software development, resource shortages, system instability. Deferral of operational capability.

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC – Final System	May 05	**Jul 11**	**74**	Delays in IOC lead to consequent delays in FOC. Responsibility for Operational Release passes to Navy Systems Command following Final Acceptance and Initial Operation Release. Deferral of operational capability.
FOC – Mobiles	May 05	2016	127	This date is based upon the last of the 87 Mobiles upgrades obtaining FOC.

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
Delayed Radio Study for Mobiles may impact on Mobiles upgrade program.	Finalise Support Services Contract with Boeing Defence Australia urgently. Ensure work to develop drivers commences at earliest possible time after Support Services Contract in place.
There is a risk that the Fixed Network will be affected by failure to meet contractual Grade of Service and Speed of Service requirements leading to an impact on performance and schedule.	**Work closely with the contractor to ensure that the data collection and analysis occurs at the earliest possible time to ensure that any identified impacts on performance are well understood and where possible corrective actions are undertaken.**
There is a risk that the Fixed Network will be affected by inadequate software design documentation leading to an impact on cost, performance and supportability.	**Monitor the Contractor to ensure that the software documentation is incrementally upgraded to reflect what is actually built and delivered. Also, review the final delivered design documentation to ensure that it meets requirements.**
Upgraded Mobile platform(s) may not be available for Final System testing within the Prime Contract timescale.	**This prior risk is now closed. There will be no upgraded mobile platforms for final system testing due to platform availability issues outside of the project's control.**
Timely supply of Mobiles unique configuration items is not assured and any delay in the supply of these items has a direct impact on the mobiles schedule.	**This prior risk is now closed. A Deed of Settlement, Release and Amendment signed April 2009 included contractual options for supply of these items.**
Delayed implementation of Support Services Contract may impact on support for Mobiles program.	**Risk is now assessed as low due to progress on implementation of Support Services Contract.**

4.2 Major Project Issues

Description	Remedial Action
Contractor has not achieved required schedule.	**Issue closed. A Deed of Settlement, Release and Amendment signed in April 2009, included agreement to a revised schedule for completion of all contract activities.**

Fixed Network software development had not achieved the agreed schedule.	**A technical review and a schedule review were conducted between August and November 2008. The technical review recommended that the project was technically achievable and the schedule review indentified a number of improvements to the contractor's proposed schedule. The contractor baselined this schedule in November 2008 and has since been achieving reasonable progress against this schedule.**
Contractor delays will delay completion of Mobiles upgrades beyond current project completion date.	Address with Capability Development Group in context of schedule review for contract deliverables and the impact on other project deliverables.
As a consequence of delays to Final System Acceptance, the Project has had to provide fixed network operators for the operational Core system following post-out of Navy fixed network operators as of January 2009 (in accordance with Navy's long-term plans). The Contractor is to supply fixed network operators when the Network Operation and Support Contract commences late 2009.	**The Project has contracted directly with recruitment agencies to fill this gap.**

4.3 Linked Projects

Project	Description of Project	Description of Dependency
N/A	There are no dependencies upon other projects however the Mobiles program may be impacted by other projects competing for platform availabilities e.g. Air 5416 ECHIDNA, JP 2008 MILSATCOM.	

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
Risks associated with requirements instability, software development and systems engineering were known at the time of contract signature but in the light of subsequent events were clearly not adequately addressed in pre-contract negotiations. The experience underlines the importance of having well-defined and stable requirements at contract award, and of contractors having sound systems engineering and software development processes.
A proper balance needs to be kept between proper engineering processes and contractor-perceived commercial imperatives to minimise risk that unrealistic technical programs will actually result in delays to the overall schedule.
Accessibility requirements should be agreed, specified and documented early in the contracting process to minimise risk of incurring excusable delays when access to the system to be upgraded is constrained due to operational reasons.
Best practice would suggest that for a capability acquisition that includes significant software development, a contract that allows for both fixed price elements as well as alternative cost structures which include; appropriate controls, incentive and penalty models that can be applied to the highly developmental elements involving significant risk, may be appropriate. Milestone payments could be selected for those deliverables that have well defined objectives and the alternative payment method with incremental work packages could be applied to the software aspect of the project. This approach would require strict controls and metrics to limit the risk to the Commonwealth.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
Boeing Defence Australia has achieved good performance against the contractual schedule as rebaselined under the Deed of Settlement, Release and Amendment signed in April 2009. Introduction into service activities commenced in late August 2009 more than two months ahead of the rebaselined contractual schedule.
Signature of the Deed of Settlement, Release and Amendment in April 2009 provided a clear way ahead for completion of all prime contract work. As a result, Capability Development Group and DMO are working together to address the impacts of the delays in completion of the prime contract work on the mobile platform upgrade program.

ARMIDALE CLASS PATROL BOAT
SEA 1444 Phase 1

This project was first reported in the 2007–08 DMO MPR

2008–09 Updates are reported in **bold purple** formatted text

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	RADM Boyd Robinson
Branch Head	Mr Colin Cooper
Project Director	**Mr Frank Kresse**

History	Name	Start	End
Project Manager	**Mr Frank Kresse**	**2009**	**Current**
	Mr Darren Toohey	2008	**2009**
	Mr Peter Davey	2000	2007

1.2 Project Context

Project	Explanation
Description	The **$535 million** Sea 1444 Phase 1 project is to deliver 14 *Armidale* class patrol boats (ACPB) and provide 15 years in-service support. In addition the project is providing funding to DSG to deliver patrol boat facilities at Cairns and Darwin. The new patrol boats will improve the Navy's capability to intercept and apprehend vessels suspected of illegal fishing, quarantine, customs or immigration offences.
Background	In June 2001 Government required Defence to analyse private finance and direct purchase options and to recommend a preferred procurement strategy. Defence requested tenders for private finance and/or direct purchase. After Government approval of the preferred acquisition strategy, Stage 1 short-listing occurred, then a Stage 2 Request For Tender was released to the short-listed companies. In June 2002 after the Stage 1 bids from nine tenderers were evaluated, Government decided not to proceed with private financing as there was no clear financial advantage in pursuing that option. The Stage 2 Request For Tender for direct purchase closed in November 2002 and in August 2003 the Minister for Defence announced the preferred tenderer as Defence Maritime Services (DMS). In December 2003 Defence signed a contract with DMS for the supply and support of 12 ACPB. The scheduled delivery for the vessels was to be from May 2005 to June 2007. In May 2005 additional funding was provided for an additional two vessels to be acquired under Project Sea 1444, to operate as part of the Government's Securing the North West Shelf policy. All 14 vessels have been delivered, achieved IOC and commissioned into the Navy, with the 14th vessel achieving Initial Operational Release in November 2007 and commissioned in February 2008.
Uniqueness	The contractor had to propose the number of vessels required to meet the operational requirements and their maintenance obligations. In the original tender, 12 vessels was the minimum that could be supplied to meet the proposed requirement. This approach also involved Navy moving to a multi-crewing (per vessel) philosophy. Also, following Government direction (equivalent to first pass) the acquisition strategy considered both private finance and ownership models for the acquisition of the required capability. This strategy meant that with either model DMO contracted for the acquisition and support of the fleet in one single contract rather than the traditional acquisition model followed by a separate support contract.

Major Challenges	**Fuel system. The problem of water contamination causing fuel pump failures has been resolved. Water separability of the fuel onboard is only a problem if the fuel system is not operated in an alternative mode. Trials continue on a modified fuel separator system.** **Sea-boat davit hydraulics. Hydraulic piping modifications have not been entirely successful and further design changes, probably to the hydraulic pumps and motors, will be necessary to achieve the desired sea-boat davit performance. Austal is currently redesigning the power pack to meet contractual specifications.**
Current Status	**Cost Performance** **Project remains within budget.** **Schedule Performance** **Progress continues towards achievement of FOC, which remains dependent on rectification of outstanding build defects.** **Capability Performance** **All vessels continue to meet the Navy's operational requirements. The Systems Program Office continues to close extant issues, moving towards achieving Operational Release of the first vessel in the Class by the end of 2009 and the final vessel by the end of 2011. Closure of the acquisition phase of the project is delayed accordingly until 2012.**

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	N/A	Jun 01	N/A
Second Pass	N/A	Oct 02	N/A

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
DMS	Acquisition of 14 patrol boats and 15 years of support with a 5 year extension option.	Variable	SMART 2000/ ASDEFCON	Dec 03

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
N/A	N/A

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage: Acceptance Into Service	Benchmark	**9**	**10**	**10**	**10**	**10**	**9**	**9**	67
	Current Project	**10**	**9**	**9**	**9**	**8**	**8**	**9**	**62**
	Explanation	**Benchmark scores will be achieved as:** ▪ **mission and support systems become fully operational;** ▪ **operational test and evaluation is completed, principally, when davit performance is achieved, and restrictions are lifted; and** ▪ **the contractor actually meets all requirements and there is a resolution of outstanding issues that prevent progress of FOC across the class.**							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
436.8	**71.5**	(11.0)	**38.0**	**535.3**

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
Jun 04	2.6	Budgetary Adjustment	Real Adjustment due to incorrect currency mix used at time of approval.
Aug 04	(0.4)	Budgetary Adjustment	Administrative Savings harvest.
Nov 04	(0.2)	Transfer	Transfer to Joint Material Agency for supply of medical allowance list.
Jun 05	(1.8)	Transfer	Joint Ammunition Logistic Organisation for Typhoon (gun) 25mm rounds.
Jun 05	67.1	Scope	Increased scope for the number of Patrol Boats from 12 to 14.
Aug 05	(1.5)	Budgetary Adjustment	Skilling Australia's Defence Industry harvest **and transfer to DSG for office fit out in Darwin.**
Aug 08	**(27.8)**	**Transfer**	**Transfer to DSG for upgrades of wharf facilities at Darwin and Cairns.**
Total	38.0	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
535.3	**472.4**	**62.9**

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
15.6	**10.9**	**(4.7)**

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
(2.7)	**Commonwealth delays**	**Delay in resolving engineering solutions and in approving CCPs.**
(2.0)	**Local industry**	
(4.7)	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
DMS	316.6	385.4	ACPBs	12	14
Explanation	The Major Variation is as a result of the additional 2 vessels. There have been other minor contract changes that have not had a significant affect on the price.				

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
DMS	385.4	**N/A**
Explanations	**Contract expenditure in base date dollars has not been provided. Defence's financial management system, ROMAN, maintains authoritative data on the total amount expended against the project and related contracts, but this project does not manage ROMAN transactions in a way that facilitates separation into base date and variation payments against individual contracts in that system.**	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
Preliminary Design	ACPB	Feb 04		Feb 04	0
Critical Design	ACPB	May 04		Apr 04	(1)
Variance Explanations	There are no known variances to the initial schedule.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
Acceptance	ACPB 01	May 05		Jun 05	1
	ACPB 02	Oct 05		Nov 05	1
	ACPB 03	Nov 05		Dec 05	1
	ACPB 04	Mar 06		Apr 06	1
	ACPB 05	Mar 06		Apr 06	1
	ACPB 06	Jun 06		Jun 06	0
	ACPB 07	Jul 06		Jul 06	0
	ACPB 08	Oct 06		Oct 06	0
	ACPB 09	Nov 06		Nov 06	0
	ACPB 10	Mar 07		Apr 07	1
	ACPB 11	Mar 07		May 07	2
	ACPB 12	Jun 07		Jul 07	1
	ACPB 13	Sep 07		Sep 07	0
	ACPB 14	Nov 07		Nov 07	0
Variance Explanations	Boats 1-5 delayed due to contractor labour shortages - permissible delays. Boat 10-12 delayed due to configuration changes and change to deliver location – permissible delays, plus defect rectifications by the contractor.				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
ACPB 01	N/A	Jul 05	N/A	The IOC date for each boat was not specified by Navy until after boat acceptance had been achieved.
ACPB 02	N/A	Jan 06	N/A	
ACPB 03	N/A	Feb 06	N/A	
ACPB 04	N/A	May 06	N/A	
ACPB 05	N/A	May 06	N/A	
ACPB 06	N/A	July 06	N/A	
ACPB 07	N/A	Aug 06	N/A	
ACPB 08	N/A	Nov 06	N/A	
ACPB 09	N/A	Nov 06	N/A	
ACPB 10	N/A	May 07	N/A	
ACPB 11	N/A	Jul 07	N/A	

ACPB 12	N/A	Aug 07	N/A	
ACPB 13	N/A	Oct 07	N/A	
ACPB 14	N/A	Nov 07	N/A	

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC	**Mar 09**	**Dec 11**	**33**	**Delay in achieving FOC due to outstanding defects that must be achieved to satisfy Navy Operational Release requirements. Operational Release of the first vessel is planned for the end of 2009. FOC (i.e. all ACPBs having achieved Operational Release) is planned for December 2011. No impact on operations – all ACPBs meeting operational requirements.**

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
Navy standards are different to commercial standards resulting in a risk to customer acceptance.	Promote understanding of commercial standards and the contract methodology. Where there are unacceptable issues, institute a contract change.
Contractor inability to provide or support vessels throughout the life of the in-service phase of the contract (performance risk).	Actively manage performance under the contract.

4.2 Major Project Issues

Description	Remedial Action
The first retrofit of modified hydraulic piping did not fully rectify the problem of sea boat davit performance.	**Further design work is necessary to overcome other system deficiencies. Operational limitations remain in force but they have not adversely impacted operations to date.**
Fuel separability is not a problem for any of the boats when operating the fuel system in the alternative mode but a permanent solution is still being investigated.	**This issue has now been resolved.**
The certification process is proving problematic in some areas.	**Continues to be worked with regulators but issues can become clouded by the application of contemporary as opposed to contracted requirements.**
Operation of ACPB Austere Accommodation – Risk of Toxic Hazard.	**Modifications to systems have been incorporated in HMAS *Glenelg* and tested. A First-of-Class sewage treatment plant trial following changes to the chlorine system and grease trap system and Air Quality trial following modifications to the exhaust mast have been undertaken with results pending. Remainder of the Fleet will be modified once the HMAS *Glenelg* baseline has been fully tested and defined.**

4.3 Linked Projects

Project	Description of Project	Description of Dependency
JP 2043 HF Modernisation	The Project is to provide the ADF with a secure, cost-effective information exchange capability for the command and control of deployed forces as a primary survivable system and as a parallel system to satellite communications.	The HF communications capability for the ACPBs will be funded by JP 2043 and fitted after delivery.
JP 2008 MILSATCOM	The Defence Mobile Communications Network is a mobile satellite communication system, using the Cable and Wireless Optus service.	This capability has been fitted to the ACPBs.
Project SEA 1430 Phase 2A - Navigation Display Systems	Project SEA 1430 Ph2A will provide Electronic Chart Display and Information Systems for the navigation of Navy ships and submarines. The project is titled Navigation Display Systems. The project will also deliver Navigation Display Systems to selected command and training shore establishments.	This capability has been fitted to the ACPBs.

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
For a new or significantly modified design there will be a number of design changes emanating from initial sea trials. The aggressive delivery schedule for the ACPBs did not allow time for changes from initial sea trials to be built into the follow-on build boats prior to their construction. This resulted in an evolving design baseline throughout the production phase that was not stabilised until after delivery of the last boat. Consequently the redesign, build, test and acceptance aspects of boats built after the first of class became unnecessarily complicated, expensive and inefficient. Time should be allowed after the first (or second depending on the size of the class) boat build to conduct sea trials and modify and stabilise the design as appropriate prior to the main production run.
Failure at project inception to articulate, tailor and agree naval standards to be applied to a ship designed and built to commercial 'Classification Society' standards has resulted in considerable debate and potential cost increase.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
Trials results for gas ingestion and associated matters have been received and implementation recommendations are being considered by Navy. The final design package for boat davit hydraulics power pack is ready for implementation.

COLLINS REPLACEMENT COMBAT SYSTEM
SEA 1439 Phase 4A

This project was first reported in the 2007–08 DMO MPR

2008–09 Updates are reported in **bold purple** formatted text

Project Data Summary Sheet

Section 1 – Project Summary

1.1 Project Management

30 June 2009	Name
General Manager	Mr Kim Gillis
Division Head	RADM Boyd Robinson
Branch Head	CDRE Rick Longbottom
Project Director	Mr Bob Clark

History	Name	Start	End
Project Manager	CMDR Stephen O'Hearn	Feb 07	Current
	CMDR Robert Elliott	Feb 05	Jan 07
	Mr Bob Clark	Sep 02	Feb 05

1.2 Project Context

Project	Explanation
Description	The **$459 million** Sea 1439 Phase 4A Replacement Combat System (RCS) project was established to provide each of the RAN *Collins* Class submarines with the US Navy Tactical Command and Control System, minor improvements to the combat system augmentation sonar, and shore facilities for integration, testing and training. **Shore based systems are located at the Submarine Training and Support Centre at HMAS STIRLING (WA) and a reference laboratory in the US at the Naval Undersea Warfare Center.** The project required the development of system commonality between the RAN and US Navy.
Background	Risks associated with rapid technology change have been treated by adopting a project management strategy that aligns with the US continuous update program and its two-year update cycle. The standard DMO acquisition approach was adapted to enable the project office to establish itself as prime contractor with a series of Integrated Project Teams working at various levels within DMO and industry. This role has required close collaborative relationships to be formed between the DMO, the US Navy and industry partners in Australia and the US. By adopting an innovative approach, the project developed a successful acquisition strategy for managing the difficult situation of merging rapidly changing and sensitive US technology with the existing Australian platform sensors, and other submarine infrastructure. This also includes complex constraints associated with International Traffic in Arms Regulations and the export control of US military equipment. In July 2001 the Minister for Defence terminated the original tender process for the *Collins* Class Replacement Combat System and made the following announcement: "The Government has decided that a comprehensive arrangement with the US Navy on submarine issues is in Australia's best strategic interests and has therefore decided that the selection of the combat system for the *Collins* Class submarines cannot proceed at this time." In September 2002 the Government approved the Project based on **the procurement of the following off-the-shelf sub-systems:** ▪ the US Tactical Command and Control sub-system, consisting of the Combat Control System and the *Virginia* Class Weapons Integration Panel, to be acquired by FMS; ▪ minor improvements to the sonar processing solution currently installed in HMA Ships

	Sheean and *Dechaineux* as part of the Combat System Augmentation initiative; and ▪ other system support infrastructure and project support. The US Navy Tactical Command and Control System is being supplied under an Armaments Cooperative Project which provides for system upgrades developed on a bi-annual basis. The project will provide one system baseline for the first two submarines and a later baseline for the remaining four submarines**.** These initial baselines will be upgraded at some later date as a sustainment activity. Australian systems are being provided under a combination of contracts. The main Australian contractors include ASC, Raytheon Australia, Thales Australia and Sonartech Atlas Pty Ltd. Installation is being undertaken in conjunction with Sea 1429 Phase 2 Heavyweight Torpedo and at locations in South Australia and Western Australia. Installation in all submarines is coordinated with the submarine docking program and is currently scheduled to complete in **2014.** The combat system capability enhancement required a significant change to submarine infrastructure that could only be achieved during a major docking. Furthermore, to ensure the required submarine availability was not impacted adversely and to work within the existing workforce at ASC, it was necessary to couple the installation program to the existing submarine docking program. Although there are significant benefits in coupling the RCS installation schedule to the submarine docking program, that coupling has dictated the delivery schedule of the RCS capability.
Uniqueness	The Commonwealth has undertaken the functions of a prime systems integrator. This role placed additional pressure on the Commonwealth project team to manage and coordinate a number of separate contracts and ultimately the integration, installation and testing of the delivered products. Participation in a Joint Development Program with the US Navy to design, develop, and test the Advanced Processing Build and Technical Insert processes for Tactical Command and Control System, Tactical Subsystem upgrades and implementing that evolving system baseline into RCS, presented a difficult and unique system of coordination, integration, test and evaluation and installation processes.
Major Challenges	**Possible changes to the submarine docking program challenge the completion of the RCS installation schedule. This is being managed by engaging with the RAN to maximise compatibility between the submarine docking cycle and installation schedules.**
Current Status	**Cost Performance** The project is working within project approval; no real cost increases have been required. **Schedule Performance** **HMAS *Farncomb* installation was completed in July 2008 and it is anticipated that sea trials will be completed by July 2009. The Initial Operational Release milestone for HMAS *Farncomb* is scheduled to occur by July 2009. Installations are proceeding in HMA Ships *Dechaineux* and *Sheean* with installation completion in November 2009 and May 2012 respectively.** The project schedule is dependent on the **Full Cycle** Docking schedule, **consequently these** dates may vary. To date the RCS schedule has been impacted by emergent work in the submarine docking schedule and the final installation is now scheduled to be completed in **2014. The cause of the schedule delay is the availability of submarines.** **Capability Performance** The RCS, as installed in HMAS *Waller*, was approved for Initial Operational Release by Chief of Navy in May 08. **HMAS *Waller* has since been deployed and has successfully completed RIMPAC 2008.** Initial Operational Release marks the point at which the RAN is satisfied that the capability is fit for purpose and when management passes from DMO to the RAN. Following Initial Operational Release the capability enters a period of Navy Operational Test and Evaluation to determine the performance boundaries and if the capability is suitable for Operational Release. The capability delivered in HMAS *Waller* is consistent with that identified in the project Materiel Acquisition Agreement; however, some sonar trials have yet to be completed. **HMAS *Farncomb* achieving its Initial Operational Release will deliver a second boat with a capability similar to HMAS *Waller*.**

1.3 Project Approvals

Approval	Original	Achieved	Variance
First Pass	N/A	N/A	N/A
Second Pass	Apr 02	Sep 02	5

1.4 Prime Acquisition Contract(s) Details

Prime Contractor(s)	Scope Outline	Type (Price Basis)	Form of Contract	Signature
Sonartech Atlas	Augmented Sonar Processing for the RCS	Variable	ASDEFCON Strategic	Jun 03
	Supply of a Sonar Data Recording System and Ancillaries for the RCS	Variable	ASDEFCON Strategic	Mar 04
	Supply of seven Self Noise Monitoring Systems and 25 Sonar X-Display Consoles	Firm Price	ASDEFCON Complex	Aug 04
Raytheon Australia	Modification kits, products and sub-systems as part of the Replacement Combat System	Variable	ASDEFCON Strategic	Aug 03
	For Systems Level Integration and Support Services associated with the RCS	Firm Price (approx 1/3) Time & Materials (2/3)	ASDEFCON Complex	Aug 05
	Build to Specification of four Navigation Subsystem Structures	Firm Price	ASDEFCON Complex	Jul 07
Thales Underwater Systems	Products to modify the existing Sonar System to remove full dependency on Tactical Data Handling System and inclusion of the existing Sonar System interface capability with supporting shore facilities simulation and training infrastructure, and adaptation of the existing Sonar System for inclusion of Submarine Acoustic Transitory Event Processing Systems and Sonar Open Architecture Interface	Variable	ASDEFCON Strategic	Oct 03
Logicalis (now Cerulean)	Supply of a Network Infrastructure for the Sonar System, as part of the RCS	Firm Price (price variation to ad hoc labour rates)	ASDEFCON Complex	May 04
Operational Solutions Management	Supply of Sonar Simulation Controller software.	Firm Price	ASDEFCON Complex	Nov 04
Acacia	Supply of the Submarine Mission Data System Analysis Tool	Fixed	ASDEFCON Complex	Feb 08
ASC	Design and implementation of platform modifications for RCS	Fixed	ASDEFCON Services	Jul 04
US Navy	Acquisition of the US Tactical Control Command Subsystem	Fixed	FMS	Jun 03
	Collins Towed Array Processor	Fixed	FMS	Feb 05
	HARPOON Tactical Support	Fixed	FMS	Nov 01
	Acquisition of the United States Tactical Control Command Subsystem	Fixed	Armaments Cooperative Project	Jun 06

1.5 Other Current Project Phases or Sub-Projects

Phase or Sub-Project	Description
Sea 1439 Phase 1-6	Following completion of Sea 1114 (Submarine Build Program) it was planned to address the remaining discrete upgrades and material deficiencies identified under that program through Sea 1439. There are six phases of project Sea 1439 constituting studies, replacement, and enhancement and improvement programs. The six phases, excluding project Phase 4A RCS are: ▪ Phase 1&2 Platform and Combat System Studies (Both Closed); ▪ Phase 3 Reliability and Sustainment Improvement and Phase 4B Weapon and Sensor Enhancement Program (Both current); and ▪ Phase 5 Continuous Improvement Program and Phase 6 Sonar Replacement System (Pre 2nd Pass and Pre 1st Pass respectively).

1.6 Project Maturity Score and Benchmark

Maturity Score		Attributes							Total
		Schedule	Cost	Requirement	Technical Understanding	Technical Difficulty	Commercial	Operations and Support	
Project Stage: System Integration & Test	Benchmark	**7**	**8**	**8**	**8**	**8**	**8**	**8**	55
	Current Project	**9**	**7**	**8**	**8**	**8**	**8**	**8**	56
	Explanation	**Schedule: The project is progressing to schedule with the development and delivery of combat system baselines. Combat system baseline development is ahead of the installation schedule because of delays in the submarine docking program and the schedule assessment is linked to baseline development rather than the installation schedule.** **Cost: Confidence in cost is lower than the benchmark because of potential cost effects of delay due to submarine availability affecting the installation program.**							

Section 2 – Financial Performance – All financial figures in Section 2 are in $millions

2.1 Project Budget Approval History

Original Budget (Base)	Price Indexation Variation	Exchange Variation	Real Variation	Approved Budget (Current)
455.3	**54.7**	**(49.7)**	(1.7)	**458.6**

2.2 Project Real Variation History Explanation

Date	Amount	Factor	Explanation
May 03	(0.9)	Transfers	Transfer to DSTO.
Aug 04	(0.8)	Budgetary Adjustment	Administrative Savings harvest.
Total	(1.7)	Real Variation	

2.3 Project Budget and Expenditure as at 30 June 2009

Approved Budget (Current)	Life to Date Expenditure (Cumulative)	Remaining Balance
458.6	**415.1**	**43.5**

2.4 End of Financial Year Total Project Expenditure Performance

Estimate	Actual	Variance
19.3	**24.9**	**5.6**

2.5 End of Financial Year Total Project Expenditure Variance Attribution

Variance	Variance Factor	Explanation
1.8	**Local industry**	**Revised overseas industry work downwards in financial plans, but the original overseas industry targets were achieved.**
3.8	**Overseas industry**	**New local contracts were raised and work completed exceeded estimates.**
5.6	Total Variance	

2.6 Prime Acquisition Contractor(s) Real Price Increases and Capital Equipment Quantities Required

Prime Contractor(s)	Price (Base) at		Equipment	Quantities at	
	Signature	30 Jun 09		Signature	30 Jun 09
Sonartech Atlas	22.5 (Jun 03)	N/A	Submarine Acoustic Transitory Event Processing Systems	4(1)	7
	3.3 (Mar 04)	N/A	Sonar Data Recording System and associated Sub-Systems	3	7
	1.9 (Aug 04)	N/A	Sonar system and associated Sub-Systems	7	7
Raytheon Australia	53.9 (Aug 03)	N/A	Tactical System sub-systems or components	7	7
	14.5 (Aug 05)	N/A	Integration of all RCS products delivered under the other contracts.	1	1
	2.1 (Jul 07)	N/A	Navigation Subsystem Structure	4	4
Thales Underwater Systems	22.9 (Oct 03)	N/A	Scylla Sonar and associated sub-systems	7	7
Logicalis (now Cerulean)	1.9 (May 04)	N/A	Provision of networking switches etc to connect the RCS products	3	7
Operational Solutions Management	0.6 (Nov 04)	N/A	Sonar Simulation Controller	3	3
Acacia	0.3 (Feb 08)	N/A	Supply of the Submarine Mission Data System Analysis Tool. Prototype Data Management Facility to provide improved situational awareness	1	1
ASC	0.8 (Dec 03)	N/A	**RCS Platform Design and Installation**	**1**	**1**
	0.7 (Jun 04)	N/A	**RCS Platform Design and Installation**	**1**	**1**
	6.7 (Aug 04)	N/A	**RCS Platform Design and Installation**	**1**	**1**
US Navy	143.9 (Jun 03)	N/A	Acquisition of the US Tactical Control Command Subsystem(2)	7	7
	8.3 (Feb 05)	N/A	*Collins* Towed Array Processor	7	7
	1.5 (Dec 01)	N/A	HARPOON Tactical Support		
	92.7 (Nov 04)	N/A	Acquisition of the US Tactical Control Command Subsystem(2)	7	7

Explanation	Note 1. The RCS Project was only originally funded for 4 Submarine Acoustic Transitory Event Processing System units. The in-service support organisation took advantage of an option in the RCS Projects Acquisition contract with Sonartech to replace the ageing Submarine Acoustic Transitory Event Processing System units fitted to the existing submarine combat system. Note 2. Includes on-going involvement in the Tactical Control Command hardware and software development process for the duration of the Memorandum of Understanding. **30 June 2009 base date dollars have not been provided for this project. As the prime systems integrator, the Commonwealth is undertaking a strategy of incremental contracting of work packages as they are defined. This results in varying base dates for work packages contracted. As a result expressing real price increases/ decreases at a total prime contract level in base date dollars is not feasible.**

2.7 Prime Acquisition Contractor(s) Price and Progress Payments

Prime Contractor	Price (Base) at 30 Jun 09	Progress Payments (Base) at 30 Jun 09
N/A	N/A	N/A
Explanations	**Contract expenditure in base date dollars has not been provided for this project. Because of the inability to populate table 2.6 for Contract Prices at base date dollar figures, progress payments in base date dollar terms against is not feasible.**	

Section 3 – Schedule Performance

3.1 Design Review Progress

Review	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Readiness	Combat System	Nov 04		Nov 04	0
System Design	Combat System	May 05		May 05	0
Preliminary Design	20 Separate sub-systems or major components	Oct 03 – Oct 06		Nov 03 – Oct 06	1
Critical Design	20 Separate sub-systems or major components(4)	Nov 03 – Apr 07		Nov 03 – Apr 07	0
Variance Explanations	The above data represents rolled up information as the project consists of many subsystems each of which have independent Preliminary Design Review, Critical Design Review or associated activities. Additionally, these system engineering activities were applied across two system baselines. As a result, there were many individual events within each of the above activities where the schedule was allowed to move provided the critical path for the delivery of capability was not impacted adversely. The critical path was based on the submarine docking program. Although some individual activities were ahead or behind schedule the project has maintained the critical path as defined by the submarine docking program. In some instances slippage has occurred as a result of project management intervention to delay finalisation of sub-system and major component design until the evolving US Tactical Command and Control system baseline was mature. The project schedule has been re-baselined following significant events. To progress the Preliminary Design Review and Critical Design Review activity ahead of the US system development would have incurred significant impairment cost. Preliminary Design Review and Critical Design Review slippage has not impacted capability delivery because of the dependency on the submarine docking program to install the RCS equipment. Note 4. Some sub systems or major components have several Critical Design Reviews or US equivalent.				

3.2 Contractor Test and Evaluation Progress

Test and Evaluation	Major System/ Platform Variant	Original Planned	Current Planned	Achieved/ Forecast	Variance (Months)
System Integration	Combat System - System Integration Test Phase 1-6	Jun 06 - Apr 08		Jun 06 - Apr 08	0
	Combat System - Harbour Acceptance Trials Stage1-3	Nov 06 - May 08		Nov 06 - May 08	0
	Combat System - Sea Acceptance Trials Stage 1-2	Dec 07 - Jun 08		Dec 07 - Jun 08	0
	Combat System - For Advanced Processing Build 06	**Aug 08 Sep08**		**Nov08 Jan09**	**4**
	Combat System - For Advanced Processing Build 07	**Jul09 Aug09**		**Dec09 Jan10**	**5**
Variance Explanations	Sea Acceptance Trials testing was conducted in two stages to account for weather, submarine defects and support vessel defects. In general, the project test and evaluation program must be carried out in conjunction with other post docking activities and the planned testing schedule has been impacted to some extent. **The variance shown for the Advanced Processing Build 06 is a result of internal rescheduling following the rescheduling of the HMAS *Dechaineux* Full Cycle Docking. This internal rescheduling enabled resources to be released for more important tasking and had no impact on the overall project schedule.**				

3.3 Progress toward Initial Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
IOC	Mar 08	**May 2008**	**2**	HMAS *Waller* achieved Initial Operational Release on 7 May 2008. Initial Operational Release represents the point at which the capability passes to Navy to carry out Operational Test and Evaluation. The small variance is attributed to finalising the technical regulatory review necessary to support Chief of Navy approving Initial Operational Release. **HMAS *Waller* has since been deployed and successfully completed RIMPAC 2008.** **HMAS *Farncomb* is scheduled to complete Initial Operational Release in July 2009.**

3.4 Progress toward Final Operational Capability

Item	Original Planned	Achieved/ Forecast	Variance (Months)	Variance Explanations/ Implications
FOC	2010	**2016**	**72**	FOC is achieved when the project has delivered the required capability to all submarines, and all other Fundamental Inputs to Capability (logistics support, training, facilities etc) have been fulfilled. FOC date was set at project approval before the submarine full cycle docking programme had reached maturity in terms of the length of dockings and impact of **emergent work and** other capability upgrades. As a result, the RCS installation schedule has been delayed. The project has been able to recover some schedule by targeting both Full and Mid Cycle dockings. However, there is no opportunity to recover the original schedule. **FOC is currently planned to occur in 2016, after the final installation is completed in HMAS *Collins* in 2014.**

Section 4 – Major Risks, Issues and Linked Projects

4.1 Major Project Risks

Description	Remedial Action
There is a possibility that installation of the Replacement Combat System equipment will be affected by slippages in submarine availability leading to an impact on schedule.	**This risk has now been realised and is addressed as an Issue in Section 4.2 Major Project Issues.**
There is a possibility that the Tactical Command Control system baseline will be affected by unforeseen US Navy led baseline changes leading to an impact on cost and schedule.	**This risk is being treated by:** ▪ **Exercising clauses within the Memorandum of Understanding that require the US Navy to consult with the Commonwealth of Australia.** ▪ **Presenting technical architecture changes to the Executive Steering Committee for decision.** ▪ **Establishing Project Authority positions in the Joint Project Office (US) to enable the RAN to influence prospective changes to the US program.** ▪ **Monitoring and approving all system engineering changes through the Engineering Review Board.**

4.2 Major Project Issues

Description	Remedial Action
Uncertainty in the submarine docking cycle and the availability of submarines has impacted the installation schedule.	**This issue is being treated by:** ▪ **monitoring opportunities to install systems earlier.** ▪ **Revising the Usage Upkeep Cycle.**

4.3 Linked Projects

Project	Description of Project	Description of Dependency
Replacement Heavyweight Torpedo System Sea 1429 Phase 2	To acquire a replacement Heavyweight Torpedo for the *Collins* class submarine to replace the US Navy Heavy Weight Torpedo currently in service with the RAN.	Required to provide Heavy Weight Torpedoes compatible with RCS.
Navigation Display Systems Sea 1430 Phase 2A	To provide Electronic Chart Display and Information Systems for the navigation of RAN ships and submarines. The project also delivers Navigation Display System systems to selected command and training shore establishments.	Navigation Display System installed in conjunction with RCS.
Collins Class Improvement Program Sea 1439 Phase 5B2	To provide *Collins* Class Submarines with a replacement communications centre and a High Data Rate communications capability, and to provide the *Collins* Class Submarines with an upgrade to the Sub-Microwave Electronic Support Measures.	Possible inclusion of Tactical Data Link.
Sonar Improvement Program **SEA1439 Phase 6**	**To upgrade the existing sonar system in the *Collins* Class Submarine through a program of replacement and improvement.**	**Sonar tracking and analysis data passed to the RCS.**

Section 5 – Lessons Learned

5.1 Key Lessons Learned

Lesson
Ensure that adequate staffing is available, in particular if DMO is to be the prime system integrator.
Ensure that all project dependencies are established before schedule is established.
Identify all requirements for technical data and technology as early as possible in the project to allow the transfer requests to be administered. US International Traffic in Arms Regulation can require up to a year to progress.
Engaging in a joint development project where Australia is the junior partner can introduce project management, cost, technology and schedule risk that needs to be addressed.

Section 6 - Addendum

6.1 Addendum

Material Events Post 30 June 2009
The MAA was amended in July 2009 to reflect revised delivery dates for the remaining submarines to reflect changes to the Usage Upkeep Program as reflected in Navy's Fleet Activity Schedule.
HMAS *Farncomb* completed Initial Operational Release in September 2009.

Appendices

Appendix 1: Acquisition Category Definitions

ACAT Definitions

The definition of each of the four Acquisition Categories is as follows:

- ACAT I – ACAT I projects are major capital equipment acquisitions that are normally the ADF's most strategically significant. They are characterised by extensive project and schedule management complexity and very high levels of technical difficulty, operating, support and commercial arrangements.
- ACAT II – ACAT II projects are major capital equipment acquisitions that are strategically significant to the ADF. They are characterised by significant project and schedule management complexity and high levels of technical difficulty, operating, support arrangements and commercial arrangements.
- ACAT III – ACAT III projects are major or minor capital equipment acquisitions that have a moderate strategic significance to the ADF. They are characterised by the application of traditional project and schedule management techniques and moderate levels of technical difficulty, operating, support arrangements and commercial arrangements.
- ACAT IV – ACAT IV projects are major or minor capital equipment acquisitions that have a lower level of strategic significance to the ADF. They are characterised by traditional project and schedule management requirements and lower levels of technical difficulty, operating, support arrangements and commercial arrangements.

Appendix 2: Project Maturity Score Attributes

Maturity Score	ATTRIBUTES						
	Cost	Requirement	Technical Understanding	Schedule	Technical Difficulty	Commercial	Operations and Support
	Delivering the Capability (Delivery Performance)						
	How well are the costs tracking project approval?	How well is the requirement being realised?	Defence's understanding of the technical solution to operate and support the capability?	How is the ISD tracking?	How well is the design and its validation coming along?	What is the Contractor's management performance and customer relationship	How prepared is the project to deliver an operating system?
10	Proven	Demonstrated	Fully Understood	Achieved	Proven	All Delivered	Operational
9	Contingency Remains	Tested	Transferred	Confident	Tested	Delivered	Transitioning
8	Confident	Designed	Arranged	Acceptable	Integrated	Delivering	Integrated
7	Within Contingency	Acceptable	Needs Understood	In Tolerance	Designed	Manages Risk	Being Procured
6	Negotiated	Contracted	Provided For	Manageable	Planned	As Contracted	Defined
Maturity Score	Defining the Capability (Process Maturity)						
	What is the quality of the project estimate?	How well have we defined the requirement?	How well do we understand the solutions?	How realistic is the schedule?	How difficult is it to put together?	Can industry deliver the solution?	Impact on the existing operating and support environment?
5	Per Endorsed Capability	Endorsed	Understood	Confirmed	Manageable	Offered	Planned
4	Industry Tested	Documented	Feasible	Understood	Feasible	Industry Proposals	Known
3	Reasonable	Solution Classes	Coalescing	Feasible	Building Blocks	Strategy Developed	Issues Understood
2	Plausible	Scenarios Identified	Patchy	Drivers Known	Conceptual	Possible	Conceivable
1	Speculative	Deficiency Identified	None	Speculative	Unknown	Not yet	Not Identified

Appendix 3: Understanding the PDSS

The purpose of this Appendix is to provide a detailed explanation of the types of data in the PDSS. The PDSS have been prepared by the respective DMO projects and the data in them has been reviewed by the ANAO in accordance with ASAE 3000 *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, issued by the Auditing and Assurance Standards Board. That data in the PDSS represents the status of the project as at 30 June 2009 except for Section 6 – Addendum which highlights events that have occurred between 30 June and 30 September 2009.

Section 1 – Project Summary

Section 1 is an introductory section which discusses the DMO's internal management arrangements for the project. It puts the project in a context of its approval background, what it is about, its major industry suppliers, any project unique features, challenges it faces as well as the current status of its cost, schedule and capability performance. The Project Maturity Score provides a measure of the "as is" versus the "should be" maturity status of the project at a point in its acquisition lifecycle.

Section 1.1 - Project Management: There are two components to this data element:

- The Project Director and line management; the Project Director is accountable for delivering the project under a Project Charter issued by CEO DMO. The Project Director usually reports to a DMO Branch Head (an SES Band 1 or military one star officer) and in turn to one of six Systems Division Heads (an SES Band 2 or military two star officer), each of whom report to the General Manager Systems. DMO's highly complex and high value ACAT 1 programs are managed by a Program Manager (usually a military one or two star officer or an SES Band 1, depending on the program). DMO's major programs come under the General Manager Programs.
- Project Director history lists the project directors who have managed the project since Government approval for acquisition and their tenures in the position.

Section 1.2 - Project Context: There are five components to this element:

- Description: This is a brief outline of the scope of the project and the capability it will add to the ADF.

- Background: This is a summary level statement that covers the history of Government approvals for the project, any significant changes that have occurred to this approval, major contracts covering the supply of mission and support systems and major events that have happened.
- Uniqueness: Describes those features of the project that distinguish it from the other projects reported.
- Major Challenges: These are the major challenges ahead for the project that will require particular project management attention.
- Current Status: Is a high level status account of the project's cost, schedule and capability performance.

Section 1.3 - Project Approvals: Identifies the dates when Government provided First and Second Pass approvals for the project or, for pre-Kinnaird projects, the closest equivalent to these events.

Section 1.4 - Prime Acquisition Contract(s) Details: This section lists the major supplies contracts. It identifies the contractor and when the contract was first entered into, a brief description of the scope of the supplies, the price basis[58] and the form of contract entered into; pre-DMO formation (i.e. pre 2000) contracts were based on a standard DEFPUR 101 form of contract. Since then DMO's ASDEFCON series of standard contracting templates has been used.

Section 1.5 – Other Current Project Phases or Sub-Projects: Some DMO projects are undertaken as separately approved phases or sub-phases designed to achieve a total capability effect in a progressive manner. These phases or sub-phases are unique projects in their own right and managed as discrete projects. An example of this is the various phases of the F/A 18 Hornet Upgrade project.

Section 1.6 – Project Maturity Score and Benchmark: This section presents the actual and benchmark score for the seven attributes of a project's maturity score and explains variances between them.

[58] Price basis for major contracts are usually "variable" i.e. a base price that is varied for price indexation and/ or foreign exchange fluctuations. For FMS the price basis is set out under standard US Government Foreign Military Sales arrangements.

Section 2 – Financial Performance

Section 2 provides a comprehensive account of the project's financial performance in terms of its budget and variances to that budget that have occurred over the life of the project. It also provides an account of project expenditure and variances to project in-year budget performance as well an account of major contracts, their original prices and any price and scope changes. The data under this Section is complementary to and expands on financial reporting in the Annual Report and Portfolio Budget Statements (PBS).

Section 2.1 – Project Budget Approval History: When a project is approved by Government its budget is allocated to DMO and to other Defence Groups responsible for delivery for various elements of scope in the budget to e.g. the DSG (for facilities) or Chief Information Officer Group (for specific IT systems) or the Services as appropriate. Therefore, the DMO's project budget can be less than the total Government approved budget for the project. This section only reports on the DMO element of the approved budget. The DMO's budget is transferred to DMO by Defence under an MAA that sets out the scope of the supplies and services that DMO will deliver, the standards or specifications to which they are to be delivered and the delivery schedule. As a prescribed agency DMO is totally accountable for managing and reporting on this element of the budget.

The project data in this section reports on the following variations to the originally transferred budget that has occurred up to the end of the financial year:

- Price Indexation Variations: supplementation to the total project budget in line with the deflator used by the Department of Finance and Deregulation to adjust Defence's budget (for 2008–09, the Non Farm Gross Domestic Product) and with not necessarily consistent variations in actual labour and materiel indices within contracts which are beyond the DMO's capacity to control.
- Foreign Exchange Variations: supplementation to the total project budget in line with foreign exchange rates used by the Department of Finance and Deregulation to adjust Defence's budget for changes in payments made in foreign currency, a factor over which the DMO has no control.

- Real Variations: All other variations to the total project budget including changes in quantities and scope which are explained in further detail in Section 2.2.

The sum of the above three variations results in a "Current Approved" project budget; that is the original budget adjusted for indexation and exchange variations parameters set by the Department of Finance and Deregulation together with the aggregation of all other variations.

Section 2.2 – Project Real Variation History: This section breaks down the Real Variations noted in Section 2.1 above into a standard set of variation types that are explained below:

- "Scope" variations are total project budget adjustments made to provide for changes to the MAA scope agreed by Defence (as the customer of the DMO). These generally take the form of changes in quantities of equipment, changes in requirements that result in specification changes in contracts, changes in logistics support requirements or changes to services to be provided which are accompanied by a corresponding budget adjustment.
- "Transfers" occur when a portion of the project scope and budget as set out in the MAA is agreed by Defence (as the customer of the DMO) for transfer to another MAA or to an Materiel Sustainment Agreement for delivery as part of sustainment or to another Group in order to more efficiently manage delivery of an element of project scope and to vest accountability for performance accordingly.
- "Budgetary Adjustment" describes all other variations to the total project budget except scope variations, transfers and DMO Performance. It includes Departmental administrative decisions that result in variations such as efficiency dividends to be harvested from project budgets or adjustments made to fund initiatives such as Skilling Australia's Defence Industry (SADI), as well as other adjustments and corrections.
- "DMO Performance" is a measure of how effectively the DMO managed its financial performance on a project. Budget adjustments under this category are not related to any of the above headings. They include cost overruns that can arise because of incorrect estimates that the DMO may have previously agreed to in MAAs, real cost variations that do not have a corresponding scope variation, such as non

indexation or foreign exchange price variations in contracts, or changes in contract price that might result from global settlement of contractual issues.

Section 2.3 - Project Budget and Expenditure as at the End of the Financial Year: This section reports on the total expenditure that has occurred against the project budget noted in Section 2.1 up to the end of the current financial year and the balance remaining. The cost of DMO personnel is not included in the project budget – this is borne from a "service fee" which is funded separately from project costs. Whereas DMO's service fee has been previously funded by Defence from financial year 2009–10 this funding will come via Government direct appropriation to the DMO.

Section 2.4 – End of Financial Year Total Project Expenditure Performance: DMO forecasts its expenditure for the financial year first at the time of submitting Portfolio Budget Estimates (PBS) before the beginning of the new financial year and updates these estimates at Portfolio Additional Estimates (PAE). This section compares DMO's forecast at PAE and its end of financial year achievement.

Section 2.5 – End of Financial Year Total Project Expenditure Variance Attribution: The difference between the estimate (i.e. the forecast from Section 2.4) and actual expenditure for the financial year is attributed to standard variance factors described below. Positive figures indicate expenditure achieved ahead of plan. Variances are attributed to:

- Brought Forward from 2009–10: Variations due to expenditure planned for 2009–10 or later that actually occurred in 2008–09.
- Cost Saving: Variations due to planned work completed at a cost less than budgeted for.
- FMS: Variations due to a change in the estimate for FMS expenditure over the year.
- Commonwealth: Variations due to planned payments not occurring due to reasons attributable to DMO.
- Local Industry: Variations due to local industry not achieving progress as planned thereby inhibiting expenditure.
- Overseas Industry: Variations due to foreign industry not achieving progress as planned thereby inhibiting expenditure.

Section 2.6 – Prime Acquisition Contract(s) Real Price Increases and Capital Equipment Quantities Required: This section reports on prime contracts, their price and the quantities of equipment under contract at the time of contract signature and at the end of the financial year. Reasons for variances in quantities are explained. To enable comparison the price at signature and at the end of the financial year is expressed at the base date[59] at which the contract was signed.

It should be noted that quantity of contracted equipment is only provided at a summary level, generally at the prime mission and support systems level, because the full list all items contracted would be far too extensive and detailed to list in a PDSS.

In some instances it is not possible to state base date contract prices. This is usually because not all contracts or contract amendments enacted are always under the same base pricing arrangements as the original contract. Where multiple contracts are involved, such as when the DMO is the prime systems integrator managing a number of separate prime equipment contracts, the contracts can have been entered into at various times and hence have different base dates. When this occurs, contract prices have not been provided.

Section 2.7 – Prime Acquisition Contract(s) Price and Progress Payments: This section reports on the prime contracts, their price and the progress payments against the prime contracts. To enable comparison of, the prices at signature and at the end of the financial year, and the progress payments to date expressed at the base date for pricing under the contract.

When Defence moved from its previous accounting system, DEFMIS to its current system ROMAN, the required granularity of information did not come across; hence it is difficult to identify all base bate payments made from the previous system. Furthermore, as in Section 2.6, projects where DMO is the prime systems integrator, or where multiple contracts are involved, each of the contracts have payments made against them in different base dates making it impossible to establish a common base date for progress payments. Similar problems are encountered with FMS procurements where Letters of Acceptance are based on out turned dollars and payments made in US dollars

[59] "Base Date" refers to a reference date in the contract from which all variances on account of contract price indexation or foreign exchange adjustments to the contract price are made.

at the exchange rate of the day. In these instances, base date expenditure is not stated and a reason for this included. It should be noted that although DMO does not manage its project finances in base date dollars it has complete financial accounts for all payments made to contractors.

Section 3 – Schedule Performance

Section 3 reports on a project's design development and test and evaluation status and when a project is forecast to achieve an initial and final operational capability. DMO's major projects entail the acquisition of equipment involving highly complex systems and sub-systems that need to be defined, designed, integrated and tested using sound engineering and test and evaluation techniques. The number of systems engineering and test and evaluation activities conducted across the range of systems and subsystems comprising a weapons system would be too extensive to list and summarisation of this information is necessary for the purpose of this report. Therefore, the design reviews and test and evaluation events reported should not be interpreted as the only events that have been conducted for a project.

Section 3.1 Design Review Progress: DMO employs a system engineering approach based on international standards to its engineering activities in requirements definition and design development. The design reviews reported on are:

- Systems Requirements Review: This is intended to confirm that the contract technical specifications have been translated into system specific technical specifications and that risks are well understood and mitigation plans are in place. A Systems Requirements Review is usually a precursor to a Preliminary Design Review.
- Preliminary Design Reviews: These are a series of design reviews conducted after preliminary design efforts, but before start of detail design and is the first opportunity for the DMO project office to closely observe the contractor's hardware and software design.
- Critical Design Review: This is conducted as a series of detailed design reviews before release of the design for manufacturing or software coding.

Section 3.2 Contractor Test and Evaluation Progress: Complex military equipment and systems acquired by the DMO undergo a comprehensive test and evaluation program (also referred to as the verification and Validation

program) as part of their acceptance processes. Test and evaluation is conducted at component, equipment, sub-system and system levels and at development, production, integration and acceptance stages. The number of test events that a complex project generates is too extensive to list and this section only reports on contractor test and evaluation on major systems at certain key events.

- Systems Integration Test and Evaluation: Is conducted at a stage after lower level test and evaluation has been undertaken and when systems are integrated at a higher level to examine how they perform at a systems-of-systems level.
- Acceptance Test and Evaluation: Is conducted at a stage when the DMO and contractor consider that systems are at a stage when performance compliance against contracted requirements can be demonstrated for contract acceptance.

Section 3.3 Progress toward Initial Operational Capability: IOC is a point in time at which the first subset of a capability system (e.g. the first of a fleet of three AWDs) that can be operationally employed is realised. This is an operational state that the Capability Manager declares has been achieved when a set of inputs to capability have been brought together in a manner that will enable an initial capability to be operationally deployed. While DMO delivers a materiel system comprising mission and support systems, achieving IOC vests with the Capability Manager. For example, DMO delivers aircraft but providing the pilots and air crew are the responsibility of Service Chiefs; but operational capability is not achieved unless there are aircrew to fly the aircraft that DMO supplies.

Section 3.4 Progress toward Final Operational Capability: FOC is a point in time at which the final subset of a capability system (e.g. the third of a fleet of three AWDs and all other supplies and services) that can be operationally employed is realised. This is an operational state that the Capability Manager declares has been achieved when all inputs to capability have been brought together in a manner that will enable the full capability to be operationally deployed. While at this stage the DMO has delivered all materiel systems i.e. all mission and support systems, achieving FOC vests with the Capability Manager.

Section 4 – Risks, Issues and Linked Projects

This section reports on major project risks and issues faced by the project. It also identifies those projects whose outcomes are necessary for the success of the project being reported on.

Section 4.1 Major Project Risks: DMO's project risk management methodology rates risks at four levels – low, medium, high and extreme; this section reports on the two highest levels via "extreme" and "high" risks and describes the planned remediation measures for these risks.

Section 4.2 Major Project Issues: Project issues comprise major risks that have been realised or significant matters that have emerged during the execution of the project that require special management attention. This section lists these issues and describes proposed remediation action for these issues.

Section 4.3 Linked Projects: These are the projects that depend on the reported project to achieve their objectives.

Section 5 – Lessons Learned

This is a list of the more significant lessons that that the project office has identified during the course of executing the project. Many of the lessons are generic across projects and have enterprise wide applicability; therefore the manner in which the DMO is addressing them has been dealt with in a more holistic manner from paragraph 3.23 of Part 2.

Section 6 – Addendum

Project data presented in the previous sections record the status of the project up to the end of the financial year ended 30 June 2009. The DMO MPR is tabled in November; so this section endeavours bring the status of the project up to date by noting the more significant events that have occurred since the end of June and the end of September 2009.

Glossary

ASDEFCON	AUStralian DEFence CONtracting suite of contracting templates
Capability Manager	Service Chiefs for Army, Navy, Air Force or the Vice Chief of the Defence Force for Joint Projects. For certain projects the Deputy Secretary Intelligence and Security and the Chief Information officer might also be nominated as Capability Managers. The role of the Capability Manager is to raise, train and sustain in-service capabilities through the coordination of Fundamental Inputs to Capability.
Contract Master Schedule	A time and resource based schedule for executing work under the contract.
DEFPUR 101	DEFence PURchasing (101) contracting template used pre the formation of the DMO.
Final Operational Capability	The point in time at which the final subset of a capability system that can be operationally employed is realised.
First Pass Approval	The process that gives Government the opportunity to narrow the alternatives being examined by Defence to meet an agreed capability gap. First Pass approval allocates funds from the Capital Investment Program to enable the options that Government endorses to be investigated in further detail, with an emphasis on detailed cost and risk analysis.
Function and Performance Specification	A specification that expresses an operational requirement in function and performance terms.
Initial Operational Capability	A point in time at which the first subset of a capability system that can be operationally deployed is realised.
Integrated Product Team	An integrated team of subject matters experts from stakeholder groups.
Kinnaird	The Defence Procurement Review 2003 chaired by Malcolm Kinnaird
Materiel Acquisition Agreement	An agreement between Defence and the DMO which states in concise terms what services and products the DMO (as supplier) will deliver, for how much and when.

Off-the Shelf	A product that is available for purchase, which has been delivered to another military or Government body or commercial enterprise.
Operational Concept Document	The primary reference for determining fitness-for-purpose of the desired capability to be developed.
Project Executive Summary and Status Outline	A summarisation of the project's status, challenges it faces and its performance.
Project Management Stakeholder Group	A group representing the key stakeholders in a project that meets periodically to review the status of the project, advise senior executives of issues and provide guidance to the Project Manager.
Project Maturity Score	A means of measuring the maturity against benchmark measures of a project at defined milestones.
Second Pass	The final milestone in the requirements phase at which point Government endorses a specific capability solution and approves funding for the acquisition phase.
Service Customer	The Defence Group that is the end user of products and services delivered by DMO.
Test Concept Document	The basis for DMO's development of the Test and Evaluation Master Plan for a project, and is the highest level document that considers test and evaluation requirements within the capability systems' life-cycle.
Verification and Validation	Validation is the proof through evaluation of objective evidence that the specified intended end use of a product or system is accomplished in an intended environment. Validation is confirmation by examination and provision of objective evidence that specified requirements to which a product or service, or aggregation of products and services, is built, coded, assembled and provided have been fulfilled.

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