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Performance Audit

Management of Selected Defence System Program Offices

Department of Defence

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Australian National
Audit Office

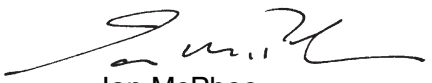
Canberra ACT
27 May 2005

Dear Mr President
Dear Mr Speaker

The Australian National Audit Office has undertaken a performance audit in the Department of Defence in accordance with the authority contained in the *Auditor-General Act 1997*. Pursuant to Senate Standing Order 166 relating to the presentation of documents when the Senate is not sitting, I present the report of this audit and the accompanying brochure. The report is titled *Management of Selected Defence System Program Offices.*

Following its presentation and receipt, 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

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Abbreviations

ADACS	Australian Distributed Architecture Combat System
ADF	Australian Defence Force
AEO	Authorised Engineering Organisation
AMO	Authorised Maintenance Organisation
ANAO	Australian National Audit Office
AS/NZS	Australian Standard/New Zealand Standard
ASDEFCON	Australian Defence Contracting
CDF	Chief of the Defence Force
CDG	Capability Development Group
CEPMAN 1	Capital Equipment Procurement Manual 1
CMS	Contract Master Schedule
DAO	Defence Acquisition Organisation
DGTA	Directorate General Technical Airworthiness
DGTA-ADF	Director General Technical Airworthiness-ADF
DMO	Defence Materiel Organisation
DMOKS	Defence Materiel Organisation Knowledge System
DPPM	Defence Procurement Policy Manual
DRMS	Defence Records Management System
DSTO	Defence Science and Technology Organisation
DTR-A	Directorate of Technical Regulation-Army
DTR-N	Directorate of Technical Regulation-Navy
EVMS	Earned Value Management System
FFGSPO	Fast Frigate Guided System Program Office
FMA Act	Financial Management and Accountability Act
GTESPO	Ground Telecommunications Equipment SPO
GST	Goods and Services Tax
HUG	Hornet Upgrade
ILS	Integrated Logistics Support
IPDE	Integrated Product Development Environment
IPSSR	Improve Project Scheduling and Status Reporting
IPT	Integrated Project/Product Team
IT	Information Technology

ISO 9001:2000	International Organization of Standardization, 9001:2000 *Quality management systems-Requirements*.
JCPAA	Joint Committee of Public Accounts and Audit
JLU-V	Joint Logistics Unit-Victoria
JFAS	Jindalee Facility Alice Springs
JORN	Jindalee Operational Radar Network
KPIs	Key Performance Indicators
LOTE	Life of Type Extension
NTRS	Navy Technical Regulatory System
OTHRSPO	Over-the-Horizon Radar Systems Program Office
PDS	Project Definition Study
PMKeyS	Personnel Management Key Solution
ProMIS	Project Reporting and Monitoring System
PSP	Professional Serviced Provider
QEMS	Quality and Environmental Management System
QMS	Quality Management System
ROMAN	Resource Output Management Accounting Network
SPO	System Program Office
TFSPO	Tactical Fighter Systems Program Office
TMSPO	Track Manoeuvre Systems Program Office
TRF	Technical Regulatory Framework
USDM	Under Secretary Defence Materiel (now Chief Executive Officer-CEO)
WBS	Work Breakdown Structure
1RSU	1 Radar Surveillance Unit

Summary, Conclusions and Recommendations

Summary

Background

1. Defence capability involves a combination of people, organisation, equipment, systems and facilities to achieve a desired operational effect. This audit covers the major capital equipment acquisition and logistics support aspects of Defence capability. The audit focuses on the Defence Materiel Organisation (DMO), which was established on 1 July 2000 as part of an ongoing reform of Australian Defence Force (ADF) material acquisition and logistics support. These reforms will enter a new phase from 1 July 2005, when DMO is expected to commence operations as a prescribed agency within the Defence portfolio.

2. DMO manages some 250 major capital equipment acquisition projects, which in 2003–04, had a total estimated cost of $52 billion. In 2003–04, DMO spent some $5.9 billion, of which $2.5 billion was on capital equipment acquisition, and $3.4 billion on logistics support. Expenditure for the top 30 acquisition projects represents nearly four-fifths the total planned expenditure on Major Capital Equipment in 2004–05.

3. During February to May 2004, DMO undertook a due diligence analysis of its business as part of preparations for becoming a prescribed agency. The aim was to identify the scope of the business undertaken by DMO, and to assess the risks to the successful achievement of planned outcomes in its core business areas – acquisition and logistic support. DMO considered this to be an essential precursor to the negotiation of agency agreements with Defence.

4. The diligence analysis was published in the June 2004 DMO Business Due Diligence Report, which reported that of 156 major acquisition projects, 30 per cent had already missed their agreed in-service date or had unrecoverable schedule slippage. A further 20 per cent, while not yet late, would require intensive management to achieve their in-service date, and the remaining 50 per cent should meet their in-service dates with normal management processes. It also reported that over the period 1981 to 2004, DMO's top 64 major acquisition projects incurred price increases totalling $11.8 billion. Some $10.5 billion, or 89 per cent, of the increases related to cost escalation associated with the price of labour and materials, and to currency exchange variations. The remaining 11 per cent, or $1.3 billion, related to real changes in the nature or scope of deliveries after the projects received initial Government approval.

5. DMO has 11 divisions, responsible for different aspects of ADF materiel acquisition, logistics support and disposal. This audit examines DMO through the operations of four of DMO's 46 Systems Program Offices (SPOs), which the ANAO selected from DMO's Maritime; Land; Aerospace; and Electronic and Weapon Systems Divisions. DMO's SPO tasks are, in the main, concerned with defining and monitoring contractor performance in meeting contractual obligations, regarding equipment acquisition and logistic support. Some SPOs also perform system integration tasks.

Technical regulation

6. The ADF's technical regulations have strengthened since the 1990s, mainly in response to its increasing reliance on the Defence Industry Sector to develop and logistically support its equipment. In June 2002, the regulations were placed within a Technical Regulatory Framework (TRF),[1] jointly authorised by the then Secretary of Defence and the then Chief of the Defence Force. The TRF's role is to monitor and control risks to safety, fitness for service and environmental compliance (collectively known as 'technical integrity') of ADF materiel.

7. A core component of the ADF's TRF is Authorised Engineering Organisation (AEO) and Authorised Maintenance Organisation (AMO) certification, to be achieved by organisations that provide the ADF with equipment acquisition and support services. These certifications provide high-confidence by the Services' Technical Regulatory Authorities that the authorised organisations have: technical management systems appropriate to the type of work being performed; personnel having appropriate authority, training, qualifications, experience, demonstrated competence and integrity to undertake the activities required; processes that are documented, controlled and approved for all the organisation's engineering activities; and data applied to, and derived from, technical activities that are accessible, authoritative, accurate, appropriate and complete.

Audit approach

8. The audit focuses on DMO's equipment acquisition and support, at the system program management level. The objective of the audit was to assess the adequacy of Defence's capital equipment project definition, approval, acquisition and logistics support management.

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[1] The TRF sets the criteria against which people, processes, products and organisations can be judged, and monitors and audits compliance with technical regulation policy and management guidelines. The framework's core principles are centred on the need for ADF materiel to be designed, constructed, maintained and operated to approved standards by competent and approved individuals, who are acting as members of an approved organisation, and whose work is certified as correct.

9. The SPOs subject to audit are:

- Aerospace Systems Division's Tactical Fighter Systems Program Office (TFSPO), which is responsible for acquisition and logistics support management of the Air Force's F/A-18 and Hawk 127 fleets and associated equipment. TFSPO is located at Williamtown, NSW;
- Land Systems Division's Track Manoeuvre Systems Program Office (TMSPO), which is responsible for the acquisition and logistics support management of Army's Leopard Tanks and M113 Armed Personnel Carrier fleets. TMSPO is located in Melbourne;
- Electronic and Weapon Systems Division's Over-the-Horizon Radar Systems Program Office (OTHRSPO), which is responsible for acquisition and logistics support management of the Jindalee Operational Radar Network (JORN) and Jindalee OTHR systems. OTHRSPO is located within the Defence Science and Technology Organisation (DSTO) precinct at Edinburgh, South Australia; and
- Maritime Systems Division's Fast Frigate Guided System Program Office (FFGSPO), which is responsible for the support and upgrade of the Navy's FFG fleet. FFGSPO is located at Garden Island, Sydney.

10. In view of the significant role that DMO's SPOs play in managing major capital equipment acquisition projects, the audit includes a case study of the $1.448 billion Fast Frigate Guided (FFG) Upgrade Project. A high level of audit assurance is not able to be provided on the FFG Upgrade Project given deficiencies in the FFGSPO information management systems and deficiencies in the level of design and development disclosure provided to SPO personnel by the FFG Upgrade Prime Contractor. The ANAO was unable to access appropriate audit evidence on the financial expenditure associated with the FFG Upgrade Project, and the Project's approved Equipment Acquisition Strategy.

Fast Frigate Guided Upgrade Project

11. The FFG Upgrade Project initially aimed to regain the original relative capability of six FFGs, and to ensure they remained effective and supportable through to the end of their life in 2013–21. How effective the Upgrade Project has been will not be known until acceptance of the Upgrade Software currently scheduled for May 2007.

12. In November 2003, the Minister for Defence announced changes to Defence capability. These changes included the acquisition of three air warfare destroyers and the strengthening of the FFGs' air warfare capability, by complementing the FFG Upgrade anti-ship missile defence system, with the long-range Standard Missile-2 (SM-2) missiles. Related offsets include the early

retirement of the two oldest FFGs in 2005 and 2006, when the last of the new ANZAC class frigates are delivered. Defence assessed the savings attributable to the withdrawal of these two FFGs would be $678 million over ten years.[2] On a one-year basis, that represents less than two per cent of the estimated annual total operating expenses of the Navy, which in 2004–05 was reported to be $4.65 billion.

13. The retirement of the two FFGs requires a contract amendment covering the reduction of FFGs to be upgraded from six to four.[3] This amendment had not been finalised by March 2005, despite being decided in November 2003. In 2002, DMO estimated that the unit cost of the upgraded FFGs to be $235 million each for six upgraded FFGs, or $353 million each if only four were upgraded. This indicates that upgrading only four FFGs would yield no savings in the FFG Upgrade Project. DMO records also state that unless FFG fleet tasking was reduced significantly, there would be marginal change in fleet operating costs if less than six FFGs were upgraded.

Key findings and conclusions

Capability development process

14. Defence's Capability Development Group (CDG) is responsible for assessing and defining current and future ADF capability needs, and for managing Defence's overall major capital equipment investment program. Responsibility for major capital equipment acquisition and logistics support rests with DMO through its SPOs. CDG bases its management processes on a 'two pass' Government approval process, involving formal Government consideration of future Defence capability on three occasions. First, when Defence defines a capability gap and seeks to place a broadly defined solution into the Defence Capability Plan. Second, when Defence seeks the Government's approval to conduct further studies into defined capability options. The final occasion occurs when Defence seeks the Government's approval to acquire a preferred capability option. The process brings together CDG-DMO Integrated Project Teams (IPTs) with the aim of generating significantly more detailed and accurate qualitative data on cost, schedule and capability issues, than had occurred in previous ADF development processes.

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[2] Senate Foreign Affairs, Defence and Trade Legislation Committee, *Additional Estimates 2003-04*, 18 February 2004.

[3] Defence has already incurred the majority of expenditure on the contract, including the purchase of six ship sets of upgraded equipment.

SPO process management

15. In 2002, DMO commenced development of a standardised Business Process Model known as the Quality and Environmental Management System (QEMS). QEMS is to provide SPO personnel with up-to-date information on DMO's program management policies, processes and practices. The intention was to by 2005, have the model fully populated and having Information Technology (IT) design features that satisfy end user requirements. However by early 2005, this had not been achieved.

16. The ANAO found that the information in QEMS was difficult to access and lacked the necessary level of guidance for the users of QEMS to translate policy into practice. It was particularly deficient in financial policy on project approval and variations to approved project costs. QEMS implementation requires continued monitoring and evaluation to ensure it achieves its aims, and is fully accepted by SPO personnel.

17. In 2002, DMO commenced developing its Improve Project Scheduling and Status Reporting (IPSSR) system. IPSSR seeks to provide an improved method of planning, scheduling, budgeting, monitoring and controlling SPO tasks, through the increased use of earned value management techniques to produce accurate project cost and schedule data.

18. The ANAO found the development and implementation of IPSSR has taken DMO longer than expected. In order for IPSSR data to achieve the required degree of accuracy, each DMO project requires IPSSR to be established and maintained by adequately skilled project mangers, schedulers and earned value management personnel. Without that investment, the ANAO would have doubts as to IPSSR's value as an aid to overall project management and status reporting, given the complexity of project management, scheduling, Earned Value Management System (EVMS) techniques, and the coordination tasks associated with the management of Government provided materiel, and other fundamental inputs to ADF capability.

19. In early 1999, Defence selected the IT-based Defence Records Management System (DRMS) as its standard method of document and records management. The ANAO found that DRMS implementation within the SPOs audited ranged from fully effective in the TFSPO to non-existent in the FFGSPO. DMO recognises it has deficiencies in its documentation management systems supporting projects and general business, and that DRMS implementation in DMO has been slow partly due to the DRMS 'user pays' cost model and limitations of its narrow functionality. In 2004, DMO commenced defining its documentation management system requirements and identifying possible solutions.

Integrity management

20. The ANAO found all nine SPOs within DMO's Aerospace Systems Division, and the Airborne Early Warning and Control organisation had achieved AEO certification, and commercial organisations that support these SPOs have AEO, AMO or interim AMO certification. Six of the eight Land Systems Division SPOs have AEO certification.

21. Three out of the 19 Electronic and Weapon Systems Division SPOs have AEO certification. Defence advised the ANAO that many of these SPOs perform systems integration work in conjunction with SPOs that have AEO certification and Chief Engineers authorised to monitor and approve their work. None of the 10 Maritime Systems Division SPOs have achieved AEO certification. However, eight have provisional AEO certification. The ANAO found that compliance with the ADF's TRF to be fully matured in the TFSPO, and mature in varying degrees in the other SPOs.

22. Given the risks involved, there is a strong case for DMO to increase the priority and assistance to Maritime Systems Division and Electronic and Weapon Systems Division to improve their compliance with the ADF's TRF. The ANAO considers that despite the considerable effort expended by Maritime Systems Division, the FFGSPO appears significantly behind the other SPOs audited, in terms of technical integrity policy, process and data maturity.

23. The audit found that TFSPO's F/A-18 Hornet and Hawk 127 logistics support arrangements are based on well-developed logistics support policy, plans and key performance indicators. Also, indications are that TFSPO is adequately maintaining the technical integrity of the Hornet and Hawk fleets. Hornet and Hawk fleet operations data indicate TFSPO is managing effectively its in-service support role.

24. TMSPO's Leopard and M113 fleet logistics support arrangements include DMO's Land Engineering Agency, fleet repair contracts managed by Joint Logistics Command, and fleet maintenance provided by Army. In 2003, DMO's Maintenance Advisory Service audited the Army's 1st Division logistic support and found that only four per cent of the vehicles sampled by the audit were considered fully functional, and only 22 per cent of all equipment sampled was regarded as fully functional. This indicates a need for DMO, Joint Logistics Command, and Army to continue working together to achieve improvements in Army vehicle and equipment logistics support arrangements. The Leopard and M113 fleet operations data indicate TMSPO is managing effectively, its logistics support role.

25. Operational availability data indicate the FFGSPO and OTHRSPO are managing effectively their logistics support roles, to the extent that the FFG

Fleet and JORN and Jindalee OTHRs are achieving operational availability figures specified by the ADF.

Capital Investment Project - FFG Upgrade

26. In September 2003, the FFG Upgrade Prime Contractor commenced installing upgraded equipment into the first FFG to be upgraded, namely HMAS Sydney, at its Garden Island facility. Originally, the FFG Upgrade Contract schedule had the first ship fully upgraded and delivered by 4 August 2003. However, by September 2003, no ships been upgraded, and approximately 71 per cent of the total contract budget had been paid to the Contractor.

27. The ANAO found for the most part, the delays related to the design, development and integration of the upgraded combat systems. Progress to date casts doubt on the Contractor's ability to deliver upgraded FFGs, capable of meeting the contracted specifications, within the agreed price or schedule. In April 2005, the Contractor advised the ANAO that *'it was not aware of any indication that it would not complete its current contracted scope of work within the agreed price.'*

28. In November 2001, the Contractor submitted a draft excusable delay claim for an amount of $46 million (December 1998 prices), and an additional $14 million claim for loss of work and skills retention for the period the Project was delayed. In April 2004, the Contractor's claim was settled by DMO for $21.636 million (equivalent to $16 million in February 1998 prices). Other changes to the FFG Upgrade Project contract that flowed from that claim, included recasting the incentives to the Contractor's achievement of milestones, and allowing delivery schedule slippage ranging from 25 months, for the six FFGs to be upgraded, to 35 months for the FFG Warfare Systems Support Centre and Upgrade Software acceptance.

29. The Contract provides that the Defence may pay the Contractor Performance Incentive Fees capped at $18.7 million as additional incentive for the Contractor's due and proper performance of its contracted obligations. By May 2004, the Contractor had received six performance incentive fees totalling $3.323 million (excluding Goods and Services Tax (GST)). These incentive fees covered interim work done by the Contractor, rather than delivery of FFG upgrade outcomes.

30. A fundamental project management responsibility is to ensure that the contractor's cost and schedule progress data are sufficient and reliable enough to accurately track and review results being obtained. In November 2001, the Contractor's EVMS was certified by Defence as complying with the Defence EVMS standard. However, by then the Project was showing signs of extensive schedule slippage.

31. The EVMS contains a Contract Master Schedule (CMS), which establishes the Project's key dates. The CMS is required to be completely compatible and traceable to the Contract's Milestone Schedule, and be meaningful in terms of the Contract's technical requirements and key activities. FFGSPO records indicate that since 1999, SPO personnel lacked confidence in the validity of the Contractor's CMS. By August 2002, the Contractor had produced six revised CMSs.

32. FFGSPO is responsible for conducting recurring surveillance reviews of the Contractor's EVMS to ensure it remains compliant with the contracted standard, and continues to produce credible cost and schedule performance data. However, despite the FFGSPO's concerns, the Contractor's EVMS had not undergone a surveillance review by Defence personnel, until March 2005.

33. In August 2004, the Contractor advised DMO that it had undertaken an internal review of Tests and Trials for HMAS Sydney, and confirmed that 16 May 2005 was a high confidence date for the completion of the Sydney's Tests and Trials. This date represents a slippage of four-months from a schedule provided to DMO only one month before. The DMO advised the Contractor of its disappointment with schedule performance on the Project and the profound knock-on effects on national capability, reputation, fleet activity and Navy training and leave management. In September 2004, the Chief of Navy advised DMO's Chief Executive Officer that the situation had seriously undermined Navy's confidence in the Project.

34. By March 2005, further FFG Upgrade delays resulted in HMAS Sydney*'s* sea trials being rescheduled for completion at the end of August 2005. Consequently, the Contractor exercised its contractual option to insert an eight-week postponement in the upgraded FFGs' provisional acceptance dates.

Technical certification

35. The FFG Upgrade project's Prime Contractor has accepted Total Contract Performance Responsibility for the design integrity and performance of the upgraded FFG systems, and for making certain that all inspections and acceptance test procedures are sufficient and performed in accordance with upgrade contract's Statement of Work and System Specifications. This makes the Contractor totally responsible for detecting and correcting inadequate design and construction.

36. FFGSPO records indicate that after some four years into the FFG Upgrade Project, the FFGSPO was not satisfied with the Contractor's implementation of the FFG upgrade Test Database, and that the system test procedures written against sub-system specifications were neither sufficiently rigorous nor complete. The ANAO found that the Contractor had not provided FFGSPO with the degree of design and development disclosure specified in the

Contract, and that this had limited the effectiveness of the FFGSPO's technical review process. This includes FFGSPO Inspections, Tests and Trials personnel on-line access to the Contractor's Test Database, updated drawings and Requirements Database. This access is necessary to enable FFGSPO personnel to determine the extent to which the FFG Upgrade had satisfied the requirements specified in the Contract.[4]

37. From mid 2004 to March 2005, the Contractor was overdue in delivering some 160 contracted data items to the FFGSPO. These data items are used by the SPO as the basis of assessing the quality of the Contractor's work, and other data deliverables, such as equipment documentation supplied by sub-contractors.

38. The Upgraded FFG Combat System Software development, testing and certification process has not progressed as planned. In December 2003, FFGSPO in a Problem Identification Report advised the Contractor of its 'great concern' with the safety and construction of the Combat System Software. The SPO advised that the Contractor had not allayed its concerns regarding safety aspects of the software, and had submitted Hazard Analysis Reports to the Contractor on this issue. The Contractor had not permitted FFGSPO personnel access to evidence of software safety and had rejected the SPO's Hazard Analysis Reports, citing that the reports were not sufficiently specific for the Contractor's Hazard Analysis techniques to be applied to them. By March 2005, the Combat System Software Safety Problem Identification Report raised by the SPO in December 2003 remained unresolved.

39. In light of these combat system safety and testing program problems, it appears likely that the FFG Upgrade technical and operational integrity certification process will experience further delays. In April 2005, the Contractor advised the ANAO that certification is not required under the Contract, other than on the delivery certificates (SG8s and SG1s) where the Contractor certifies that it has met the requirements as defined by the Contract for the nominated supplies.

Financial Management

40. In the period between May 2004 and February 2005, at the request of the ANAO, the FFGSPO attempted to assemble the financial records to support the payments made under the Project. For much of that period, the ANAO

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[4] In April 2005, the Contractor advised the ANAO that it had released the design information in accordance with the Contract, and that updates to that previously delivered are not contemplated in the current Contract scope of work. The Contractor also advised that on-line access to the Test Database was provided to the FFGSPO in March 2005, and that on-line access to the Project's Engineering Change Requests/Engineering Change Orders and updates to design documentation in progress, were only unavailable due to technical problems associated with [the Project's] Integrated Product Development Environment (IPDE) software.

found that the FFGSPO's records for 1999 to mid-2003, did not provide a basis for orderly, efficient and accountable measurement of the use of Australian Government resources.

41. The ANAO is generally satisfied with the improved practices and procedures adopted by the FFGSPO to record and assess the basis of payments to the Contractor since mid-2003. During this period, payments amount to some $129 million, were validated by a complete set of invoices, completed authorised DMO sign off sheets and payments made in accordance with contractual terms. Since February 2004, the FFGSPO has incorporated a formal signoff process to approve Contractor payments.

42. Since December 1997, the Upgrade Project's price has increased by $328.94 million as a result of cost escalation associated with the price of labour and materiel, and foreign currency exchange adjustments. The increase includes cost escalation and foreign exchange adjustments associated with the FFG Upgrade Project's schedule slippage approved by contract changes. These increases were absorbed by automatic adjustments to Project budgets for the price and exchange variations.[5]

43. The Upgrade Contract's price has also increased by $98.87 million as a result of contract scope changes. FFGSPO records indicate SPO personnel moved funds between funding elements within the overall project approval, to absorb the Contract price increases associated with the scope changes.[6] Automatic adjustments to project budgets, when combined with Project Managers' ability to move funds between project elements, may mask costs being incurred by the project that result from schedule slippages, and lessen the management incentives for effective schedule management.

44. The FFG Upgrade Contract provides that the first Earned Value Management Payment shall not be made until the Project Authority approves the project's EVMS Performance Measurement Baseline. The Performance Measurement Baseline was approved in mid 2000, with the payment of two milestones. However, during the period December 1999 to June 2000, the SPO approved $88.9 million in earned value payments to the Contractor.

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5 These automatic adjustments to the project budgets are based purely on the unexpended funds remaining in the Project. DMO's standard fixed price contracting template does not allow compensation for inflation related to milestones, in the event that the contractor is late in meeting milestones.

6 DMO has flexibility to reallocate funds between project elements in the work breakdown structure. Project Managers do not have authority to vary the approved project scope. Where costs for specific project elements exceed the allocated funds and available contingency, a real cost increase or change in scope must be sought from the appropriate delegate. Depending on the size, this could be an internal Defence delegate, the Minister for Defence, the combined Ministers for Defence and Finance and Administration, or Cabinet.

45. The ANAO has not been provided with documentation from Defence that supports the basis of earlier value payments prior to the approval of the EVMS Performance Measurement Baseline. There is no evidence of a contract changes proposal being executed that would enable these earned value payments to be made. The Contractor's EVMS did not receive compliance certification until November 2001, by which time more than $200 million had been paid in earned value payments.

46. The FFG Upgrade Contract originally contained financial risk mitigation in the form of a Bank Guarantee Schedule covering the $125 million advanced payment Defence paid to the Contractor, and a Performance Security Schedule initially capped at $30 million. In September 2002, the Bank Guarantee and Performance Security amounts were reduced to nil, on the execution of a Deed of Substitution, whereby the Contractors' parent company became guarantor for the proper performance of the FFG Upgrade Contract.[7]

47. The ANAO also has concerns relating to GST claims that remain unresolved. By the time the GST came into effect on 1 July 2000, the Contractor had lodged a series of earned value claims and milestone payment claims amounting to $254.8 million. These claims contained some $133 million in advance (mobilisation) payments for future FFG Upgrade work. On 12 July 2000, the Contractor lodged an invoice for GST amounting to $8.38 million, to cover $83.8 million in pre-GST payments it had received, and which it claimed were 'unamortised mobilisation'. On that basis, $83.8 million in payments were made available to the Contractor ahead of work performed, and the Contractor invoiced Defence for the GST payable on that amount. Defence approved payment of the $8.38 million GST claim, without apparently verifying the amount of work yet to be completed under the advanced payments arrangement.

48. The FFGSPO also pays GST on foreign currency price variation claims based on retail as apposed to wholesale foreign currency rates. The agreement to this appears to be based on implied understanding, as opposed to any written agreement between the parties.

49. Longstanding Defence policy is to pay its accounts on the due date, which is generally 30 days from acceptance of goods or services, and the receipt of a request for payment from the vendor. FFG Upgrade Project payment tracking records show the first earned value claim was received from the Contractor on 20 December 1999 for $34.44 million comprising

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[7] The FFG Upgrade Contract also provided for liquidated damages, in the event of the Contractor's failure to achieve the contracted delivery schedule. The liquidated damages provisions represent about one percent of the Total Contract Price, and so are unlikely to provide an effective deterrent measure. As of March 2005, there had been no liquidated damages event.

$A 19.94 million and $US 9.65 million. The $US component was approved on the second working day and paid to the Contractor on 22 December 1999, and the $A component was paid on 24 December 1999. There is no evidence presented that indicates the FFGSPO validated the claim for payment of $US 9.65 million and $A 19.94 million, or that it reduced the claim by applying the correct contractual discounts for early payment. Payment before the due date occurred on a number of occasions up until mid 2000.

Overall audit conclusions

50. The DMO has implemented significant organisational change since 2000. The formation of CDG together with increased CDG-DMO IPT collaboration based on the two pass Government approval process, should in the future result in improved capital equipment acquisition contract work definitions, and more accurate project cost and schedule estimates.

51. DMO's SPO structure should enable accountability to be effectively aligned to system acquisition and logistics support management. It also exploits the system engineering synergies between product design, development and logistics support. However, here remains scope for further improvement in the areas of DMO's standardised Business Process Model, project scheduling and status-reporting system, and within the technical integrity management systems within DMO's Maritime and Electronic and Weapon Systems Divisions.

52. The FFG Upgrade Project is not proceeding satisfactorily and requires continued Defence Senior Executive attention, in order to prevent further loss of Navy capability. The FFG Upgrade Project has experienced extensive schedule slippage, and as of November 2004, 78 per cent of the contracted payments had been made without a satisfactory design and development disclosure process in place, nor agreement with important elements of the project's Tests and Trials program. ANAO considers that further slippage is likely on the lead ship, HMAS Sydney, which will have flow on effects for overall Navy capability.

53. The ANAO found that in the period 1999 to mid-2003, the FFGSPO financial records did not provide a reasonable level of assurance for the orderly, efficient and accountable measurement of the use of Australian Government resources. The ANAO is concerned that legislative and administrative requirements concerning the keeping of accounts and records may not have been met for a significant period, prior to mid-2003, in relation to this project. The ANAO plans to include a follow-up audit of the FFG Upgrade Project in our forward audit work program.

54. The audit highlights differences in relative management process maturity between the four SPOs audited. The ANAO found that TFSPO provides an example of better program management practice, in that it has a hierarchy of plans linked to key performance indicators and has a well-developed quality management systems integrated with the Services' technical regulatory framework. The TFSPO adherence to the Service's regulatory framework resulted in the early development of approved plans and procedures for effective introduction into service and logistic support of ADF aircraft and aircraft-related equipment. In contrast, the FFGSPO's plans, key performance indicators and the regulatory compliance system were either under review or in the early stages of implementation, despite the Upgrade Program being nearly six years old. This, when combined with problems related to the project's software safety and testing program, is likely to result in delays in the technical certification of the Upgraded FFGs and as a result delays in their acceptance into service.

55. The ANAO considers that specific management attention by Defence should focus on the following areas:

- ADF technical regulations require effective technical integrity management by Defence and contractor design approval organisations, and DMO design acceptance organisations. This requirement should be factored into equipment acquisition and logistics support contracts, prior to contact execution.
- SPOs should have a hierarchy of plans linked to key performance indicators, which are relevant to the introduction into service of the capability and its logistics support.
- SPOs should establish and maintain validated project cost and schedule data. Successful schedule and status monitoring and reporting requires accurate and reliable EVMS data from contractors, which is validated by adequately skilled DMO personnel through recurrent surveillance reviews.
- DMO project management business processes should accord with sound management practice for payment of claims and retention of appropriate records. Milestone payment strategies should align with high-value progress, rather than provide advanced payments for future work.
- DMO's standardised Business Process Model requires further development in terms of content, IT design, and alignment with SPO Quality Management Systems.

- Defence should improve the implementation of its Defence Records Management System.

56. The ANAO made eight recommendations to improve the management of ADF major capital equipment acquisition and logistic support, based largely on audit observations from the FFG Upgrade Project.

Agency response

57. Defence agreed with six recommendations, and agreed with qualifications and in principle to the remaining two recommendations. Defence advised the ANAO of its response to this audit as follows:

> Defence welcomes this audit into a core part of our business. Overall Defence agrees with the outcomes provided and is heartened to have a finding that most of our System Program Offices have in place a good business structure supported by mature management processes.
>
> Defence acknowledges that there is still work to be done, noting that the majority of this work is of a routine nature and does not represent a significant fundamental flaw.
>
> The timing of this audit, coinciding with the commencement of the Kinnaird recommendations, makes this report a good performance benchmark against which the reform process can be assessed at a later date.

Recommendations

Set out below are the ANAO's recommendations, with report paragraph references and an indication of the Defence response. The recommendations are discussed at the relevant parts of this report.

Recommendation No.1 Para 2.20

The ANAO recommends that Defence:

(a) increase the priority of the Quality and Environmental Management System's development; and

(b) as an interim measure, incorporate into the Quality and Environmental Management System appropriately amended Capital Equipment Procurement Manual 1 policy, to address content gaps.

Defence response: Agreed.

Recommendation No.2 Para 2.29

The ANAO recommends that Defence review training resources for Improve Project Scheduling and Status Reporting, to ensure that System Program Office personnel have adequate training to effect successful transition to the new system.

Defence response: Agreed.

Recommendation No.3 Para 2.36

The ANAO recommends that Defence establish a timetable for all Defence Groups to migrate to the mandated Defence Records Management System.

Defence response: Agreed.

Recommendation No.4 Para 2.43

The ANAO recommends that Defence increase the priority and assistance to DMO's Maritime Systems Division and Electronic and Weapon Systems Division System Program Offices to achieve Authorised Engineering Organisation certification, in order that they can provide improved assurance regarding safety and fitness for service of Australian Defence Force materiel.

Defence response: Agreed with qualification.

Recommendation No.5 Para 7.55

The ANAO recommends that Defence ensures that in future major equipment acquisition contracts:

a) milestone payments are, where appropriate, aligned to the successful completion of mandated system reviews and tests and evaluations; and

b) full payments for milestones, which follow critical milestones, be made only when all critical milestone review issues are satisfactorily resolved.

Defence response: Agreed.

Recommendation No.6 Para 7.68

The ANAO recommends that Defence promulgate to System Program Offices, guidance on the legislative and administrative process requirements for the payment of accounts and the keeping of proper records.

Defence response: Agreed in principle.

Recommendation No.7 Para 7.77

The ANAO recommends that Defence review, on a regular basis, System Program Office's acquisition contracts administrative processes for the payment of the Goods and Services Tax.

Defence response: Agreed.

Recommendation No.8 Para 7.85

The ANAO recommends that Defence provides specific training to all System Program Office liability approvers of their obligations to promote effective and efficient use of Australian Government resources in accordance with legislative and contracted obligations.

Defence response: Agreed.

Audit Findings

1. Introduction

This chapter summarises recent key reforms that have influenced the formation and roles of the CDG and the DMO's SPOs. It also sets out the audit's objectives and scope.

Background

1.1 The Defence Reform Program initiated in 1997 resulted in the July 1998 announcement, by the Defence Executive, of a fundamental review of Defence's capability management principles and practices. The aim was to ensure that Defence manages whole of life capability through 'seamless management'. The Defence Executive established the Capability Management Improvement Team which, in conjunction with Defence Acquisition Organisation (DAO), developed the Capability Systems Life Cycle Management Guide. This guide, among other things, provided the genesis of Defence's 'two pass' major capital equipment investment definition, analysis and approval process. In February 2005, Defence replaced the Capability Systems Life Cycle Management Guide with the Defence Capability Development Manual and detailed procedures within CDG's Process Map.

1.2 The Defence Reform Program also included:

- people management reform, which seeks to create an environment where people responsible for defence materiel are suitably trained, valued and motivated to do their best;
- process improvement in acquisition, logistics and asset management practices. This includes adopting commercial practices where these apply to Defence, and developing strategic relationships with industry; and
- structural reorganisation that established DMO through the merger of defence equipment acquisition and logistics support previously performed by the DAO, Support Command Australia and parts of the National Support Division.

1.3 At the time of the audit, DMO had implemented the majority of its structural reforms and was still establishing its procedures, and improvements in personnel management.

1.4 The Defence Procurement Review 2003 (Kinnaird Review), found Defence needed to further reform its acquisition management, and become

more business like and outputs focused. Key Defence decisions flowing from the Government's adoption of this Review are summarised as follows:[8]

- strengthening the capability development and assessment process before projects are handed to the DMO through forming a new Capability Group within Defence headquarters;
- establishing an eight-member Advisory Board to provide advice to the head of the DMO on strategic issues and to report to the Ministers for Defence and Finance and Administration at regular intervals on the implementation of the Kinnaird recommendations;
- giving the Chief Executive Officer of the DMO an expanded range of powers to make improvements to the delivery of Defence projects and the management of the DMO;
- strengthening the current two-pass approval system to facilitate early engagement with industry and provide a better basis for project scope and cost;
- establishing cost centres in Defence and the Department of Finance and Administration, which will build on Defence's decision to establish a Cost Assessment Group;
- strengthen the review of project costs and risks; and provide a quality assurance role for the Government; and
- extending the role of Project Governance Boards to advising the CEO of the DMO on logistics support management issues in order to provide greater recognition of the importance of managing the whole-of-life of a particular capability.

Capability Development Group

1.5 Defence's CDG is responsible for managing the Defence 'two pass' major capital equipment investment definition, analysis and approval process. In September 2003, the Government agreed to implement improvements to the two pass process for Government approval of Defence major capital equipment projects. The process brings together CDG-DMO IPTs, with the aim of generating significantly more detailed and accurate qualitative data on cost, schedule and capability issues, than had occurred in previous ADF development processes.

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[8] Media Release by the Minister for Defence, *Further Reforms to Defence Acquisitions*, 18 September 2003.

1.6 In June 2004, CDG commenced formal implementation of the two pass process. By November 2004, CDG was managing some 143 projects, which were progressing toward Government approval, and an additional 234 projects, which have already received Government approval and which CDG sponsors. By June 2005, CDG expects to have all unapproved projects subjected to the formal two pass approval process.

1.7 In March 2005, CDG reported that within its Unapproved Major Capital Investment Program, there were 114 projects classified as 'Pre-First Pass', meaning that the projects had yet to progress to Government for either first or second pass approval. A further 29 projects were classified as 'pre-second pass', defined as projects that have achieved formal first pass approval from the Government, are progressing as Transitional Projects, or projects that have approval from the Department of Finance and Administration to proceed in a combined first and second pass process.

1.8 CDG was also acting as project sponsor for 234 projects within DMO. CDG's sponsorship role includes representing the operational users of the capability throughout the acquisition process, and involves providing coordination, specialist advice and liaison with the Capability Manager and the DMO Project Office. At the time of the audit fieldwork, many of CDG's sponsorship roles were being formalised in Material Acquisition Agreements with DMO, and CDG was developing performance measures and associated targets for each capability development project.

Defence Materiel Organisation

1.9 DMO manages some 250 major capital equipment acquisition projects, through a national network of 46 SPOs. The estimated cost of these projects was $52 billion, and in 2003–04 progress payments totalled $2.5 billion. DMO, through its SPOs, also manages Defence's $3.4 billion major capital equipment logistics support program, which is required to sustain the ADF's fleet of some 90 different weapon platforms and support systems. DMO's SPOs are mainly co-located with ADF Force Element Groups.[9] In 2004–05 DMO is budgeted to spend $336.6 million on civilian employees and $99.3 million on ADF members.

1.10 As most DMO SPOs require contractors to deliver products and services and logistics support, SPO tasks are, in general terms, concerned with defining and monitoring contractor performance in meeting their contractual

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[9] Force Element Groups (FEGs) comprise the main ADF 'front-line' operational capabilities such as Navy Surface Warfare (warships), Air Force Strike (F-111 aircraft), and Army Brigades (ie. 3 Brigade rapid deployment force). While a Brigade is not strictly a FEG, it is generally considered to be FEG-like in terms of force structure, resources and objectives.

obligations, regarding equipment acquisition and logistic support. Some SPOs also perform system integration tasks. SPOs are responsible for:

- ensuring acquisition and logistics program integrity in terms of consistency with performance specifications, coherence with infrastructure planning and with other programs, and conformance with corporate, technical and specialist standards;
- ensuring deliveries of new products or services meet requirements in terms of contracted performance, cost and schedule;
- managing risks to the program's successful outcome;
- initiating management interventions wherever gaps in the program are identified or issues arise; and
- reporting progress of the program at regular intervals to the program's sponsor, Governance Board and DMO Senior Executives.

1.11 The Defence Reform Program initiated in 1997, required DMO's predecessor the DAO to manage more acquisition projects, and to produce better quality outcomes with a reduced level of staffing. DAO responded to that need with its Business Process Re-engineering Project,[10] which provided a foundation for much of DMO's business process reform. Defence formed DMO on 1 July 2000,[11] and since then has changed DMO's structure through the formation of SPOs, and revised its logistics management policy, processes, and information technology.

Audit approach

1.12 This audit examines DMO through the operations of four SPOs, selected from DMO's Maritime, Land, Aerospace, and Electronic and Weapon Systems Divisions. The audit focuses on DMO's equipment acquisition and support project management structures and processes. The objective of the audit was to assess the adequacy of Defence's capital equipment project definition, approval, acquisition and logistics support management.

1.13 The audit includes one in-depth case study of a major capital equipment acquisition project, namely the FFG Upgrade Project. As such, this

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[10] Management best practice differentiates Business Process Re-engineering (BPR) from incremental process improvement programs by seeking dramatic organisational improvements through fundamentally reorganising an organisation's business processes. BPR seeks to avoid simply using information and communication technology to automate inefficient processes. Instead, whole organisations are re-engineered to achieve the greatest possible improvements in cost, quality, service and delivery.

[11] DMO was formed by the merger of DAO, Support Command Australia and parts of the National Support Division.

was not an audit of the FFG Prime Contractor performance, but of the contract management of the acquisition project by Defence.

1.14 Audit fieldwork was largely conducted between April and October 2004. The ANAO provided discussion papers to Defence in December 2004 and February 2005, and the proposed audit report was issued to Defence in April 2005, under section 19 of the *Auditor-General Act 1997*. Extracts of the proposed audit report were also issued to other interested parties.

1.15 The ANAO was unable to access appropriate audit evidence on the financial expenditure associated with the FFG Upgrade Project. A high-level of assurance cannot be provided on the FFG Upgrade Project, given the lack of relevant and reliable information held by the FFGSPO.

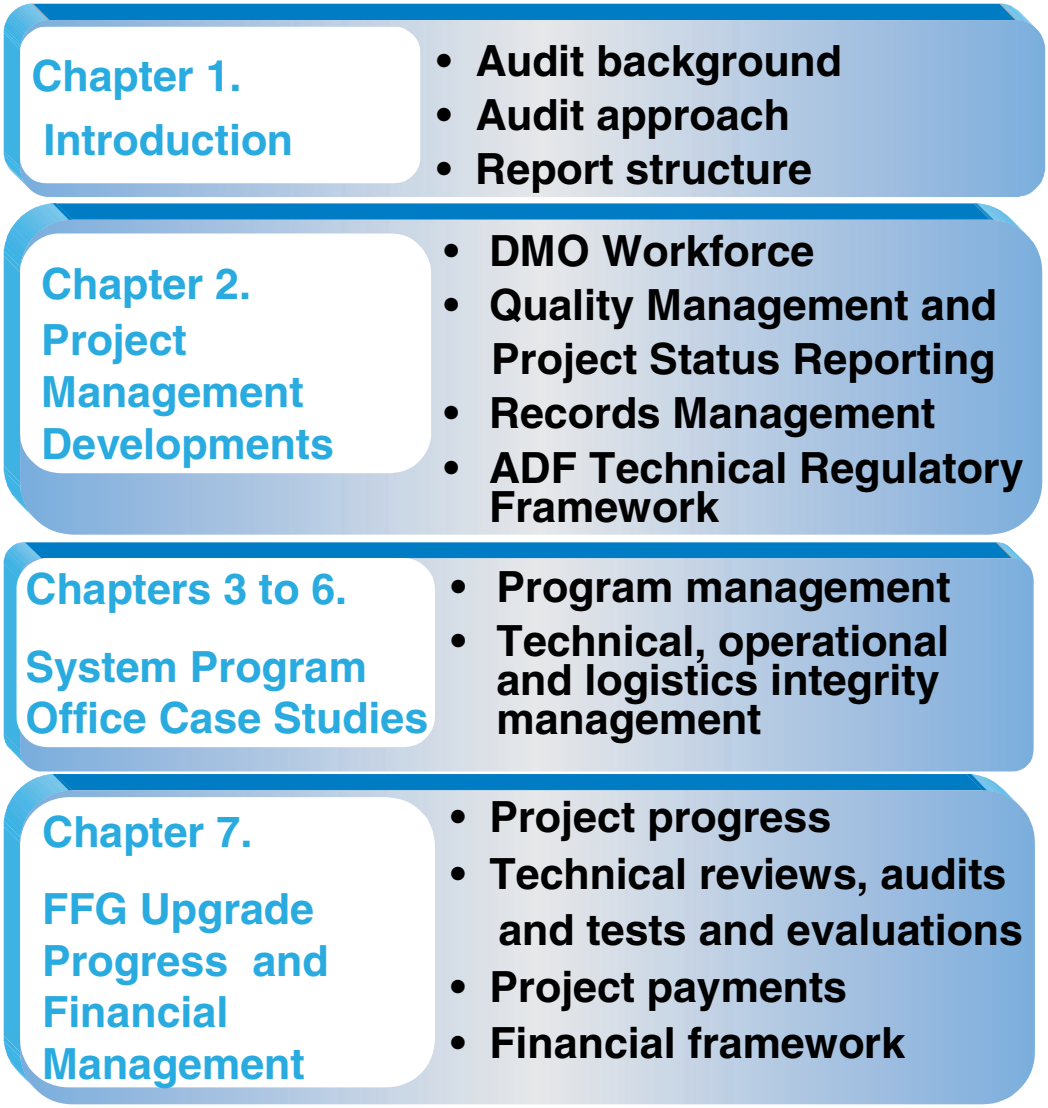
1.16 The audit was conducted in accordance with ANAO Auditing Standards at a cost of $445,000.

Report structure

1.17 The report contains seven chapters outlined in Figure 1.1.

Figure 1.1

Management of Selected Defence System Program Offices
Department of Defence – Report Structure



2. Project Management Developments

This chapter outlines important workforce issues experienced by the DMO, and discusses the development and implementation of key management and regulatory systems used by the organisation's SPOs.

Defence Material Organisation workforce

2.1 In early 2005, DMO had approximately 6,500 staff, 75 per cent were civilians and the remainder ADF members. At the time of the 1999 ANAO audit of the Management of Major Equipment Acquisition Projects, Defence records indicated that 14 per cent of budgeted civilian positions in the then-DAO were unfilled.[12] Data provided by DMO in August 2004 show that this was still an issue for the agency, with 23 per cent, or 1,709 positions, unfilled.

2.2 Identified difficulties in recruiting include:

- a shortage of project management, engineering, and contract management skills;
- the location of vacant positions; and
- the remuneration offered.

2.3 The ANAO found that DMO's military to civilian personnel ratio was 1:3, which exceeds the 1:9 ratio recommended in the 1997 Defence Efficiency Review.[13] Fourteen per cent of DMO's military positions were vacant, and 13 per cent of the military positions were filled by ADF personnel of a rank lower than specified for the positions. This result was attributed to an overall ADF shortage of certain ranks and specialisations.

2.4 Defence's personnel information management system, PMKeyS, showed that the average military posting to DMO is 2.17 years. This is significantly shorter than the recommended tenure of three years for 80 per cent of DMO's 'Military Preferred' positions.[14] The length of postings may be

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[12] Auditor-General Audit Report No.13 1999-2000, *Management of Major Acquisitions Projects*, October 1999, p. 138.

[13] Department of Defence, *Future Directions for the Management of Australia's Defence, Report of the Defence Efficiency Review*, March 1997, pp.26, E-5. The Defence Efficiency Review formed the basis of the Defence Reform Program, announced in 1997.

[14] 'Military preferred' positions are defined as those which the CEO DMO and the Service Chiefs agree that there is mutual benefit in the position being filled by an appropriately qualified military member.

leaving projects exposed to risks such as loss of staff continuity and corporate knowledge.[15]

2.5 DMO is developing a business model to address the issue of military staffing levels in DMO. The model is to address DMO's continuing need to fill some specialist positions with military personnel. The Chief of the Defence Force (CDF) has advised that 'while the majority of positions in DMO could be filled by either military or civilian staff', the CDF needs an irreducible minimum number of military staff in DMO.[16] The ANAO notes that much of DMO's ADF weapon system acquisition and support skills at the SPO-level rely on technical training and experience provided by the Services.

2.6 While DMO pays Defence for the military staff it receives from them, those staff (and their career management) remain under the ultimate command of the CDF. Under the Defence Act, this authority cannot be delegated to non-military staff.[17]

Professional Service Providers (PSPs)

2.7 PSPs are a sub-category of Defence's External Service Providers staffing category.[18] In 2003–04, DMO engaged 347 PSPs, which was 91 less than the previous year.[19] PSPs are engaged to provide skills not available in the Australian Public Service and to cover peak workloads in projects. The number of PSPs engaged by DMO changes daily, making it difficult to measure their numbers precisely. Also, some PSP contracts require DMO work to be conducted off-site in contractors' premises, and involve contracted deliveries rather than the employment of specified numbers of PSPs.

2.8 The amounts spent on PSPs each financial year since 2000–01 have varied from $42.3 million in 2000–01; $105.2 million in 2001–02; $88.6 million in 2002–03, and $72.9 million in 2003–04. These figures represent a marked increase from the $31 million that was spent by DAO on PSPs in 1998–99. However, DMO is some four times the size of the former DAO.

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15 DMO has advised that, in 2003, the turnover rate for civilian staff was 8.9 per cent. This compares well with the average rate of staff turnover in Australian public service agencies of 12.4 per cent in the 12 months to June 2003.

16 DPR Implementation Team, 'Attachment I – Model for providing military staffing into DMO' in *DMO Business Model Update*, December 2003.

17 *Defence Act 1903*, Section 9.

18 External Service Providers, or ESPs, can be any external contractor, while PSPs are working under the control of DMO.

19 The 2003-04 figure is a DMO estimate provided to a Senate Legislative Committee hearing in 2004. The previous year's estimate is based on financial data held on ROMAN such as purchase orders and expenses against account codes.

DMO's professional development program

2.9 From July 2001 to April 2004, some 11,301 DMO personnel participated in procurement training, while 366 more have been sponsored by the DMO to undertake non-tertiary project management courses. At the time of the audit fieldwork, it was not possible for DMO to report on whether or not its project directors and managers have achieved competency certification at the complex procurement level.[20] It is expected that the inclusion of qualifications data in Defence's personnel management systems PMKeyS and Job Families, will allow this reporting to occur.

2.10 DMO is developing initiatives related to personnel movements, and the general need to develop its project management and leadership skills. A number of these have already been implemented.[21]

2.11 In 2004, DMO's CEO announced a strategy aimed at professionalising DMO's workforce. The overall strategy is to have DMO's eligible practicing engineering workforce qualified to the status of Certified Engineer or equivalent. While the strategy's initial targets are those engineers making critical engineering judgments, it will be extended to all engineering and technical staff, with an uptake goal of 50 per cent by the end of 2005–06. This strategy aligns with the ADF's TRF requirements.

Defence Material Organisation's Quality and Environmental Management System (QEMS)

2.12 Prior to DMO's formation, Defence's Capital Equipment Procurement Manual 1 (CEPMAN 1), was the primary reference for Defence major capital equipment acquisition policies. CEPMAN 1 resulted from a 1986 Joint Committee of Public Accounts recommendation that a comprehensive Defence Project Management Manual be issued for the guidance of project directors.[22]

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[20] DMO delegations framework requires all complex procurement to be reviewed by a persons holding appropriate competency certificates. Defence Procurement Policy Manual.

[21] These initiatives include:
- The Quantum Program. The objective of this program is to equip APS 6 and EL 1 personnel with leadership skills. It runs for 12 months, and features both on and off the job components; and
- The Project Managers Development Program. This program was implemented in 1999 in response a need to bridge the vital project skills gap that could emerge from civilianisation and loss of senior expertise'. Like the Quantum Program, this program is offered to APS 6 and EL 1 personnel, but is also available to military staff at equivalent levels, and consideration may be given to EL 2s and their equivalents. To be eligible to participate in the program, officers are expected to have at least five years project management experience, with at least three years of DMO experience. The program involves an average of 10 to 15 hours of study or syndicate work each week, and includes the undertaking of a Masters degree in Project Management.

[22] Joint Committee of Public Accounts, *Report 243 Review of Defence Project Management*, Volume 1 – Report, 1986, p. 90.

In 1999, DAO's Business Process Re-Engineering Project commenced work on replacing CEPMAN 1 with a more comprehensive Business Management System.[23] The formation of DMO in 2000, resulted in DAO's Business Management System evolving into the information technology-based Defence Materiel Organisation Knowledge System (DMOKS). The corporate knowledge contained within the paper based CEPMAN 1 did not migrate in full to DMOKS.

2.13 In 2001, DMO commenced developing QEMS, as an intra-net system based on the DMO's Business Process Model, which is to be DMO's primary reference for capital equipment acquisition and logistics policy and management practice. DMO plans to integrate into QEMS, all its newly developed management policy and processes, and governance requirements.

2.14 QEMS needs to properly integrate with the SPO-level business processes already implemented in each SPO's Quality Management System (QMS).[24] Importantly, QEMS is not intended to fully replace SPO-level systems, but it must integrate with them to ensure consistency in the application of DMO policy. At the time of the audit fieldwork, 19 of the 46 SPOs had their QMSs certified as complying with Australian Standard/New Zealand Standard (AS/NZS) ISO 9001:2000, *Quality management systems – Requirements* (ISO 9001:2000), and in the case of 18 SPOs, the QMSs were integral to their AEO certification. These SPOs require QEMS to comply with the quality standards, and TRF requirements in order to provide assurance that integrating their QMSs with QEMS would not place in jeopardy their quality system and AEO certifications.

2.15 The QEMS implementation strategy allowed for the development and promulgation of DMO-wide processes, while allowing SPOs to comply with TRF requirements through their QMSs, where that was a priority. DMO advised the ANAO that when the DMO process model stabilises in March 2005, SPO QMSs would be progressively linked to QEMS.

2.16 DMO intends to limit the number of SPO unique processes to the minimum required for that SPO, with the aim of reducing special training needs and other overheads, and of improving standards through standardisation on better management practice.

2.17 DMO has evaluated how QEMS aligns with management policy and practice information contained within SPO QMSs. Evaluations have revealed

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[23] Auditor-General Audit Report No.13 1999-2000, *Management of Major Acquisitions Projects*, October 1999,
pp. 116-118.

[24] These QMSs contain detailed processes, support instructions, guidance and templates that reflect the unique aspects of each SPO's operations.

that, in general, there was some alignment, but overall, there was much to be done to develop a practical standardised set of policies, processes and practices across the whole of DMO. A comprehensive evaluation conducted by Aerospace Systems Division in mid 2004 and involving TFSPO, identified the need to improve the QEMS user interface, document management, IT access reliability, user training, content management and specialist support. Based on those findings, Aerospace Systems Division put forward 26 recommendations on how QEMS could be improved.

2.18 In January 2005, Defence advised the ANAO that:

- results of a December 2004 QEMS evaluation were being assessed for corrective action, and in March 2005, DMO plans to conduct another full evaluation of QEMS. DMO then expects to begin fully integrating its SPO and DMO business unit QMSs, and expects QEMS itself receiving quality certification in late 2005;
- CDG had agreed to CDG's capability development policies and processes being placed into QEMS. QEMS will then become an authoritative source of reference for the entire capability development and delivery process; and
- QEMS development and introduction was undertaken in conjunction with the three Services' Technical Regulatory Authorities. Defence advised that the SPOs that have adopted QEMS will be a long way towards compliance with technical regulatory requirements, and that FFGSPO is in this category, being one of the first to adopt QEMS.

2.19 DMO has made considerable effort to document within QEMS, policy and process information covering technical regulation, project management, software and systems engineering, risk management, integrated logistics support and in service support. However, the information in QEMS is difficult to access, and falls short in providing guidance on translating policy into practice. QEMS lacks comprehensive treatment of financial policy, even when compared to its predecessor Defence's CEPMAN 1, which was discarded in 2000. ANAO found for example that QEMS, unlike CEPMAN 1, lacked policy guidance on variations to project approval. Project approval establishes the scope and cost of a project and is viewed as a fundamental element of effective governance.

Recommendation No.1

2.20 The ANAO recommends that Defence:

(a) increase the priority of the Quality and Environmental Management System's development; and

(b) as an interim measure, incorporate into the Quality and Environmental Management System appropriately amended Capital Equipment Procurement Manual 1 policy, to address content gaps.

Defence response

2.21 Recommendation No. 1 (a) - Agreed. Now that the backbone of QEMS is in place and technology has been proven, including how to migrate mature QMS systems into QEMS, the incorporation of SPO level QMS into QEMS can proceed quickly.

Recommendation No. 1 (b) - Agreed. The relevant sections of the CEPMAN 1 not already covered in QEMS will be updated and transferred across. The DMO is implementing a System of Defence Materiel Instructions, which will capture all policy instructions issued by officers authorised by the CEO.

Improve Project Scheduling and Status Reporting (IPSSR)

2.22 Since 1996, DAO and later DMO sought to develop an automated Project Reporting and Monitoring System (ProMIS) to provide information on each project's status, financial performance and performance trends.[25] The intention was to use ProMIS as a high-level risk reporting tool to help identify project risk trends and potential difficulties. DAO scheduled ProMIS for full operation by late 1998. However, by 2001 this had not been achieved.[26]

2.23 In 2001, DMO began developing its Improve Project Scheduling and Status Reporting (IPSSR) system. DMO aims to use IPSSR to instigate cultural change in the way DMO projects are managed, specifically targeting planning and scheduling practices.

2.24 The IPSSR Project aims to use earned value management techniques to:

- achieve, within each DMO project, a properly maintained and monitored cost and schedule system based on approved Project Work Breakdown Structures. The system is to cover the project's entire scope, not just the work allocated to contractors; and

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[25] DAOs 1999 Business Process Re-engineering Project included a Performance Reporting and Evaluation study into improving DAO's risk management and program reporting. The ProMIS development team took up the study findings, and broadened ProMIS's scope to cover schedule, risk, earned value and other aspects such as industry issues.

[26] Auditor-General Audit Report No. 24 2001-2002, *Status Reporting of Defence Acquisition Projects, Department of Defence*, 10 December 2001, p.28.

- provide monthly reports on cost and schedule performance to date, current project cost and schedule status, and forecasted cost and schedule to the project's completion.

2.25 In July 2002, after a pilot project had demonstrated the benefits of IPSSR, the DMO Executive agreed to expand the use of IPSSR to 100 major projects over the course of three years. In November 2003, following the Kinnaird Review, DMO decided to extend IPSSR to all major capital equipment projects, and to apply it to the full scope of work allocated to SPO personnel and to contractors.

2.26 Integrated with IPSSR is DMO's Monthly Reporting System, which SPOs use to produce reports to DMO Senior Executives based on a project's:

- cost, schedule and delivery milestone data - drawn from DMO's Open Plan Professional database;[27]
- actual expenditure data – drawn from the Defence-wide Resource Output Management Accounting Network (ROMAN);[28] and
- approved expenditure data – drawn from the Defence-wide Capital Equipment Plan.[29]

2.27 However, IPSSR and the Monthly Reporting System development and implementation have taken DMO longer than expected. FFGSPO records indicate that in early 2004, changes to the Monthly Reporting System occurred without consultation, which added complexity and confusion at the data input-level. However, from September 2004, IPSSR and the Monthly Reporting System were placed under configuration control. This meant that, prior to release to DMO SPOs, any proposed changes required approval by a Change Control Board and testing by DMO Divisional Coaches.

2.28 In order for IPSSR data to achieve the required degree of accuracy, each DMO project requires IPSSR to be established and maintained by adequately skilled personnel. Without that investment, the ANAO would have doubts as

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[27] OPP contains the project's approved Performance Measurement Baseline (PMB), which is the cumulative representation of the planned value of work to be performed over a project's duration. The PMB is used to assess and manage organisation and task performance in terms of project cost and schedule, and is also the primary reference against which current costs and schedule are compared and reported. The PMB is based on the Project Work Breakdown Structure (PWBS) and delivery schedules covering the entire project scope, not just the work allocated to contractors.

[28] DMO envisages IPSSR reports to form the basis for forecast roll-outs of Assets Under Construction reports. DMO sees the critical need for project schedules to be updated and recorded during the IPSSR reporting period each month. Accurate forecasting of roll-outs of Assets Under Construction is critical to the accurate reporting of asset values in the Defence Financial Statements.

[29] CEPLAN contains financial data drawn from the Project's Financial Plan. This data is adjusted by the most recent Budget Estimates or subsequent Additional Estimate process.

to IPSSRs value as an aid to overall project management and status reporting, given the complexity of project management, scheduling, EVMS techniques, and the coordination tasks associated with the management of Government provided materiel, and other fundamental inputs to ADF capability.

Recommendation No.2

2.29 The ANAO recommends that Defence review training resources for Improve Project Scheduling and Status Reporting, to ensure that System Program Office personnel have adequate training to effect successful transition to the new system.

Defence response

2.30 Agreed. The DMO has in place a continuous system of reviewing its training approach. The DMO has established, for example in IPSSR, coaches to work with projects to ensure they have a sound understanding of the tool and that they have the necessary training in software applications to support the use of the IPSSR tool. The effectiveness of the coaching program is under continuous review.

Defence Records Management System (DRMS)

2.31 Recordkeeping is a key component of any organisation's corporate governance and is critical to its accountability and performance. Sound recordkeeping assists organisational performance by enabling better informed decision making through improved exploitation of corporate knowledge and group collaboration. It also directly assists organisational efficiency through reduced resource wastage by minimising inefficient and ineffective searches for information, or the need to repeat work due to an inability to recall information. The ADF's technical regulatory framework, discussed below, requires continually effective information management.[30]

2.32 Each SPO's procedures and plans that specify and define technical activities, must be controlled and approved by an appropriately qualified individual. SPOs must be able to demonstrate compliance with those procedures and plans, and information applied to, and derived from, technical activities must be authoritative, accurate, appropriate and complete.

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[30] This requirement is generally covered by, Defence Instruction (General) Log 08-15, *Regulation of technical integrity of Australian Defence Force Materiel*, Amdt 1, 25 June 2004, para. 25.

2.33 In early 1999, Defence selected the IT-based DRMS as its standard method of document and records management.[31] However, at the time of the audit fieldwork, indications were that DRMS implementation throughout Defence was inconsistent. The ANAO found in the case of the FFGSPO, there was a critical need for the SPO to be provided with an improved records management system.

2.34 TFSPO uses the DRMS to manage its documents which, at the time of the audit fieldwork, were reported to total some 260,000. The ANAO found DRMS useful in terms of maintaining a logical structure to the SPO's record keeping, maintaining document authentication, and providing a powerful record search facility.[32]

2.35 In October 2004, DMO advised the ANAO that:

> DMO has recognised for some time deficiencies in management of documents supporting projects and general business. Studies have shown the potential for significant improvement in business effectiveness and efficiency with better data management. The Defence Record Management System (DRMS) was mandated in 2001 but take-up in DMO has been slow partly due to the DRMS user pays cost model but also limitations of its narrow functionality.[33]

Recommendation No.3

2.36 The ANAO recommends that Defence establish a timetable for all Defence Groups to migrate to the mandated Defence Records Management System.

Defence response

2.37 Agreed.

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[31] DRMS is capable of capturing records of activities and decisions directly from electronic systems (i.e. e-mail, Microsoft Office applications, shared network drives) into a formally managed corporate filing system. The DRMS allows SPOs to control and account for the content of its documents, and to limit the need for users to save multiple copies of the same document.

[32] TFSPO also uses a contract deliverables management system called Lifeline, which enables project personnel to schedule and manage their reviews of contracted documents and technical reviews and audits. In addition to Lifeline is the SPO's EMERALD engineering design decisions recording system, which provides an auditable trail of design acceptance decisions taken by design acceptance delegates.

[33] DMO further advised ANAO that: A project was initiated earlier this year to better understand DMO's requirements for document management which showed that document management should not be considered in isolation, but rather as part of the business process management. A recent request from Maritime Systems Division reinforces this view, seeking a standard Document Management System that supports a common user workspace for task and business process workflow management. It is understood that OCIO [Office of the Chief Information Officer] is investigating possible alternatives to the DRMS. OCIO have advised that DMO's proposed solution is consistent with the direction being pursued by them for the rest of Defence.

Australian Defence Force's Technical Regulatory Framework (TRF)

2.38 In June 2002, the then Secretary of Defence and the then Chief of the Defence Force jointly issued an instruction that established the ADF's TRF.[34] The TRF is contained within three sets of manuals,[35] developed by each Service's Technical Regulatory Authorities on behalf of their Service Chiefs.[36]

2.39 The TRF requires Defence organisations that undertake or accept designs and construction of ADF materiel, to be authorised to perform their tasks through AEO certification or; as in the case of equipment maintenance organisations, AMO certification.[37] Once Defence organisations achieve AEO or AMO certification, they are subject to recurrent audits to ascertain their on-going compliance with their respective technical regulatory framework.

2.40 The ADF's AEO and AMO certification requirements also apply to commercial organisations engaged in design, construction and/or maintenance of ADF aircraft and related systems. However, commercial organisations that undertake design, construction or maintenance of ADF maritime or land materiel are not required to seek or maintain AEO or AMO certification. Instead, DMO's Maritime and Land Systems Division AEOs are responsible for ensuring that their commercial service providers are made

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[34] The instruction aims to standardise and integrate, at an overarching policy level, each Service's responsibility to ensure that ADF equipment and systems may be operated without hazard to personnel or the general public, and also without negative effect on the environment. While at the same time, providing the required operational capability.

[35] Australian Defence Force, Australian Air Publication 7001.053, *Technical Airworthiness Management Manual* (TAMM), 15 February 2002; Royal Australian Navy, ABR 6492, *Navy Technical Regulations Manual* (NTRM), July 2003; *Technical Regulation of Army Materiel Manual* (TRAMM), 13 June 2003.

[36] The manuals outline the accountability, control and compliance mechanism related to the technical integrity of ADF materiel. They set the criteria against which people, processes, products and organisations may be assessed, monitored and audited for compliance with the regulations.

[37] AEO certification provides high-confidence that the organisation has:

- Technical management systems appropriate to the type of work being performed. These include quality management systems such as ISO 9001, technical management systems, engineering management systems, design support networks, and configuration management systems. The organisation must also have a Senior Design Engineer, responsible to the Senior Executive, for ensuring compliance of the organisation with the regulations, and for assigning Engineering Authority to individuals within the organisation;
- Personnel having appropriate authority, training, qualifications, experience, demonstrated competence and integrity to undertake the activities required;
- Processes that are documented, controlled and approved for all the organisation's engineering activities. These include procedures and plans to specify and define technical activities, which must be controlled and approved by an appropriately qualified individual, nominated within the quality system; and
- Data applied to, and derived from, technical activities that are accessible, authoritative, accurate, appropriate and complete. Australian Defence Force, Australian Air Publication 7001.053, *Technical Airworthiness Management Manual*, Section 3 Chapter 1.

aware of the technical regulatory standards, and that the providers comply with these standards.

2.41 All SPOs within DMO's Aerospace Systems Division, and the Airborne Early Warning and Control organisation have AEO certifications (see Table 2.1). Commercial organisations that support these SPOs have AEO, AMO or interim AMO certification. This results from the extensive efforts made by these SPOs, and their commercial support organisations, to provide adequate assurance that the ADF's aerospace systems remain safe and fit for purpose. Six of the eight Land Systems Division SPOs have AEO certification.

Table 2.1 Defence organisations holding Authorised Engineering Certification – March 2005.

	Aerospace Systems Division	Electronic and Weapon Systems Division	Airborne Early Warning and Control	Land Systems Division	Maritime Systems Division
Number of System Program Offices.	8	19	1	8	10
Number of SPOs with a certified ISO-9000 Quality Management System.	8	4	1	0 + 1 Branch	6
Number of SPOs with Authorised Engineering Organisation certification.	8	3 + 2 with provisional AEO certification.	1	6	0 + 8 with provisional AEO certification.

Source: Defence Materiel Organisation, Department of Defence.

2.42 Only three out of the 19 Electronic and Weapon Systems Division SPOs have AEO certification and two have provisional certification. None of the 10 Maritime Systems Division SPOs have AEO certifications, however, eight have provisional AEO certification. Given the risks involved, there is a strong case for DMO to increase the priority and assistance to those Divisions to achieve and maintain improved compliance with the ADF's TRF.

Recommendation No.4

2.43 The ANAO recommends that Defence increase the priority and assistance to DMO's Maritime Systems Division and Electronic and Weapon Systems Division System Program Offices to achieve Authorised Engineering Organisation certification, in order that they can provide improved assurance regarding safety and fitness for service of Australian Defence Force materiel.

Defence response

2.44 Agreed with qualification. It is important to note that AEO status alone does not assure the materiel safety or fitness for purpose of any system. Each of the technical regulators assures themselves through objective evidence that a system is fit for purpose and safe. Notwithstanding the priority to achieve AEO status is already mandated as a high priority for the SPO's. The incorporation of SPO systems into QEMS will facilitate the gaining by individual SPOs of AEO status.

3. Tactical Fighter Systems Program Office

This chapter focuses on the TFSPO's implementation of DMO's project management systems and its implementation of the ADF technical regulations.

Background

3.1 DMO's Aerospace Systems Division's TFSPO is responsible for acquisition and logistics support management of the Air Force's tactical fighter fleets and associated equipment. The TFSPO was formed at Williamtown, NSW, in 2000,[38] and has a workforce of approximately 250 Australian Government employees plus contractors. Of these, 93 are military personnel. In 2003–04, TFSPO's capital project and sustainment expenditure totalled $133.69 million and $155.97 million respectively.

3.2 From May 1985 to May 1990, Defence introduced into service 75 F/A-18 Hornet fighter aircraft,[39] which provide the ADF with an air defence and tactical fighter capability. In March 2005, the Hornet fleet totalled 55 single-seat F/A-18A and 16 dual-seat F/A-18B aircraft. These were undergoing the $1.55 billion (January 2005 prices) F/A-18 Hornet Upgrade (HUG) program that seeks to ensure the F/A-18s remain effective in their roles until their withdrawal from service by 2015. HUG program management is an important part of the work carried out by TFSPO, and it is outlined at the end of this chapter.

3.3 In June 1997, Defence awarded BAE SYSTEMS Australia with a contract for the supply of 33 Hawk Model 127 aircraft, associated equipment, and five years in-service logistics support. The Hawk fleet is used for RAAF pilot training and ADF operations support. The Project's currently approved budget is $1.02 billion (December 2004 prices). Of that amount, $938.11 million had been spent by July 2004. The first 11 Hawk aircraft were delivered in October 2000 and 33 have been in service since October 2001. TFSPO manages the Hawk acquisition and logistics contract. The final phase of the Hawk Acquisition Project is outlined at the end of this chapter.

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[38] The TFSPO has F/A-18 and Lead-in Fighter (LIF) Logistics Management Units, a Business Management Unit, an Engineering Management Unit and a Project Management Unit for current DMO acquisition under the Hornet Upgrade (HUG) and LIF projects.

[39] On 20 October 1981, the then Minister for Defence announced the decision to acquire the McDonnell Douglas Aerospace (MDA) F/A-18s at a cost of $2.430 billion (August 1981 prices). The F/A-18s were selected, in competition with the General Dynamics F-16, to replace the RAAF's then-tactical fighter force of ageing Dassault Mirage IIIO and IIID aircraft. ASTA (Avalon, Victoria) was awarded the sub-contract for final assembly of 73 of the 75 RAAF aircraft. The last of the F/A-18s was delivered in May 1990, by which time the project price was $4.6 billion (September 1990 prices).

3.4 TFSPO has Service Level Agreements with Air Combat Group, which describe what is expected of the SPO in terms of Hornet and Hawk fleet logistic support, mainly represented by an agreed operational availability level. In 2003–04, the F/A-18 fleet achieved 12,820 flying hours, which for crew training reasons, was three percent above the performance target of 12,500 hours. The Hawk fleet achieved 7,257 flying hours, which due to problems with the aircraft's oxygen generating system, was nine per cent below the performance target of 8,000 hours for 2003–04.[40] The Service Level Agreements are to be replaced by Material Sustainability Agreements in 2005.

Program management

3.5 TFSPO's customer expectations are expressed as requirements translated into goals and objectives and recorded in a hierarchy of plans and Key Performance Indicators (KPIs). These enable its personnel to effectively control and coordinate SPO activities, and to report performance. The SPO reports its strategic-level KPIs monthly to DMO's Head of Aerospace Systems Division, and operations-level KPIs are on display throughout the SPO.

3.6 Accompanying the business plans are technical plans and strategies, which focus on ensuring system development and maintenance activities remain adequate for the purpose of ensuring aircraft are airworthy. These plans and strategies are integral to the SPO's QMS, that has been certified as complying with ISO 9001:2000. TFSPO's management plans and processes are continuously reviewed through QMS audits and technical regulation compliance audits.

3.7 The ANAO reviewed TFSPO's work in implementing QEMS and IPSSR. In mid-2004, TFSPO provided valuable case study feedback on how QEMS implementation was progressing. The study revealed the following six QEMS areas needed improvement: user interface; document management; IT access reliability; user training; content management and QEMS specialist support.

3.8 TFSPO personnel were implementing IPSSR for the F/A-18 Hornet Upgrade projects, and were responding to DMO's evolving requirements regarding its standardised IPSSR project work elements.

Fleet integrity management

3.9 TFSPO's Engineering Management Unit is responsible for maintaining effective Hornet and Hawk fleet engineering management functions including design acceptance, configuration management, drawing and document management, and type certification management.

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[40] Department of Defence, *Annual Report 2003-04*, November 2004, p.148.

3.10 In November 1995, TFSPO's predecessor[41] received AEO certification from the Director General Technical Airworthiness-ADF, on the basis of its Engineering Management Plan and other factors. In February 2002, TFSPO underwent an AEO certification extension to include its Hawke aircraft responsibilities. Since gaining its AEO certification TFSPO has undergone recurrent compliance audits by the Directorate General Technical Airworthiness.

3.11 TFSPO, through its Chief Engineer and approved engineering processes, manages the Hornet and Hawk aircraft configuration and the engineering management interfaces with the SPO's operational and logistics stakeholders.[42]

3.12 In addition to providing adequate assurance regarding the technical integrity of the Hornet and Hawk designs, TFSPO assists the aircrafts' operating authority, the Air Combat Group, to provide assurances regarding the aircrafts' operational integrity in terms of operational effectiveness and operational suitability. This assurance is provided to Airworthiness Boards to consider when making recommendations to Chief of Air Force on an aircraft type's Supplemental Type Certificates and Service Release.

Logistics integrity

3.13 TFSPO is responsible for maintaining Hornet and Hawk in-service logistics support arrangements that comply with Defence's regulatory framework, in order to provide assurance of the continued technical and operational integrity of these aircraft and their associated supplies and support systems.

3.14 The SPO logistically supports the F/A-18 aircraft and associated equipment through a mix of in-house resources (TFSPO and Air Force), and aircraft and repairable item maintenance and upgrade contracts.

3.15 TFSPO's Industry Support Unit is responsible for contracting out selected Hornet Deeper Maintenance work packages to a coalition of firms acting under a Heads of Agreement, signed in February 2003. The coalition, known as the Hornet Industry Coalition, establishes a strategic

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41 The former Air Force Tactical Fighter Logistics Management Squadron.

42 The Director General of Technical Airworthiness-ADF has delegated authority to TFSPO's Chief Engineer (CENGR) to act as the Senior Design Engineer for the ADF's Hornet fleet. In this capacity, the CENGR is responsible for approving Hornet fleet in-service design changes developed within the TFSPO.

partnership between the firms for logistics support of the F/A-18 weapon system.

3.16 The firms are contracted individually to provide logistics support of Hornet aircraft. TFSPO and the Hornet Industry Coalition were working together to develop a Hornet Aircraft Support Head Agreement, which would increase contracting efficiency by establishing a generic set of agreed terms and conditions for the work performed by the Hornet Industry Coalition.[43] At the time of the audit fieldwork, TFSPO KPI show improvements in Deeper Maintenance work package completion.

3.17 The Hawk acquisition included five years logistics support, renewable at five-year intervals. This arrangement has BAE SYSTEMS contracted until June 2006 to provide logistics support for the Hawk Weapon System, including fleet management, Deeper Maintenance, supply support, engineering and logistics management and total training system support.

3.18 At the time of the audit fieldwork, TFSPO performance indicators showed a continued improvement in Hawk contracted availability. TFSPO records indicate that BAE SYSTEMS personnel at Williamtown have worked closely with TFSPO in providing the contracted support. Performance indicator data showed that the required Hawk aircraft operational availability was consistently achieved from December 2003, after earlier technical problems were overcome.

Liquidated damages

3.19 Liquidated damages are a mechanism which permits the Australian Government to claim a certain ('liquidated') amount of damages from a contractor without having to go to court to sue for what may be an uncertain ('unliquidated') amount of damages (that is, the Australian Government would have to prove the amount of loss). Liquidated damages provisions are frequently written into large building or engineering contracts in order to overcome what maybe otherwise the most difficult task of proving a loss, which flows from a breach of contract. They also have a subsidiary, understated, practical purpose of encouraging contractors to perform a contract punctually.

3.20 DMO policy relating to the treatment of recovered liquidated damages states that the event must be recognised in the accounts immediately. It is DMO policy that, in general, the proceeds received from exercising a right to

[43] The Hornet Aircraft Support Head Agreement will not replace the existing Hornet logistics support contracts, which commit Australian Government funds against specific work allocations to members of the Hornet Industry Coalition.

recover liquidated damages, or compensatory work, received in lieu of liquidated damages, are to be provided to the parties within Defence that have suffered the damage. The project, or contract authority specified in the contract, is responsible for resolving with stakeholders where the proceeds or compensatory work activities are to be allocated.

3.21 DMO's financial policy also states that if a contract allows the Australian Government to accept compensatory work, that compensatory work becomes a contractual obligation, but it is not a debt due to the Australian Government.[44] Also, if compensatory work is not provided for in the contract, but is proposed by the contractor in satisfaction of a debt (liquidated damages), it would be regarded as a payment in kind.

3.22 The first 11 Hawk aircraft were delivered in October 2000. By then, the Macchi jet pilot training fleet had almost completely reached its Life of Type and, for airworthiness reasons, were no longer suitable for pilot training. The Hawk aircraft deliveries were approximately six months late, due to technical problems associated with aircraft production. This and other delays impacted unfavourably on Air Force pilot training and diverted resources from other activities.

3.23 The Hawk Acquisition Contract's liquidated damages clauses were invoked, from 1 July 2000, to redress that impact. This took the form of a reduction of $8.7 million in-service payments to BAE SYSTEMS, and a further $4.21 million in 'payments in kind' by BAE SYSTEMS to Defence in the form of additional services and items provided free of charge.

Hornet fleet upgrade (HUG) Program

3.24 As mentioned above, the HUG Program seeks to ensure the F/A-18s remain effective in their roles until their withdrawal from service by 2015. By then, aircraft acquired by Project Air 6000 are scheduled to replace the F/A-18s. The following indicates the Program's financial status and scope at the time of the audit fieldwork:

- **HUG Phase 1** has an approved budget of $288.85 million, of which $270.94 million had been spent. This project is technically complete with the ground system being the remaining element to be delivered. Project deliveries to date include; two project definition studies, replacement of the aircraft's UHF/VHF radios, Identification Friend/Foe system, Global Positioning system and upgrades to the aircraft's computer hardware and software.

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[44] Defence Materiel Organisation, *Finance Instruction 3/2002*, 25 February 2003, p.2.

- **HUG Phase 2** has an approved budget of $1.515 billion, of which $613.80 million had been spent. The majority of this has been associated with:

  - the installation in 71 Hornet aircraft upgraded fire control radars, and associated equipment and software;
  - Hornet capability enhancement research and development that includes; full colour cockpit display technology, upgraded moving map display, secure advance tactical data transfer system, helmet mounted missile cueing system, counter measures dispenser system, and enhanced mission computer software;
  - replacement of the Hornets' Radar Warning Receivers, augmenting the existing Radio Frequency Jammers, and providing additional countermeasures dispensers; and
  - provision of an advanced F/A-18 flight simulator.

- **Hug Phase 3** has an approved budget of $278.12 million, of which $33.96 million had been spent. Phase 3 is a capability sustainment project, rather than a capability enhancement project like Phase 2.

3.25 The HUG projects include an initial three years logistics support. After this time, the TFSPO's Logistics Management Unit will be responsible for managing the future support arrangements.

Hawk radar simulation and emulation capability delivery

3.26 The final phase of the Hawk Acquisition Project provides the Hawks with radar emulation and simulation capabilities.

3.27 Radar simulation provides a real time radar-like image on the Hawk Multi Function Display, in order to provide the pilot with a simulated Beyond Visual Range sensor capability, without the need for an on-board radar system. The Hawk radar emulation capability is required to provide ADF units with realistic emulation of threats to naval vessels and to hone tactical counter-air measures.

3.28 Both capabilities have encountered developmental problems and, at the time of the audit fieldwork, BAE SYSTEMS was developing an agreed alternative to the currently contracted design solution. This was due primarily to a shortfall in the aircraft's Mission System capacity, although selection of the alternative design was influenced by the inability of DMO to provide contracted Government Furnished Equipment.

3.29 Initial operational capability scheduled for July 2005 has slipped to August 2005. Risks associated with this technical developmental program

include a lack of precedent in Hawk aircraft development, compounded by a lack of suitable on-site Defence representation at the development site. These risks require close management in order to avoid further delays.

Summary

3.30 The ANAO found TFSPO provides an example of better program management practice. TFSPO's hierarchy of plans linked to key performance indicators and its well-established quality management system and regulatory compliance, provide adequate assurance that the F/A-18 and Hawk aircraft and aircraft-related equipment are safe and suitable for service. The combination of these factors supports TFSPO's effective continuous improvement program.

4. Track Manoeuvre Systems Program Office

This chapter focuses on the TMSPO's implementation of DMO's project management systems and its implementation of the ADF technical regulations.

Background

4.1 DMO's Land Systems Division's TMSPO is responsible for the acquisition and logistics support management of Army's tracked armoured fighting vehicle fleets and associated equipment. These fleets include:

- 766 M113 Armoured Personnel Carriers comprising eight variants, which Defence introduced into service in the mid-1960s. TMSPO is currently managing a project to upgrade 350 of the M113s and to extend their service life to 2020;[45] and
- 90 Leopard Medium Battle tanks and associated equipment and logistics support.[46] These form the Australian Army's main armoured capability, and is used to equip the 1st Armoured Regiment, Northern Territory, and the School of Armour and Army Logistic Training Centre in Puckapunyal, Victoria.

4.2 In March 2004, the Government endorsed the acquisition of 59 refurbished Abrams M1A1 Main Battle Tanks and associated equipment and logistics support at a cost of $530 million.[47] The Abrams tanks are scheduled to replace the Leopards from 2007.

Track Manoeuvre Systems Program Office program management

4.3 Since 2002, the TMSPO has developed Leopard and M113 Fleet Management Agreements, which set out how it will manage these fleets in accordance with budget allocation levels and fleet usage rates. From TMSPO's perspective, the key elements impacting on the fleets' operational availability are centrally procured repair parts, rotatable spare items and rebuilt vehicles. The demand for this support is driven by fleet rate of effort, which in the

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[45] At the time of the audit, the Army had some 520 of the 766 M113s in service, with the remainder stored in reserve.

[46] In addition to the 90 tanks were eight Armoured Recovery Vehicles (ARVs) and five Armoured Vehicle Layer Bridges (AVLBs).

[47] LAND 907 – Main Battle Tank Replacement Project

Leopard fleet's case, is measured in kilometres travelled. M113's Fleet Management Agreement places less emphasis on management by kilometres, since the dispersion of M113s tends to average out variances in usage by individual units.

4.4 The audit evidence suggests that Army has been unable to maintain the Leopard fleet's rate of effort within levels indicated in the Fleet Management Agreement with TMSPO. DMO records indicate that in recent years, increasing tank fleet usage, decreasing support funding, and increasing support costs arising from the age of the tanks have consumed all reserves of spares and maintenance stock. This has reduced Army's tank reserves and spares holdings to minimal levels.

4.5 In January 2005, Defence advised the ANAO that in 2003–04, Army required logistics support from TMSPO to support fleet usage of 90,000km for the Leopard tank and 800,000km for the M113 fleet. Defence advised the Leopard fleet achieved 112,121km, but similar usage data for the M113 fleet was not available due to shortcomings in Army's reporting processes. Defence advised that these shortcomings were being addressed by changes to Defence's Standard Defence Supply System.[48] However, DMO was confident that M113 usage in the order of 750–800,000km had been achieved.

4.6 TMSPO has a well-developed QMS based on extensive Standing Operating Instructions, an Engineering Management Plan and Integrated Logistics Support Instructions relating to the Leopard and M113 vehicles. The QMS was installed in Land Systems Division's intranet site, and Land Systems Division planned to link its QMS into DMO's QEMS by late 2004.

4.7 At the time of the audit fieldwork, TMSPO personnel were in the early stages of developing the first iteration of the IPSSR Project Work Breakdown Structure for the M113 Upgrade Project. In January 2005, Defence advised the ANAO that IPSSR had been fully implemented for the M113 Upgrade Project and that it was on track to having IPSSR fully implemented for the Tank Replacement Project.

4.8 TMSPO was also using its QMS and Defence's standard Microsoft Office workstation software to manage its electronic records. TMSPO is expected to implement the DRMS in 2005.

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[48] The Standard Defence Supply System upgrade was the subject of an Performance Audit in 2004. See Auditor-General Audit Report No.5, 2004-05, *Management of the Standard Defence Supply System Upgrade, Department of Defence*, August 2004.

Fleet integrity management

4.9 Defence records indicate that TMSPO received AEO certification in February 2004. TMSPO has two Senior Engineers from Land Engineering Agency fully integrated into its organisational structure, to exercise Design Acceptance Authority Representative role for the Leopard and M113 fleets. Joint Logistics Command provides TMSPO with fleet logistics support covering warehousing and distribution, repair and overhaul facilities, repair parts supply and maintenance contract management. Joint Logistics Command's Chief Engineer has Maintenance Approval Authority Representative delegation from the Director Technical Regulation-Army.

4.10 TMSPO implements an Engineering Management Plan supported by Land Systems Division Standing Operating Procedures.[49] The TMSPO uses an integrated product team, led by fleet Program Managers, to achieve Leopard and M113 fleet readiness requirements and to maintain the fleets' technical integrity in accordance with the engineering management regulatory requirements specified by Army's TRF.

4.11 The Leopard and M113 fleets each have a Configuration Manager who manages the fleets' approved functional and physical configuration baseline. The fleets also have a Configuration Control Board that controls the Engineering Change Management Process. At the time of the audit, the TMSPO had two Engineering Change Registers, which recorded the nature and approval status of 183 Leopard fleet engineering changes and 73 M113 engineering changes.

Logistics integrity

4.12 TMSPO is responsible for maintaining a logistics support arrangement that complies with Army's TRF in order to provide assurance of the continued technical and operational integrity of the Leopard and M113 fleets and their associated systems. TMSPO's engineering, procurement, and inventory management staff rely on a logistics support network consisting of German and US defence logistics organisations, Defence's Commercial Support Program, Joint Logistics Command, and Army.[50]

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[49] These documents establish and define the SPO's systems engineering processes that are necessary to satisfy Army TRF requirements in terms of:

- design, development, manufacture, modification and support activities undertaken by the SPO;
- evidence needed to establish that the design, development, manufacturing, installation, modification and servicing of materiel is being adequately planned, performed, documented and recorded; and
- visibility of the integrated technical effort, control and management of SPO activities.

[50] In May 2004 Joint Logistics Command was moved from DMO into Defence's Joint Operation Group. Some Joint Logistics Command elements remained with DMO.

4.13 Leopard and M113 fleets have a complex logistics support chain. Joint Logistics Command's Joint Logistics Unit-Victoria (JLU-V) is tasked by TMSPO with 4th line (major) maintenance of the fleets. JLU-V in turn contracts out this maintenance as part of the Defence Commercial Support Program. JLU-V is also tasked by Army to perform 1st and 2nd line (operational) maintenance on the Army School of Armour vehicles. JLU-V contracts this maintenance to out as part of the Defence Integrated Distribution System contract. Army's Training Command produces and delivers fleet maintenance and operation training packages, and Army personnel maintain the fleets in the field. Joint Logistics Command has commenced Accredited Maintenance Organisation (AMO) audits of the relevant contractors with a view to having them achieve AMO certification for the logistics and maintenance support services they provide to the Leopard and M113 fleets.

4.14 In 2003, DMO's Maintenance Advisory Service audited the Army's 1st Division logistics support and found that only four per cent of the vehicles sampled by the audit were considered fully functional, and only 22 per cent of all equipment sampled was regarded as fully functional. TMSPO advised the ANAO that this low level of full functionality has not prevented equipment usage, as Army manages equipment readiness primarily according to the ability to make equipment serviceable for planned missions.

4.15 However, the functionality figures indicates a need for DMO, Joint Logistics Command, and Army to continue working together to achieve improvements in Army vehicle and equipment logistics support arrangements and readiness.

Leopard and M113 Projects

4.16 At the time of the Government's decision to approve the purchase of 59 M1A1 Abrams tanks, TMSPO was managing the following projects:

- Land 53 Phase 1D Leopard Tank Thermal Sight Project. This project has total approved funds of $50.81 million, and expenditure to June 2004 totalled $13.86 million. The Project's first stage ended in February 2004, and at that point DMO exercised its contractual option to terminate the contract for convenience, rather than proceed with the $25 million second stage. At the time of the audit fieldwork, prototype units were in service with 1st Armed Regiment, to assist personnel training and doctrine development.
- Life of Type Extension Project. In 1998, a Chief of Army review resulted in a commitment to extend the fleet's life to 2020. TMSPO subsequently identified a need for DMO to procure those Leopard spares, which may be difficult to acquire in the future, or which may be acquired at significant cost savings through foreign disposal purchases. In June 2004, the project

had total approved funds of $17.0 million, and by 30 June 2004 its expenditure totalled $10.37 million. The Government's decision to proceed with the M1A1 Abrams acquisition resulted in the cessation of all subsequent Leopard life of type extension spares acquisitions.

- Leopard Crew Climate Control System Project. This Project has total approved funds of $14.57 million, and expenditure to 30 June 2004 totalled $5.39 million. The project was terminated in mid-2004, and its cooled water production and air circulation technology was made available for use in other Army vehicles, such as the Australian Light Armoured Vehicle.
- Commander's Sight Improvement Project. This Project has total approved funds of $1.6 million, and expenditure to 30 June 2004 totalled $0.07 million. At the time of the audit fieldwork, $1.44 million had been committed. However, DMO exercised its option to cancel the Project for convenience before deliveries were made.
- Leopard Observation Viewer Enhancement – Driver Project. This project has total approved funds of $4.1 million, and expenditure to 30 June 2004 totalled $3.36 million. At the time of the audit fieldwork, all deliveries were complete.

4.17 In addition, TMSPO was managing the M113 Upgrade Project, which is the subject of a separate ANAO audit, scheduled for tabling in early 2005–06.

Summary

4.18 The ANAO found TMSPO's hierarchy of plans, key performance indicators, quality management system and regulatory compliance system, to not be as well developed as TFSPO's. TMSPO's AEO certification in 2004, and its ongoing TRF compliance since then provide a level of assurance that the tracked vehicles operate within an appropriate technical integrity framework. However, there remains scope for improvements in the SPO's logistics support arrangements.

5. Over-the-Horizon Radar System Program Office

This chapter focuses on the OTHRSPO's implementation of DMO's project management systems and its implementation of the ADF technical regulations.

Background

5.1 OTHRSPO is part of DMO's Electronic and Weapon Systems Division. It is located within the DSTO precinct at Edinburgh, South Australia, and has an approved complement of 45 personnel. In 2003–04, OTHRSPO spent $51.68 million on OTHR logistics support, and $6.08 million on capital items.

5.2 OTHRSPO is responsible for providing OTHR system acquisition and logistics support management services to the ADF. The OTHR system comprises the JORN facilities at Longreach, Queensland, and Laverton, Western Australia, and the Jindalee OTHR facility near Alice Springs (JFAS), Northern Territory. The JORN and JFAS radars are normally operated by the Air Force's 1 Radar Surveillance Unit (1RSU) from the JORN Coordination Centre at the Edinburgh Air Force Base in South Australia.

5.3 JFAS and JORN are, in many ways, at the forefront of OTHR technology. However, this technology may be further improved in line with greater understanding of the ionosphere, and improvements in electronic and computing systems technology.

5.4 BAE SYSTEMS maintains and supports the JFAS. It currently has 130 personnel employed on the JFAS system – 50 located at the radar and 80 located with OTHRSPO at DSTO Edinburgh. BAE SYSTEMS expects to increase its OTHR personnel numbers to 140–145 staff when JORN Phase 5 Project activities commence.

5.5 RLM Management (RLM) maintains and supports the JORN, and is expected to provide engineering support to JORN under a proposed Engineering Support Services contract. The number of RLM personnel employed on JORN maintenance and support and Engineering Support Services is expected to be approximately 150.

5.6 Defence advised the ANAO in January 2005, that the average availability for the JFAS in 2004 was 99.3 per cent, compared to a contractual requirement of 96 per cent. For JORN, the average availability was 99 per cent.

Management processes

5.7 At the time of the audit fieldwork, the OTHRSPO had seven functional areas: Engineering, Maintenance, Logistics, Project Management, Business & Commercial, Executive, and Governance Support. Each area had governance and management plans that are, in turn, supported by standing instructions and supporting work instructions.

5.8 OTHRSPO had encountered three issues concerning its requirement to implement DMO's QEMS, namely:

- QEMS needs to be available to all DMO personnel employed in acquiring and sustaining defence materiel. This includes OTHRSPO's contractor staff, as they form an integral part of the SPO's technical and logistics integrity management capability. However, the majority of contractor personnel do not have access to the Defence Restricted Network, which hosts QEMS. Further, the restricted network does not extend to all JORN and JFAS sites in Queensland, Northern Territory and Western Australia;
- OTHRSPO's engineering plans are based on the JORN and Jindalee contractors' proprietary plans, which were approved by the SPO as part of the JORN acquisition contract and JFAS maintenance and engineering services contract.[51] Consequently, these plans may not be placed on the DMO-wide QEMS because of commercial and other considerations;[52] and
- QEMS did not have document management tools for version control, and so was considered unsuitable for use as the basis for an ISO 9001:2000 certified quality management system. The SPO's QMS was found to comply with ISO 9001:2000 in December 2004.

5.9 At the time of the audit fieldwork, OTHRSPO had commenced developing the JORN Phase 5 Project's IPSSR work packages and schedule data. OTHRSPO intends to utilise IPSSR to assess project performance and progress, and to predict cost and schedule variances with reference to an approved Performance Measurement Baseline. At the time of the audit fieldwork, OTHRSPO had some 2,000 work packages listed in the JORN Phase 5 schedule, and was expecting that figure to eventually rise to some 5,000. Consequently, OTHRSPO's implementation of IPSSR will increase in complexity as the JORN Phase 5 project evolves.

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[51] RLM and BAE SYSTEMS.

[52] These plans provide the hierarchy of engineering policy and procedures required to maintain the engineering integrity of the JORN and JFAS OTHR systems. They include Engineering Management Plans, System Engineering Management Plans and Configuration Control Management Plans.

5.10 OTHRSPO had not implemented DRMS. Instead, it was using the IPSSR WelcomHome Page application program, which has document management and control features similar to the DRMS.

Integrity management

5.11 The OTHRSPO has an important role in not only managing the systems engineering aspects of JFAS and JORN, but also in evaluating their performance and seeking cost effective ways to improve their operational capabilities. To that end, OTHRSPO encourages critical assessments of the radars' performance and has an electronic database that enables OTHRSPO, 1RSU, DSTO, RLM, and BAE SYSTEMS personnel to submit JORN/JFAS improvement proposals.

5.12 OTHRSPO has adopted the ADF's Technical Airworthiness Management Manual as the basis for its technical integrity governance and compliance mechanisms.

5.13 At the time of the audit fieldwork, OTHRSPO's Chief Engineer did not hold Engineering Authority delegation for design acceptance from the Director General Technical Airworthiness. However, the SPO was developing its QMS to the extent that it satisfies both the ISO 9001:2000 requirements of a quality management system and the technical regulation requirements regarding the 'Off Aircraft No Interface' framework for design acceptance.

5.14 OTHRSPO advised the ANAO that progress towards ensuring its engineering management plans and procedures comply with technical regulations was about 80 per cent complete. Until OTHRSPO achieves AEO certification, its Chief Engineer and Senior Design Engineer hold interim authority provided by Ground Telecommunications Equipment SPO's (GTESPO's) Chief Engineer, although technically this authority has lapsed due to the loss of formal organisational links with GTESPO.

5.15 Notwithstanding these issues and the partial implementation of QEMS and IPSSR, the SPO has a robust configuration management and systems engineering processes, based on the application of systems engineering disciplines by BAE SYSTEMS to maintain and enhance the JFAS system, and on systems engineering processes developed by RLM to deliver the JORN system.

Liquidated damages

5.16 In December 2001, the SPO received approval to amend the liquidated damages provisions within the JORN Contract, to allow for liquidated damages payments 'in kind'. These changes were aimed at providing more

flexibility in relation to the collection and management of the JORN contract liquidated damages.

5.17 As a result of the delayed acceptance of JORN in May 2003, Defence invoked the JORN acquisition contract's liquidated damages provisions. This resulted in some $8.8 million (inclusive of GST) owed to Defence. These funds have been managed by OTHRSPO in a notional liquidated damages account used to fund a series of activities aimed at:

- correcting deficiencies in the original JORN specification, such as the operator interface design specification, and the development of an external agency communications interface, which allows communications with current external agency systems; and
- risk reduction activities for JP2025 Phase 5, which focus on high-risk areas in software and hardware development, and the control system interface between the JORN and JFAS radars.

5.18 This arrangement enabled RLM to maintain critical areas of JORN engineering design and development expertise during the interval between JORN Final Acceptance in March 2003, and the commencement of the JORN Engineering Support Services contract, which was still being negotiated in March 2005. The JORN Phase 5 program, which was expected to commence in 2005.

Summary

5.19 The ANAO found OTHRSPO's hierarchy of plans, key performance indicators, quality management system and regulatory compliance system, were subject to ongoing development, as part of the SPO's efforts to gain ISO 9001:2000 and AEO certification in 2005. The SPO has effectively managed liquidated damages associated with the JORN Contract, to the value of $8.8 million.

5.20 The ANAO is scheduled to table a report in 2006 on the JORN system's in-service support arrangements, its enhancement project, and the lessons learned from the JORN acquisition project.

6. Fast Frigate Guided Systems Program Office

This chapter focuses on the FFGSPO's implementation of DMO's project management systems and its implementation of the ADF technical regulations. The chapter also introduces the audit's project management case study.

Background

6.1 In 2000, DMO established the FFGSPO within its Maritime Systems Division. The FFGSPO provides Navy's Surface Combatant Force Element Group with material support to the FFG fleet in terms of:

- development, acquisition and transition of new capability into service through approved projects. This includes upgrading six FFGs within a eight-year schedule and $1.448 billion (January 2005 prices) budget; and
- prioritised logistics support of the FFG fleet, to optimise preparedness and operational availability, within approved resource limits.

6.2 Navy has six Oliver Hazard Perry class FFGs. The first four were constructed in the United States of America, and last two in Australia. At the time of the audit, FFGSPO was managing the FFG Upgrade Project, which aims to provide significant improvements to the FFGs' combat systems and extend the life of the FFGs to 35 years as shown in Table 6.1. The FFG Upgrade Contract was signed on 1 June 1999.

Table 6.1

The Royal Australian Navy's FFG Fleet

Name and Side No.	Launch Date	Original Life	Upgraded Life
HMAS Adelaide – 01	June 1978	2008	2013†
HMAS Canberra – 02	December 1978	2008	2013†
HMAS Sydney – 03	September 1980	2010	2015
HMAS Darwin – 04	March 1982	2012	2017
HMAS Melbourne – 05	May 1989	2019	2019
HMAS Newcastle – 06	February 1992	2021	2021

† Note: HMAS Canberra and HMAS Adelaide are now planned for early retirement in 2005 and 2006 respectively.
Source: Department of Defence.

6.3 The FFGSPO's annual operating budget for financial year 2003–04 was $205.73 million. Of that amount, $130.23 million was budgeted for operating expenses and $75.50 million for non-investment capital expenses.[53] The required outcome was a level of logistics support that enables the six FFGs to operate for an average of 150 sea days per year each, or 900 sea days per year for all six. In 2003–04, it was reported that the FFG fleet achieved 1,431 unit ready days.[54]

6.4 The majority of FFGSPO personnel are located in Sydney, and smaller offices are located in Canberra and Western Australia. The FFGSPO has an allocation of 64 civilian personnel and 27 Service personnel, and at the time of the audit, the SPO was seeking to recruit an additional 16 civilian personnel, and to fill eight vacant Service positions from DMO's allocation of Service personnel.

Fast Frigate Guided System Program Office program management

6.5 In December 2003, FFGSPO's Quality Management System (QMS) underwent a certification audit, which resulted in a recommendation for certificationto ISO 9001:2000. However, this was subject to rectification of a non-conformance related to the QEMS system performance and the level of training FFGSPO personnel had received in retrieving information from QEMS. Additionally, a quality objective was not achieved in regard to displaying an adequate understanding of the SPO's Configuration Management Plan and data management.

6.6 In April 2004, FFGSPO was awarded certification to ISO 9001:2000 as a result of a desktop review that ascertained FFGSPO had corrected the non-conformance identified in December 2003.

6.7 The SPO's QMS improvement strategy required it to examine and refine its total business configuration, plans and processes with an aim to ensure their effective implementation, and alignment with the Navy's technical regulations published in July 2003. The first of the refined plans was approved 45 months after contract signature in May 2003. Two plans were approved in 2003–04, and 14 plans were approved in 2004–05. As of February 2005, six FFG Upgrade plans were still not fully approved or endorsed, including FFGSPO's

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[53] The Operating Expenses budget contains provision for administrative expenses, ship repair expenses, technical services, repairable items maintenance and miscellaneous costs. The Non-Investment Capital budget contains provision for purchase of Specialist Military Equipment such as replacement spare items and general inventory stores.

[54] Unit Ready Days refers to the number of days a fleet unit is available for tasking by the Maritime Commander outside of major maintenance and within planned readiness requirements. Department of Defence, *Defence Annual Report 2003-04*, November 2004, p.112.

conditionally endorsed Certification Plan, which outlines the process whereby the SPO provides assurances regarding the FFGs' safety and fitness for purpose.

6.8 At the time of the audit fieldwork, DMO's corporate-wide QEMS software was still under development in terms of software functionality and information content. Consequently, the FFGSPO was experiencing difficulty using QEMS as a platform for its evolving QMS.

Improve Project Scheduling and Status Reporting (IPSSR)

6.9 In July 2004, FFGSPO commenced implementing IPSSR, which includes DMO's standardised Monthly Reporting System. In the period of July to September 2004, the Monthly Reporting System underwent three changes, each introducing new reporting requirements and adding to complexity and confusion at the data input-level.

6.10 In January 2005, Defence advised ANAO that in November 2004, DMO's Director General Maritime Systems received a summary Progress Report on IPSSR, which reported that IPSSR implementation progress in FFGSPO will continue to be slow due to:

- lack of IPSSR full resource scheduling manuals;
- other competing priorities; and
- the lack of a full time IPSSR scheduler.

6.11 FFGSPO had delayed the implementation of IPSSR's Resource Scheduling Module due to uncertainty regarding the standardised Work Breakdown Structure (WBS) templates. FFGSPO expected to receive an approved Maritime Systems Division WBS in November 2004, and to commence implementing IPSSR Resource Scheduling soon after.[55] This will require the FFGSPO to establish an internal planning schedule that captures all of the project activities, resources, linkages and timelines which, with respect to its FFG Upgrade Project activities, can be reconciled with the Contractor's activities.

6.12 In January 2005, Defence advised the ANAO that recruiting action had commenced for a full time FFGSPO IPSSR Scheduler. In the mean time, scheduling was being performed with contractor assistance, in order to reduce the risk that the recruitment action would delay FFGSPO's implementation of IPSSR resource scheduling.

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[55] FFGSPO, *Plan for the Introduction of IPSSR in the FFG Upgrade Project*, October 2004.

Defence Records Management System (DRMS)

6.13 At the time of the audit fieldwork, FFGSPO had not implemented DRMS. Instead, its records management system was based on its QMS and several specially developed databases. The ANAO audit team found FFGSPO document management systems to be inadequate for the size and complexity of the FFG program.

6.14 The SPO's electronic file structure contained large volumes of duplicated records, which appeared not to be the subject of formal records management practice. Paper-based files frequently contained no papers. The ANAO was unable to determine from the records inspected that a full and accurate representation of transactions, activities or facts could be depended upon for audit purposes.

6.15 In February 2004, the SPO recognised a need to improve its correspondence records system with regard to standardisation, scanning of paper records into the correspondence database, location of soft copies of outgoing correspondence, and having a single point of entry and exit for all correspondence.

Fast Frigate Guided System Program Office compliance with Navy technical regulations

6.16 In September 2003, the Chief of Navy issued instructions concerning the technical integrity of ADF maritime materiel, which included the introduction of a new Navy Technical Regulatory System (NTRS).[56] The NTRS requires organisations undertaking design, construction and/or maintenance of ADF maritime materiel to be authorised to perform that task by the Chief Naval Engineer (CNE). The regulations require such organisations to present the CNE with an Engineering Management Plan, addressing the qualifications and competence of its personnel and the adequacy of its quality management systems, facilities and data holdings.

6.17 Following a technical regulatory appraisal by Directorate of Technical Regulation-Navy (DTR-N) in July 2003, FFGSPO obtained provisional AEO certification. Navy Systems Command found that in order for the FFGSPO to gain full AEO certification, FFGSPO needed to improve its engineering policy and processes. DTR-N attributed the shortfalls to processes carried forward from the organisations amalgamated to form FFGSPO, and to an inability of the FFGSPO to implement the requirements of the newly introduced NTRS, prior to being appraised.

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[56] Defence Instructions (Navy) LOG 47-3, *Regulation of technical integrity of ADF maritime materiel*, September 2003.

6.18 At the time of the audit, FFGSPO was systematically addressing in detail each of the issues raised by the AEO appraisal, in conjunction with the QMS improvements. In September 2004, FFGSPO received CNE's conditional endorsement of the FFG Upgrade Certification Plan, and in October 2004 it received CNE's endorsement of its Engineering Management Plan. SPO records indicate that by October 2004, key policy and process improvements sought by DTR-N were 80 to 100 per cent complete.

6.19 In January 2005, Defence advised the ANAO that FFGSPO would be reassessed for 'full' AEO certification in the second quarter of 2005.

Fast Frigate Guided technical integrity management

6.20 Navy certifies the FFGs as being fit for service, as demonstrated by their operational records, and as having all known safety hazards monitored and managed as part of the NAVSAFE Program. Accordingly, it's Navy policy that:

- the FFG ships are considered as legacy systems that, by exception, meet the Navy's certification requirements, provided they continue to be operated and maintained in accordance with design criteria; and
- where practical, evidence is assembled on an opportunity basis, to support the existing Certification Basis for each system or item of equipment.

6.21 Technical certification of the upgraded FFGs will require the concerted effort of the FFGSPO and its contractors. Evidence suggests that engineering drawings provided to the Upgrade Project's Prime Contractor, for each FFG to be upgraded, did not represent a consolidated integrated representation of the configuration of the ship and its systems. The degree to which the documents represented the current configuration of each ship was largely unknown, at the time they were provided to the Prime Contractor. This was factored into the Upgrade Project contract, which requires the Prime Contractor to conduct ship checks to ascertain the physical state of each FFG and its engineering drawings.

6.22 However, FFG configuration data was lost prior to the formation of the FFGSPO.[57] FFGSPO experienced difficulties in establishing what configuration documentation was required and where it was held. This situation was seen to result from a decade or so of significant organisational change affecting RAN engineering, materiel and logistics agencies. These changes adversely affected

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[57] The ANAO reported a similar instance of important documentation being lost possibly during its transfer to a newly established SPO. See Auditor-General Audit Report No.30 2002-2003, *Defence Ordnance Safety and Suitability of Service, Department of Defence*, February 2003, pp.70-72.

the continuity of staff with sufficient experience to understand the usefulness of such documents. This led to FFG configuration documentation being disseminated, lost and destroyed.

6.23 The FFGSPO is addressing configuration data management deficiencies through the implementation of the Navy's Asset Management and Planning System installed on each FFG, and the development of a Configuration Management Tool database. These are part of a wider Maritime Systems Division program, which seeks to improve configuration management throughout all maritime materiel, to ensure consistency between maritime hardware and software items, and their supporting technical documentation.

Fast Frigate Guided Upgrade Project

6.24 The FFG Upgrade Project, seeks to regain the original relative capability of the six FFGs, and to ensure they remain effective and supportable through to the end of their life in 2013–2021.[58] The upgrade includes improvements to the FFG's self defence and offensive capabilities, and other modifications to improve equipment reliability and maintenance, and crew living quarters. The Project also includes the delivery of a Warfare Systems Support Centre, three Operator Trainers and a Team Trainer, and logistics support.[59]

6.25 The older FFGs are undergoing a Life of Type Extension (LOTE) of five years, funded from the FFG Upgrade Project Budget. The LOTE is focussed primarily on Hull, Mechanical & Electrical supportability issues such as the Ship Service Diesel Generators, Air Conditioning, Electrical Power Converters and stress/hull life. The Upgraded Combat System has specified reliability and is required to be supportable to 2021. LOTE effort for electrical generation and conversion system and stress/hull life is contained within the FFG Upgrade Contract. The FFG SPO is addressing Air Conditioning LOTE, as part of the in-service maintenance arrangements separate from the Upgrade Contract.

6.26 Selected Restricted Availability (also known as ships refit work) is progressively being introduced into the Contractor's FFG Upgrade program, through a series of formal Contract Changes funded from the FFG SPO annual

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[58] The Defence Capability Review 2003 concluded that only four FFGs should be updated, and hence the FFG upgrade contract will need to be amended to reduce the project's scope from six FFGs to four.

[59] The Upgrade Project contains four other phases, Sea 1390 Phase 3 is the Standard Missile-1 (SM-1) Replacement Funded Integration Study, which was approved 2002, and has been completed at a cost of $0.567 million. Phase 4 includes the SM-1 replacement project, which was approved in the context of the 2002-03 Budget, with second pass Government approval achieved in July 2004. Phase 5 is the MK-92 Radar Support Equipment project, which is to provide land-based support equipment for the FFG MK-92 Mod 12 system being acquired as part of the FFG Upgrade Project. At the time of the audit fieldwork, Phase 5 had not been approved. Phases 3 to 5 of the FFG Upgrade Project are were not included in the scope of this audit.

operating budget. In March 2005, Defence advised the ANAO that $8.8 million had been expended on Selected Restricted Availability work.

Upgrade Project approval

6.27 In 1994, Defence sought industry participation in the FFG Upgrade Project by issuing a request for expressions of interest and subsequently a Request for Proposal. The project then progressed to the following four phases.

6.28 The Project Definition Study (PDS) Phase commenced in 1995 and was completed in 1998, at a cost of $15.7 million (December 1997 prices). PDSs have the objective of clarifying function and performance characteristics, determining the technical feasibility and affordability of capability options and establishing the project development strategy.[60]

6.29 In December 1997, the Government approved Phase 2 at a cost of $1.266 billion.[61] In November 1997, Defence issued a Request for Tender for the detailed design and installation of the upgrade in all six FFGs. A year later, ADI Limited, which was then an Australian Government Business Enterprise, was selected over another tenderer as the preferred tenderer for the FFG Upgrade Project. However, at the time neither tenderer had completed their PDSs, despite the then DAO's preference for delaying contract signature, to allow preliminary designs to be progressed and the system specifications to be completed.

6.30 The FFG Upgrade Contract was signed with ADI on 1 June 1999 at a cost of $898.58 million (February 1998 prices). The contract price was increased to $944.24 million (February 1998 prices), with the incorporation of options to enhance the FFGs' Electronic Surveillance capability, to purchase long lead-time spares, to upgrade the Operational Training facility at HMAS Watson, and for other lesser capabilities. At the time of the audit fieldwork, the contract price was $993.03 million (February 1998 prices), exclusive of the GST.

6.31 The Contractor has accepted Total Contract Performance Responsibility for the design integrity and performance of the upgraded FFG systems, and so for making certain that all inspections and acceptance test procedures are sufficient and performed in accordance with Statement of Work and System Specifications. This makes the Contractor totally responsible for detecting and correcting inadequate design and construction.[62] It should therefore be

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[60] Department of Defence, *Capability Systems Life Cycle Management Manual 2002*, para.3.47.

[61] Current approval is $1.448 billion (January 2005 prices).

[62] Contract 605178NQ, *Terms and Conditions*, Section 2.8. "Total Contract Performance Responsibility" or "TCPR" means total Contract responsibility for integration and performance of the Supplies (including its subsystems and components, whether Government Furnished Materiel or Contractor acquired or produced) to meet the requirements of the Contract.

expected that the Contractor would be made aware of, and be required to comply with the essential elements of the ADF's AEO requirements. In April 2005, the Contractor advised the ANAO that the Naval Technical Regulations are not in the Contract.

6.32 FFGSPO, according to the FFG Upgrade Contract, has no contract delivery approval or design acceptance role, other than acceptance (or rejection) of the upgraded supplies on their delivery. The FFGSPO may review and comment on the Contractor's data item deliveries, and raise Problem Identification Reports and Non-Conformance Reports, however, the Contractor is under no obligation to accept or take action on the issues raised.[63]

Certification and acceptance process

6.33 The FFGSPO Director is required, by Navy regulations, to provide assurance of the quality of the supplies and to document that assurance in Initial Materiel Certificates. These certificates are required to provide adequate assurance to the Chief of Navy that the vessel's operational and material states provide the safety margin needed for the Navy to commence operational test and evaluation of vessels that have undergone configuration changes. That assurance needs to occur before the upgraded FFGs and facilities are offered by the Contractor for Provisional Acceptance. Also, the Director Naval Certification and Safety-Surface Ships is required to audit the FFG Upgrade and to provide additional assurance of the soundness of the Initial Material Certificates and In-service Material Certificates.

6.34 The certification of upgraded FFGs and facilities is based on the following reports and certificates:

- A Report of Inspection (TI-338), which the FFGSPO will use to report on the materiel and equipment performance condition of each Upgraded FFG or facility, at the point of Provisional Acceptance. The report is to list the defects, deficiencies and shortfalls identified and agreed to by the Contractor as the responsibility of the Contractor to rectify. The TI-338 would reiterate the importance of issues raised in Problem Identification Reports and maintain visibility of their rectification;

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[63] The FFG Upgrade Contract states that 'Whenever the Project Authority makes comments on a proposed activity, proposed course of action, document offered for review and prototype or other software as demonstrated, such comments shall only be construed by the Contractor as advice that the Contractor may act on at its own risk.' Contract 605178NQ, Section 6.3.2. The Contract also states that the issue of a Progress Certificate by the Project Authority shall not constitute Acceptance of an upgraded FFG, upgraded facility, or Supplies to which the certificate relates. Progress Certificates shall be verified against the CSCS [Cost and Schedule Control System] report for that period. Contract 605178NQ, *Terms and Conditions*, Section 11.14.5.

- Supplies Release Note SG8, which the Contractor uses to certify that the upgraded FFGs or facilities have been inspected or otherwise quality controlled and, unless otherwise stated, conform with the order, drawings and specifications, in all respects, with the conditions and requirements of the Contract; and
- Supplies Acceptance Certificate SG1, which the Contractor uses to seek Final Acceptance of upgraded FFGs or facilities from the Project Authority (in this case the FFGSPO Director), and to certify that they conform in all respects to the conditions and requirements of the Contract.

6.35 The Project Authority's signature on the SG8 certifies that the Project or Ordering Authority has released the supplies detailed and quantified in the SG8. This signifies Provisional Acceptance of the supplies identified in the SG8.

6.36 The Project Authority's signature on the SG1 indicates that Defence has, without prejudice, accepted that the Contractor has fulfilled all its contractual obligations in respect of achieving Final Acceptance of the upgraded FFGs or facilities, subject to any omissions or defects listed in the respective SG1.

6.37 By March 2005, the SPO Director had signed three SG8s, covering the Command and Control Operator Trainer, Underwater Warfare System Operator Trainer, and the Electronic Support Operator Trainer. The SPO Director had not signed any SG1s.

6.38 In December 2004, HMAS Sydney proceeded to sea for 'initial contractor sea trials'. This required the FFGSPO and Navy to manage an ad hoc approval arrangement involving the Contractor, the FFGSPO Director and HMAS Sydney's Commanding Officer, that allowed the ship to proceed to sea without formal SG8 Supply Releases, or an effective Tests and Trials Program being agreed to.

Summary

6.39 The ANAO found FFGSPO's hierarchy of plans, key performance indicators, quality management system and regulatory compliance system, to be at a less developed stage than other SPOs. Many of FFGSPO's plans, key performance indicators and the regulatory compliance system were either under review or in the early stages of implementation. There remains scope for improvements in the SPO's records management system. The SPO was managing a complex acquisition project, which is outlined in the following chapter.

7. Fast Frigate Guided Upgrade Progress and Financial Management

This chapter focuses on the FFG Upgrade Project's progress in terms of combat system design and development certification, technical reviews and audits, and tests and trials. It also includes the project's progress payments, earned value management system and financial management.

Fast Frigate Guided Upgrade Project progress

7.1 FFGSPO records indicate that the FFG Upgrade Project has experienced extensive schedule slippage. By July 2004, the FFG Project was reported to be almost two years behind the originally contracted delivery schedule. By March 2005, the delivery of the first upgraded FFG was not expected till August 2005. Table 7.1 lists the 2000 FFG Upgrade delivery schedule, and the schedule agreed to in 2004.

7.2 The table shows a 35 month slippage in the scheduled acceptance of the Upgraded Software and Warfare Systems Support Centre, and 25 months slippage in other deliverables.

7.3 The FFG Upgrade contract provides for liquidated damages to cover costs to the Australian Government that arise from the Contractor's failure to achieve the contracted delivery schedule.[64] The total aggregate liability of the Contractor for liquidated damages under the Contract is not to exceed $10 million. The liquidated damages provisions represent around one percent of the Total Contract Price, and so are unlikely to provide an effective deterrent measure.[65]

7.4 Defence records from December 2001 describe a gradually worsening schedule slippage to the extent that Senior Defence Committees considered a potential reduction in the numbers of FFGs to be upgraded, as well as the option of the Program's total cancellation. At that time, the Contractor had

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[64] Provisional Acceptance means the certification by the Project Authority that the Contractor has fulfilled its contractual obligations in respect of any upgraded FFGs or upgraded facilities listed on a Supplies Release Note (SG8). This acceptance is subject to any omissions or defects listed on that SG8, and is also subject to Final Acceptance.

[65] The Upgrade Contract also requires the Contractor to warrant that the supplies, excluding upgraded software and spares are free from defects in design, materials, workmanship and performance is guaranteed for 12 months from Provisional Acceptance of the upgraded FFG or upgraded facilities. The warranty period for upgraded software commences from Acceptance of the upgraded software and ends 24 months later. The Contractor is to repair, replace or modify, or rectify defects in the supplies covered by this warranty.

advised Defence that the combat system design and software development was some 15 months late.

Table 7.1 Upgraded FFG Delivery Schedules – July 2000 and April 2004

Delivered Item	Total Price as at July 2000	Scheduled Delivery date, as at July 2000	Scheduled Delivery date as at April 2004	Slippage in Months
Lead FFG Upgrade	$272.353 million	17 May 2003	17 June 2005	25
2nd FFG Upgrade	$111.873 million	16 January 2004	16 February 2006	25
3rd FFG Upgrade	$109.660 million	11 July 2004	10 August 2006	25
4th FFG Upgrade	$108.907 million	05 January 2005	06 February 2007	25
5th FFG Upgrade	$108.316 million	28 June 2005	27 July 2007	25
6th FFG Upgrade	$107.726 million	05 December 2006	08 January 2008	25
Team Trainer	$18.785 million	04 March 2005	04 March 2005	0
Warfare Systems Support Centre	$56.044 million	04 June 2004	04 May 2007	35
Upgraded Software	$39.726 million	04 June 2004 (Acceptance)	04 May 2007 (Acceptance)	35
Long Lead Spares	$7.603 million	17 May 2003	19 May 2005	24
Operator Training	$0.597 million	July 2002	July 2004	24

Source: Adapted from Department of Defence records, based on FFG Upgrade Contract Amendment No.9, 7 July 2000; and Contract Amendment No.112, 29 April 2004.

7.5 By December 2001, lessons learnt by FFGSPO included:

- The Prime Contractor and its subcontractors had not completed the Project Definition Studies that defined the Project's technical specifications until after Defence released the Request for Tender. At contract signature in June 1999, the technical specifications were still

not fully defined, and it took a further six months for these to be finalised and agreed.

- FFGSPO's personnel allocations proved inadequate once design issues became apparent. Instability caused by the formation of DMO and recruiting difficulties in Sydney, placed increased burdens on project personnel, particularly key personnel involved with design reviews.
- The FFG Project Office and the Contractor both underestimated the effort required to baseline and correct the FFGs' configuration data and materiel state. This resulted from deficiencies in configuration management within the FFG class prior to the FFGSPO's formation.
- Geographic separation between the prime and sub-contractors significantly impeded daily business. Discussion and transfer of classified information proved difficult, and face-to-face discussions between key personnel were infrequent.
- Some 30 months into the detailed design phase, FFGSPO personnel were finding the design review data packages to be of poor quality and incomplete. At the time, the combat system design contained significant technical risk, and the SPO was not confident that contractor performance would improve.

7.6 The DMO Executive was advised as early as 2002 of significant concerns with the FFG Upgrade Project. In June 2002, the DMO Ship Building Project Governance Board resolved to advise the then head of DMO, the Under Secretary Defence Materiel (USDM), that:

> Based on information from the project office, the Board cannot provide USDM with any assurance with regard to delivery of capability on schedule, or on financial or contractual matters.

7.7 In August 2002, the Board expressed concern that:

> ...the project may have advised the Executive and Minister that the project has a 24 month schedule slippage but that might in fact be more like 36 or 48 months.

Combat System design, development and certification

7.8 Defence advised the ANAO that in early 2002, the Contractor repatriated the combat system design authority and combat system integration roles from a major US Defence firm, in order to address schedule delay and have greater control over the technical solution. This resulted in changes to the Combat System's architecture and software design, and an increase in the scope of work allocated to the Contractor's subsidiary company. In April 2005, the Contractor advised the ANAO that the new Combat System Architecture

addresses some of the original problems concerning system integration complexity and life cycle costs associated with supporting the FFGs' original Naval Combat Data System.

7.9 By late 2004, the Contractor had still not completed all Critical Design Reviews and was making limited progress with the upgrade's Inspections Tests and Trials program which, together with continuing schedule overruns and other wide-ranging systems engineering issues, raised concerns within the FFGSPO. At the same time, the Contractor had not demonstrated, to the satisfaction of the FFGSPO, that the upgraded combat system software design and development had progressed to a stage where there was an adequate level of assurance that system safety and operational performance requirements would be achieved.

7.10 The combat system software is to be delivered in three releases. The first release, known as Baseline Build 1 (BB1), is to be delivered with HMAS Sydney and is to provide no lesser capability than the original FFG Naval Combat Data System it replaced. By late 2004, BB1 was nearing completion, and the Contractor was preparing to submit it development test and evaluation.

7.11 The second build (BB2) is to provide increased functional capability. The third build (BB3) scheduled for delivery with the third upgraded FFG in August 2006, is to provide the entire Combat System software functionality specified in the Contract.[66]

Combat System software safety and development Tests and Trials

7.12 The core component of the FFG Upgrade is the replacement of FFGs' original Naval Combat Data System's software and hardware, with the Australian Distributed Architecture Combat System (ADACS).

7.13 In December 2003, the FFGSPO advised the Contractor of its 'great concern' with the safety and construction of the ADACS software. The SPO advised that the Contractor had not allayed the SPO's concerns regarding safety aspects of the software. FFGSPO had submitted Hazard Analysis Reports to the Contractor on this issue. However, the Contractor had not permitted FFGSPO personnel access to evidence of software safety and had rejected the SPO's Hazard Analysis Reports, citing that the reports were not sufficiently specific for the Contractor's Hazard Analysis techniques to be applied to them.

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[66] Provisional Acceptance of the upgraded software will be progressively conducted in the first two upgraded FFGs, in training facilities, and in the Weapon System Support Centre. Final Acceptance of the upgraded software will only be considered on one occasion, and only following the Provisional Acceptance of the entire first upgraded FFG, the second upgraded FFG, the Team Trainer, the Weapon System Support Centre, and the Operator Trainer. This is scheduled to occur in May 2007.

7.14 The FFGSPO's proposed remedy was for the Contractor to take such action as necessary to demonstrate the underlying safety of the ADACS software. The FFGSPO proposed that this could be achieved if the ADACS software were to be subjected to review by a third party with demonstrated expertise in the software safety domain.

7.15 By March 2005, the Combat System Software Safety Problem Identification Report raised by the SPO in December 2003 remained unresolved.

7.16 In light of these combat system safety and testing program problems, it appears likely that the FFG Upgrade technical and operational integrity certification process will experience further delays, unless there are significant improvements in the management of this important aspect of the Upgrade Project.

7.17 In March 2005, Defence advised the ANAO that the Contractor had recently implemented a senior management review to gain significant improvements in the management of the combat system safety and testing program. The result was management initiated staff changes, technical reviews involving the Contractor and its Subcontracted vendors, and 'finalised and intended' revised strategies for the production and installation phases of the follow-on FFG Upgrade ships.

Technical reviews

7.18 In meeting its design responsibilities, the Contractor is obliged to provide to Defence such information as is necessary to allow a suitably qualified person to evaluate the design as it develops and before the Contractor uses it in production of the Supplies. It is expected that through such design and development disclosure, Defence can oversight the Contractor's progress and participate in Integrated Product Teams (IPTs) established by the Contractor. The prime method for this disclosure is through Systems Engineering and Software Engineering Technical reviews.[67]

7.19 The Contract allows several design review processes, these being Formal Reviews, Informal Reviews, and Ad Hoc Reviews. The Contractor is required to conduct certain reviews as Formal Reviews, with the latitude to

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[67] The FFGSPO's design oversight responsibilities do not include design approval. The contract states that, 'The Contractor acknowledges that it is not the function of the Project Authority, and that the Project Authority has no authority, to approve the design. The Contractor acknowledges that the Project Authority will participate in the design review process but shall not approve the design process.' However, the FFGSPO is responsible for accepting, without prejudice, that the Contractor has fulfilled all its contractual obligations in respect the upgraded FFGs or facilities.

conduct others as Informal Reviews. Either the Contractor or Defence may consider emergent matters through Ad Hoc Reviews.

7.20 FFGSPO personnel are required to witness and review the emerging FFG Upgrade system design and development. This is to afford Defence the opportunity to gain insight to the evolving design and implementation of specified requirements, and to assess risks and issues. While the objective of each technical review and audit varies, the overall objective is to ensure that the proposed design is ready to proceed to the next phase of development and verification. This requires a close working relationship between FFGSPO and Contractor personnel.

7.21 FFGSPO records indicate that the Contractor has not provided FFGSPO with the degree of information sharing specified in the Contract, and that this has limited IPT effectiveness. FFGSPO personnel have raised Problem Identification Reports regarding a lack of adequate access to the Contractor's systems engineering Integrated Product Development Environment (IPDE).

7.22 The Contract intended that the IPDE would be available to all members of the FFG Upgrade Project team. However, the FFGSPO's records indicate that the Contractor had restricted FFGSPO personnel's access to IPDE records. For example, the records indicate that FFGSPO's Inspections, Tests and Trials personnel did not have adequate visibility of the Contractor's Test Database, updated drawings and Requirements Database within the IPDE. This is necessary to enable the SPO's personnel to determine the extent to which the FFG Upgrade had satisfied the requirements specified in the Contract.

7.23 In March 2005, Defence advised the ANAO that in response a number of issues, including a Problem Identification Report concerning the Contractor's Test Database and access to it by the FFGSPO, the Contractor conducted a thorough audit of the FFG Upgrade test program. Defence also advised the ANAO, that the Contractor's Combat System Design Authority was reviewing Contractor Sea Trials Test Procedure Outlines before presenting them the FFGSPO in the week of 14 March 2005. At the same time, the Contractor was preparing Test Outlines for system development Test Procedures.[68]

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[68] Defence's advice indicated that the Contractor's audit ranged from:
- system development tests, required to demonstrate that the system under development will meet the function and performance specified in the FFG Upgrade contract;
- shipyard tests and contractor Harbour Acceptance Trials, required to confirm that the work is completed in accordance with the contract's Statement of Work, to confirm the satisfactory condition of all machinery spaces, and to confirm it's safe to commence onboard equipment tests; and
- Contractor Sea Trials. These are conducted on completion of safety checks, and after the Maritime Commander's approval that the ship can proceed to sea. The Contractor is to conduct all sea trials necessary to successfully prove the performance of the upgraded systems.

7.24 In April 2005, the Contractor advised the ANAO that on-line access to the Engineering Change Requests/Engineering Change Orders and updates to design documentation in progress only were unavailable due to technical problems associated with the IPDE software. The Contractor also advised that following an agreement process, the Test Matrices were 99 per cent agreed, and that subsequently the Test Database was provided on-line to the FFGSPO as of March 2005.

Configuration audits

7.25 Configuration audits required under the FFG Upgrade Prime Contract include Software Configuration Audits, Functional Configuration Audits, and Physical Configuration Audits. These configuration audits are required to provide Defence with assurance that the upgraded FFG systems' are fully defined, in the functional and physical sense, within product configuration baseline documentation. That baseline documentation forms a single point of reference for all individuals concerned with upgrade design, development, and test and evaluation processes.

7.26 The configuration audits comprise a series of incremental audits conducted over a period of time to verify all relevant elements in the product system structure. The process is expected to involve audits conducted by the Prime Contractor on subcontracted items at subcontractor facilities, with or without Defence's participation at Defence's discretion.

7.27 Configuration audits are important because of their crucial contribution to the validity and reliability of technical reviews and system tests and evaluations.

7.28 FFGSPO records of February 2005, show large numbers of FFG system, sub-system configuration audits and formal tests being either incomplete or their full scope yet to be determined. Furthermore, the numbers of software configuration audits conducted were yet to be determined, as were the numbers of functional and physical configuration audits. This is despite the Contractor completing the installation and setting to work the upgraded systems on HMAS Sydney, and the ship proceeding to sea for initial contractors sea trials.

Defence also advised that the Contractor had recently completed:

- re-mapping and validating the baseline specifications to Test Procedures;
- estimating, planning and scheduling the generation of the Test Procedures; and
- estimating the conduct the tests.

In April 2005, the Contractor advised the ANAO that the audit occurred in mid 2004, and that completion of the re-mapping, validation and estimates could not have been performed earlier due to a lack of an agreed Test Matrix.

7.29 By mid 2004, FFGSPO records indicated the Contractor was overdue in delivering some 160 contracted data items to the FFGSPO. These data items are used by the SPO as the basis of assessing the quality of the Contractor's work. By March 2005, there had been no reduction in the number of overdue data item deliveries.

Fast Frigate Guided Upgrade tests and evaluations

7.30 At the time of the audit fieldwork, the FFGSPO was experiencing significant problems related to the Contractor's non-compliance of contractual requirements concerning the planning and conduct of development and production tests and evaluations.[69] Initially, the problems indicated a lack of planning and coordination between production staff, confirming work was complete and ready for test, and the Contractor's test scheduling staff. This situation resulted in the development of a number of unrealistic test schedules. For example, in October 2004, the Contractor informed the FFGSPO that it had delayed the start of the Combat System integration testing so that it could further develop the Combat System maturity through the closure of critical Software Integration Problem Reports. The Contractor also intended to address the 'operationally significant issues' prior to embarking on the broader formal test program.

7.31 However by January 2005, the overall severity of the Project's test and evaluation problems had became apparent, when the FFGSPO reported that the Contractor's test matrix did not meet the contract's requirements in terms of specifying the test procedures or engineering documents that detail how each system specification has been satisfied. At the time, the FFGSPO was not satisfied with the Contractor's implementation of the FFG upgrade Test Database, and the Contractor's system test procedures written against sub-system specifications were neither sufficiently rigorous nor complete.

7.32 In February 2005, FFGSPO advised the Contractor that its Test and Evaluation Management Plan and Systems Engineering Management Plan required revision and reissue, to enable FFGSPO to fully understand the process by which the upgraded FFGs would were to be provisionally accepted by DMO.

7.33 By March 2005, various delays resulted in HMAS Sydney's Tests and Trials being rescheduled for completion at the end of August 2005, and the

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[69] The FFG Upgrade Contract requires the Contractor to provide to, and maintain for, the Project Authority [the FFGSPO] a comprehensive Production Test and Evaluation Program (PT&EP) covering the management, conduct and satisfactory completion of testing of the Supplies. The PT&EP shall address the requirement for a series of integrated inspections, tests and trials, which substantiate compliance with all technical and performance requirements of the Contract. Contract 60178NQ Section 11.16.

Contractor exercised its contractual option to insert an eight-week postponement in the upgraded FFGs' provisional acceptance dates.

7.34 In 1998–99 Defence allocated $22.8 million (December 1997 prices) to fund FFG Upgrade Tests and Trials, and this was later reduced to $10.8 million. The initial approved budget for Tests and Trials assumed that all the costs would be incurred in Australian Dollars. In 1999–2000, this was changed to 50 per cent in US dollars. The currently approved budget for Tests and Trials is $12.129 million (November 2004 prices). Documentation for the basis of this change was not available to audit. By February 2005, FFGSPO had not spent any of its Tests and Trials budget allocation (see Table 7.2).

Project payments

7.35 By January 2005, the approved budget for the FFG Upgrade Project was $1448.32 million. Total payments under the FFG Upgrade project amounted to $968.87 million as of February 2005 (see Table 7.2), leaving $479.45 million or one-third to be spent.

7.36 The FFG Upgrade Contract is fixed in price at $1138.29 million (December 2004 prices), and is comprised of 71 milestone payments[70] and monthly progress payments based on the Contractor's EVMS, which is discussed later. By February 2005, payments to the FFG Upgrade Prime Contractor totalled $919.13 million, which constitutes 80 per cent of the contract price.

7.37 By early 2005, FFG Upgrade property to the value of $716 million ($644 million February 1998 prices) had been vested in Defence. This property relates mainly to six sets of FFG Upgrade equipment, purchased during the early years of the project.

[70] Twenty-eight part Milestones bring the Milestone total to 99.

Table 7.2

FFG Upgrade Project Payments: 1997–98 to February 2005

Item	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05 (to February 2005)	TOTAL
	($m)	($m)	($m)	($m)	($m)	($m)	($m)	($m)	($m)
FFG Upgrade Contract	0.000	126.748	104.452	201.619	226.329	130.824	93.134	36.021	919.127
Spares	0.000	0.000	0.076	0.000	0.000	6.099	0.000	0.000	6.175
Government Furnished Materiel	0.000	0.332	0.593	8.302	7.366	4.699	5.058	1.475	27.825
Tests and Trials	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Project Management	0.142	1.321	1.385	0.966	2.705	1.943	2.519	1.144	12.125
Travel and Legal Advice	0.044	0.183	0.400	0.435	0.723	0.595	0.933	0.305	3.618
Total per year	0.186	128.584	106.906	211.322	237.123	144.160	101.644	38.945	
Cumulative Total	0.186	128.770	235.676	446.998	684.121	828.281	929.925	968.870	

Source: Department of Defence, March 2005.

Price changes

7.38 In order to maintain the Project's value relative to the originally approved cost of $1.266 billion (December 1997 prices) over the Project's life, the Project's budget is adjusted yearly for price and exchange rate variations based on formulae agreed with the Department of Finance and Administration. In relation to exchange rate adjustments, project budgets are revised from the previous year's budget spot exchange rate to the current year's spot exchange rates.

7.39 The bulk of the Project's budget variations relate to the FFG Upgrade Contract. This contract contains price variation formulae, intended to fairly compensate the Contractor for the difference between the base date prices, and the price conditions at the time the work was actually undertaken. Defence seeks annual adjustments to the project's approved funding so that it can fund these price variations.

7.40 Since December 1997, when the FFG Upgrade Project received Government approval, the FFG Upgrade Project costs have increased by the following amounts:

- $132.75 million increase as a result of annual labour and materials indexation;
- $196.19 million increase as a result of foreign exchange adjustments;[71]
- $152.7 million reduction in November 1998 as a result of a project scope reduction; and
- $98.87 million increase as a result of 54 contract changes.

7.41 The FFG Upgrade Project's Contingency Budget[72] has only been reduced by $15 million. Advice from FFGSPO is that the price variations associated with contract changes were absorbed from other parts of the project, thus avoiding the use of the project's contingency funds.

Earned Value Management System

7.42 A fundamental project management responsibility is to ensure that the Contractor's cost and schedule progress data are sufficient, and reliable enough, to accurately track and review results being obtained.[73] In carrying out

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[71] Funds spent on exchange rate variations depend on the exchange rate at the time of payment. The project seeks annual supplementation or approved budget reductions where there is an appreciable difference between the 'official' exchange rates Finance used to calculate the Global Update and the prevailing rates at the time payments were made.

[72] DMO advised the ANAO that Contingency Budgets form part of the overall Project Approval, and that there are no separate approval authority for the use of contingency funds.

[73] To be meaningful, this data must:

this responsibility, FFGSPO relies on the Contractor's EVMS as the predominant mechanism for measuring and reporting cost and schedule progress over the life of the Project.

7.43 The FFG Upgrade Contract required the Contractor to establish and maintain an EVMS, which complies with Australian Defence Standard DEF (AUST) 5655, *Australian Cost/Schedule Control Systems Criteria; Standard,* within 15 months after contract signature. The first step in satisfying that requirement was for the Contractor's evolving EVMS to undergo an Integrated Baseline Review[74] within six months of contract signature (that is by December 1999). The contract also specifies that the first Earned Value Method Payment claim shall not be made until Project Authority approval of the Performance Measurement Baseline as defined in DEF (AUST) 5657, *Australian Cost Schedule Control Systems Criteria; Implementation Guide,* is received. The contract states that the Project Authority approval of the Performance Measurement Baseline will be subject to an Integrated Baseline Review.

7.44 By August 2000, the Contractor had validated and accepted all its major sub-contractor EVMS, with assistance from FFGSPO and DMO's EVMS specialist personnel. In July and August 2000, the Contractor received a $1 million milestone payment for the FFGSPO's acceptance of the Contractor's Contract Master Schedule, and a further $1 million milestone payment for the completion of its Integrated Baseline Review. The validity of these milestone payments is placed in doubt by the Contractor's EVMS not receiving compliance certification by DMO until November 2001. By this time, FFGSPO had made 23 earned value payments to the Contractor that totalled over $200

- portray budgets allocated over time to achieve specific contract tasks;
- indicate work progress;
- relate properly to costs, schedule and technical accomplishment;
- remain valid, timely and auditable; and
- provide summary information at a practical level.

[74] An Integrated Baseline Review (IBR) is a technical and schedule review, focusing on the assignment, definition, scheduling and resourcing of work (includes budgets), thus establishing early visibility into the acceptability of the Contractor's contract planning. Where the contract provides for payment by earned value, the IBR also reviews the methods and metrics used to measure contract performance. Where a Contractor is using an already validated EVM system, the IBR is used as a streamlined approach to assessing the acceptability of the Performance Measurement Baseline (PMB) on new contracts. The objectives of the IBR are to:

a. ensure that the complete contract scope of work is covered in the Contract Work Breakdown Structure (CWBS);

b. assess whether the technical scope can be accomplished within cost and schedule baseline constraints and that resources have been appropriately distributed to the contract tasks;

c. assess that there is a logical sequence of effort that supports the contract schedule;

d. identify areas of risk in resource allocations and in the technical performance of the contract and understand the cost and schedule implications of that risk;

e. assess the validity and accuracy of the Contractor's baseline by examination of at least one Cost Performance Report (CPR) or Cost Schedule Status Report (CSSR); and

f. develop Project Office understanding of the PMB resulting in a better appreciation of the Contractor's performance management process and the methodologies used to measure performance.

million.[75] Also, the Upgrade Project was showing signs of extensive schedule slippage, which placed in doubt the Performance Measurement Baseline's validity.

7.45 The ANAO has not been provided with documentation from Defence that supports the basis of earned value payments prior to the approval of the Performance Measurement Baseline. However, FFGSPO records indicate the SPO was advising the Contractor of deficiencies in its Earned Value payment claims.

Contract Master Schedule

7.46 An important component of the EVMS is the Contractor's Contract Master Schedule (CMS), which establishes the Project's key dates. The CMS is required to be completely compatible and traceable to the Contract's Milestone Schedule, and be meaningful in terms of the Contract's technical requirements and key activities.

7.47 FFGSPO records indicate that since 1999, SPO personnel lacked confidence in the validity of the Contractor's CMS. By August 2002, the Contractor had produced six revised CMSs. By then, FFGSPO had engaged a firm to review the Contractor's CMS and provide an independent report on its findings. FFGSPO subsequently rejected the Contractor's CMS on several grounds including:

- insufficient time budgeted for activities;
- schedules based on constrained milestones;
- risk not being addressed in terms of contingency for possible re-work activities; and
- links between activities were frequently missing or incorrect.

EVMS surveillance

7.48 FFGSPO is responsible for conducting recurring EVMS surveillance reviews of the Contractor's EVMS to ensure the system remains compliant with the contracted standard, and that it continues to produce credible cost and schedule performance data.[76] However, despite the FFGSPO's concerns, the Contractor's EVMS had not undergone recurring surveillance reviews by FFGSPO or other DMO personnel.

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[75] During the period December 1999 to June 2000, the SPO approved $88.9 million in earned value payments to the Contractor.

[76] Australian Defence Standard, DEF(AUST) 5657, *Australian Cost Schedule Control Systems Criteria; Implementation Guide*, March 1994, Chapter 13, p.3. DMO's Directorate of Project Management Systems (DPMS) is responsible for providing general guidance regarding surveillance reviews, conducting staff training, and resolving issues of compliance raised during surveillance reviews.

7.49 The FFGSPO advised the ANAO that a validation review of the Contractor's EVMS is planned to follow the pending contract amendment that will reduce the contract scope from upgrading six FFGs to four FFGs. This contract amendment had not been agreed to by February 2005. However, the SPO conducted a surveillance review in March 2005.

Milestone payments

7.50 The upgrade Contract's milestone payment amounts are not necessarily linked to the actual or budgeted cost of work performed at the time of the nominated milestone. Rather, they are based on projected prices over the period of the Contract, which were agreed to during contract negotiations.

7.51 The Contract contains six critical milestones with a total price of $32 million. The Contract provides that, where the Contractor fails to complete a critical milestone on or before the due date, Defence is entitled to withhold, at its discretion, whole or part of the claim and all subsequent milestone payments until the critical milestone has been achieved. At the time of the audit fieldwork, FFGSPO had approved payment on the first three critical milestones, and was waiting for the Contractor to complete the fourth-critical milestone (Milestone 12), which is the completion of Critical Design Reviews scheduled for May 2003. The Contractor had also completed, and received payment for, a selection of milestones up to and including Milestone 25.

7.52 By November 2003, milestone payments to the Contractor totalled $176.21 million of the $196 million scheduled for payment at the time. If the FFGSPO had withheld the payment of all milestones following the uncompleted Critical Design Review critical milestone (Milestone 12), then milestone payments would have totalled $170 million.[77]

7.53 However, the $176.21 million in milestone payments are comprised mainly of $133 million in six advanced (mobilisation) payments, a $16 million payment for 'Delay to the Program', and $1.4 million in payments for three other delays. These mobilisation and delay milestone payments total $150.4 million. Therefore, from a total of $176.21 million in milestone payments, the Contractor after 66 months of effort had only effectively earned $26 million in milestone payments related to achieving predefined systems engineering progress.

7.54 On that basis, by late 2004 the Project's milestone payment amounts were aligned more toward payments for future work and Program delays, than toward the completion of systems engineering tasks.

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[77] These figures reflect the milestone amounts set out in the FFG Upgrade contact and are based on February 1998 prices.

Recommendation No.5

7.55 The ANAO recommends that Defence ensures that in future major equipment acquisition contracts:

a) milestone payments are, where appropriate, aligned to the successful completion of mandated system reviews and tests and evaluations; and

b) full payments for milestones, which follow critical milestones, be made only when all critical milestone review issues are satisfactorily resolved.

Defence response

7.56 Agreed. Provision for this already exists in the standard contracting Australian Defence Contracting (ASDEFCON) template suite.

Performance Incentive Fee Payments

7.57 The Contract provides that Defence may pay the Contractor Performance Incentive Fees capped at $18.7 million as additional incentive for the Contractor's due and proper performance of its contracted obligations.[78] By May 2004, the Contractor had received six performance incentive fees totalling $3.323 million (excluding GST). Four of the fees were paid prior to August 2001, and were based on the Contractor meeting the overall management, schedule, engineering and performance requirements of the contract, and the Contractor's ability to react to various external environments. The final two fees, which totalled $1.691 million (excluding GST), were based on the Contractor implementing new combat system architecture and assuming roles of Combat Systems Design Authority and Combat System Integrator, and on the undocking the first FFG to be upgraded.

Payment for project delays

7.58 In November 2001, the Contractor submitted a draft excusable delay claim for an amount of $46 million (February 1998 prices), and an additional $14 million claim for loss of work and skills retention for the period the Project was delayed. In April 2004, the Contractor's claim was settled by DMO for $21.636 million (equivalent to $16 million in February 1998 prices). Other changes to the FFG Upgrade Project contract that flowed from that claim, included recasting the incentives to the Contractor's achievement of milestones, and allowing delivery schedule slippage ranging from 25 months, for the upgraded FFGs, to 35 months for the FFG Warfare Systems Support Centre and Upgrade Software acceptance.

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[78] FFG Upgrade Contract 605178NQ, *Terms and Conditions*, Section 3.8.

Financial framework

7.59 The *Financial Management and Accountability Act* (FMA Act), provides the Australian Government's legislative framework for the proper management of public money and public property. The provisions that apply in the context of the payment of Defence accounts include:

- Section 44 (promoting efficient, effective and ethical use of Australian Government resources); and
- Section 48 (accounts and records are to be kept as required by the Finance Ministers Orders).

7.60 These are supplemented by:

- FMA Regulations, and in particular Regulations 9, 10 and 13 relating to the approval to spend public money. Regulation 9 requires that officers must only approve the spending of public money when they are satisfied after making such enquiries as are reasonable, that it accords with the policies of the Australian Government, will make efficient and effective use of public money and the proposal to spend the money is consistent with the terms under which the funds have been provided to the agency;
- FMA Order 2.3 (accounts and records must properly record and explain the transactions);
- Agency instructions, notably the Chief Executive's Instructions (see 3.2 Payment of Accounts); and
- Defence Manual of Financial Delegations (DBR 47).

7.61 The level and standards of documentation considered necessary to support the payment of public money is a matter of judgement for management as part of the overall Defence financial control environment. The existence of appropriate documentation to support payments is important for Defence to enable it to:

- meet its FMA Act and FMA Orders obligations to maintain proper accounts and records;
- provide assurance to Ministers and Parliament that the departmental administrative procedures are adequate, reliable and authentic;
- provide assurance to management that the payment administrative processes have the necessary integrity to support the drawdown of Parliamentary appropriations; and
- provide support for the Australian Government's position in the event of legal proceedings.

7.62 In the period between May 2004 and February 2005, at the request of the ANAO, the FFGSPO and Maritime Systems Division personnel attempted to assemble the financial records to support the payments made under the Project. The analysis contained in this chapter is drawn from financial schedules and supported by documentation provided to the ANAO by the FFGSPO and Maritime Systems Division. The vast majority of payments under this Project have been made to the FFG Contractor, as shown in Table 7.2

7.63 ANAO analysis reveals that the overwhelming majority of earned value project payments occurred pre mid-2003 where the ANAO has found the following:

- on 22 occasions, Defence claims for payment sheets were not signed by any or both of the approver and certifying officers.[79] These claims total $76.9 million; and
- payments reported to have been made without Defence ROMAN Account Document References being indicated on the Earned Value Payment Schedule.

7.64 The ANAO is generally satisfied with the improved practices and procedures adopted by the FFGSPO to record and assess the basis of payments to the Contractor since mid-2003. During this period, payments amount to some $129 million, which were validated by a complete set of invoices, completed authorised DMO sign off sheets and payments made in accordance with contractual terms. Since February 2004, the FFGSPO has incorporated a formal signoff process to approve contractor payments.

7.65 Similar to the earned value payments, only two per cent of milestone payments have occurred since mid-2003 when the ANAO found that payment processes were based on signed invoices; signed and completed Defence Claims for Local or Overseas Payment forms; internal FFGSPO developed sign-off sheets since February 2004; and supporting documentation.

7.66 The ANAO analysis of the basis of milestone payments pre mid-2003 reveal:

- on 15 occasions invoices do not exist or cannot be found in respect of reported payments; and
- Defence Claims for Local or Overseas Payment forms not signed by any or both the approver and certifying officers on 34 occasions involving claims for $15 million.

7.67 In the period between May 2004 and February 2005, at the request of the ANAO, the FFGSPO attempted to assemble the financial records to support

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[79] The ANAO found that FFGSPO paid $11.75 million based on unsigned invoices from the Contractor.

the payments made under the Project. For much of that period, the ANAO found that the FFGSPO's records for 1999 to mid-2003, did not provide a basis for orderly, efficient and accountable measurement of the use of Defence resources.

Recommendation No.6

7.68 The ANAO recommends that Defence promulgate to System Program Offices, guidance on the legislative and administrative process requirements for the payment of accounts and the keeping of proper records.

Defence response

7.69 Agreed in principle. This is already part of routine business. All personnel with financial delegations are reminded on a regular basis of the importance of ensuring that financial delegations are adhered to. Finance personnel ensure that they maintain currency with Defence requirements for any financial matters such as the new delegation framework, changes to policy through DEFGRAM notifications etc.

Risk transfer

7.70 The FFG Upgrade Contract originally contained a Bank Guarantee Schedule,[80] which covered the $125 million payment Defence paid to the Contractor at contract signature, prior to Defence's receipt or acceptance of any supplies from the Contractor.[81] This arrangement is known in Defence as a Mobilisation Security. The Contract also contained a Performance Security Schedule covering the Contractor's due and proper performance of its

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[80] Major Defence acquisition contracts generally require prime contractors to provide Performance Securities to secure their performance of the contract, and to detail the Australian Government's right to exercise the security. Performance Securities provide the Australian Government with financial relief in the event of a contractor's default. They are principally based on Financial Guarantees secured from a bank, and so are often referred to as Bank Guarantees. Bank Guarantees are the Australian Government's preferred form of financial security, because the dealings are through a third party and represent the lowest risk of default or litigation should circumstances require them to be called upon. Alternatively, contracts may contain a Deed of Substitution and Indemnity, which entitles the Australian Government to request that the entity providing the deed, be substituted as the contractor responsible for performing the contract. Substitution and indemnity deeds enable the Australian Government to obtain the performance of the contract from the providing entity. In major Defence equipment acquisition projects, the Australian Government has a preference for Deeds of Substitution and Indemnity because they relate to contractor performance, as opposed to Bank Guarantees, which relate to the recovery of financial consideration.

[81] The FFG Upgrade contract refers to the Mobilisation Security as an Advance Payment Bond Deed of Undertaking. The Mobilisation Security and Performance Security were not executed until 29 November 1999, other than at contract signature (1 June 1999) as would normally be expected with such large contracts. FFG Upgrade Contract 605178NQ, *Terms and Conditions*, Section 4.1 and Attachment F Part 1. FFG Upgrade Contract 605178NQ, *Terms and Conditions*, Attachment D, *Payments, Milestones and Precursors*, Contract Milestone 1.

contracted obligations. The Performance Security was initially capped at $30 million, and was scheduled to reduce to nil in increments linked to Defence's acceptance of FFG Upgrade deliveries.

7.71 However, in September 2002, the Mobilisation Security and Performance Security schedules were reduced to nil, on the execution of a Deed of Substitution, whereby the Contractors' parent company became guarantor for the proper performance of the FFG Upgrade Contract.

Goods and Services Tax (GST) claims

7.72 Defence makes large annual payments in foreign current currency, which has to be converted to Australian currency for GST purposes. The GST payable for taxable supplies is 10 per cent of the value, and must be expressed in Australian currency.

7.73 The Contractor lodges price variations tax invoices for foreign currency claims of which the amount of the claim for payment for GST are based on the Westpac Bank retail spot exchange rate. The retail spot rate is more expensive than the wholesale rate. A commonly used wholesale rate for currency conversion,[82] is the Reserve Bank of Australia's 4:00 p.m. Australian Eastern Time rate on each business day. The retail spot rate used on foreign currency price variations claims does not accord with the method of calculation on the other Contractor claims.

7.74 Defence advised the ANAO in March 2005 that:

> There was no specific procedural requirement at the time requiring Projects to use the 4.00 pm daily Reserve Bank wholesale foreign exchange rate in relation to GST payments. The GST Office at the time indicated that the ATO were concerned that a consistent method was used to determine the exchange rate to be used and that the method didn't change on each occurrence to minimise the GST payments. Also, the view of the GST Office at the time was that contractors were responsible for the payment of the GST and they should be given the benefit of any doubt rather than create ill-will and/or create any legal disputation.

7.75 By the time the GST came into effect on 1 July 2000, the Contractor had lodged six earned value claims and four milestone payment claims amounting to $254.8 million. These claims contained over $133 million in advance (mobilisation) payments for future FFG Upgrade work. On 12 July 2000, the Contractor lodged an invoice for GST amounting to $8.38 million, to cover $83.8 million in pre-GST payments it had received, and which it claimed were 'unamortised mobilisation'. On that basis, $83.8 million in payments were

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[82] See ATO GST Ruling 2000/D15 and GST Ruling 2001/2.

made available to the Contractor ahead of work performed, and the Contractor invoiced Defence for the GST payable on that amount. An audit trail verifying the amount of work yet to be completed under the advanced payments arrangement, was not apparent by inspection of the FFGSPO records.

7.76 The SPO did not receive any specific tax advice or Australian Tax Office (ATO) rulings that would support the need to make the $8.38 million in GST payments for unamortised advanced payments. ANAO has been advised that DMO's Maritime Capital Investment Program has not been the subject of GST compliance audits by the ATO. In 2003–04, Defence made GST payments of $870 million and Defence's appropriations were supplemented under Section 30A of the FMA Act.[83]

Recommendation No.7

7.77 The ANAO recommends that Defence review, on a regular basis, System Program Office's acquisition contracts administrative processes for the payment of the Goods and Services Tax.

Defence response

7.78 Agreed. The DMO, as a part of routine business, has the Defence Tax Management Office conduct audits of Tax Invoice processing requirements, in particular, the correct use of tax codes against claims. It also conducts exception audits where any claim that does not attract a flat 10 per cent GST component is investigated to ensure that it has been calculated and paid correctly.

Discounts for early payments

7.79 Longstanding Defence policy is to pay its accounts on the due date, which is generally 30 days from acceptance of goods or services, and the receipt of a request for payment from the vendor. There are some exceptions to this policy, of which the most notable one is where there is a clearly demonstrable financial benefit to Defence to accept a discount for payments earlier than the usual 30 day rule. The FFG Upgrade contract includes the requirement for 30-day payment and provisions for early and late payments based around using 100 basis points spread over the 13 week Treasury Note rate.

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[83] FMA Act 30A (1) Appropriations to take account of recoverable GST if:
(a) a payment in respect of an acquisition is to be made in reliance on a limited appropriation; and
(b) a GST qualifying amount has arisen, or will arise, for that acquisition;
then the appropriation is increased by the amount of the GST qualifying amount. The increase in the appropriation takes effect immediately before the payment is made.

7.80 FFG Upgrade payment tracking records show the first earned value claim was received from the Contractor on 20 December 1999 for $34.44 million comprising $A 19.94 million and $US 9.65 million. The $US component was approved on the second working day and paid to the Contractor on 22 December 1999, and the $A component was paid on 24 December 1999.

7.81 There is no evidence available to the ANAO that indicates the FFGSPO validated the claim for payment of $US 9.65 million and $A 19.94 million, or that it reduced the claim by applying the correct discounts for early payment.

7.82 The normal processing time line for the processing of foreign currency transactions once a Defence claim for overseas payment has been prepared is outlined below:

- Day 1: Payment details are passed to Defence Accounting Operations, after the claim has been certified and approved by the SPO;
- Day 2: Accounting Operations transit payment details to the Department of Finance and Administration for processing;
- Day 3: Reserve Bank processes the payment by purchasing relevant foreign currency; and
- Day 4: Payment to Contractor is made.

7.83 The $A19.9 million component of the first Earned Value Payment claim was paid to the contractor on the 24 December 1999. The FFGSPO calculated the discount to apply to this early payment to be $13,439. The ANAO calculated the discount to be $71,347 indicating an error rate of 531 per cent.

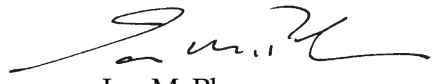
7.84 In February 2000, the FFGSPO adjusted the Contractor's second Earned Value Payments Claim by $A 103,606. This appears to account for the non-claiming of a discount on the $US 9.65 million and the under claiming of discount on the $A 19.94 million payment. ANAO analysis of earned value payments between December 1999 and May 2000 indicate that discounts of $219,033 could have been claimed because of early payments. Total discounts claimed for this period appears to amount to $127,595, based on available SPO records.

Recommendation No.8

7.85 The ANAO recommends that Defence provides specific training to all System Program Office liability approvers of their obligations to promote effective and efficient use of Australian Government resources in accordance with legislative and contracted obligations.

Defence response

7.86 Agreed. This is already part of routine business. All SPO delegates are required to be recognised as competent prior to enacting any delegations in accordance with Defence Procurement Policy Manual requirements. All SPO delegates are advised of any changes in policy that may have come into effect since they undertook their training. These communications are effected by means of electronic communication through the use of e-mails, as well as unit routine instructions and verbally through the weekly executive briefs.



Canberra ACT
27 May 2005

Ian McPhee
Auditor-General

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