

The Auditor - General

The Australian Diplomatic  
Communications Network  
- Project Management

Department of Foreign Affairs and Trade

Australian National Audit Office

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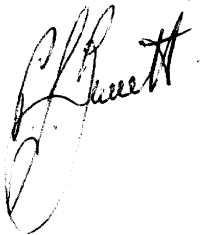
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Canberra ACT  
13 May 1998

Dear Madam President  
Dear Mr Speaker

The Australian National Audit Office has undertaken a performance audit of the Department of Foreign Affairs and Trade in accordance with the authority contained in the *Auditor-General Act 1997*. I present this report of this audit, and the accompanying brochure, to the Parliament. The report is titled *The Australian Diplomatic Communications Network – Project Management*.

Yours sincerely



P. J. Barrett  
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

ADCNET	Australian Diplomatic Communications Network
ANAO	Australian National Audit Office
C&L	Coopers & Lybrand
DFAT	Department of Foreign Affairs and Trade
DoF	Department of Finance (until late 1997)
DOFA	Department of Finance and Administration
DSD	Defence Signals Directorate
IT	Information Technology
PSI	Prime Systems Integrator
QA	Quality Assurance





## Part One

# Summary and Recommendations



# Audit Summary

## Development of ADCNET

1. The Australian Diplomatic Communications Network (ADCNET) was developed by the Department of Foreign Affairs and Trade (DFAT) to provide a communications facility with secure office automation capabilities such as word processing and electronic mail for its domestic offices and overseas posts. The aim was to enable staff to produce higher quality, more timely, secure policy documents that could be disseminated electronically.
2. The project had two major technical milestones: Release 1 which was the deployment of the core functionality using an existing message switch, and Release 3 which was the replacement of the message switch together with enhancements to security, records management and systems management functionality.
3. Development began in 1989. A Prime Systems Integrator (PSI) was appointed to undertake the major development activities for ADCNET. Release 1 of ADCNET is now in use, and is seen by DFAT as a successful key business application which was delivered within budget. The Department has spent \$101.9 million on the ADCNET project to 30 June 1997. It estimates that an additional \$11.6 million will be required to complete the development and deployment effort on the project.
4. The nature of diplomatic communication systems requirements has meant that the ADCNET project has been complex as it includes unique features. The security requirements in particular have been paramount, and with few relevant off-the-shelf products available at the time, ADCNET has had to be developed to in-house specifications. The Department has emphasised that foreign governments have had difficulty in developing similar IT systems and regard the development and installation of ADCNET highly.

## The importance of effective project management and good governance processes

5. Better practice recognises that it is important, particularly in projects of this magnitude, risk and business criticality, that appropriate project and risk management processes are applied in a systematic and disciplined fashion. Without such processes the likelihood is that:
  - expected benefits and cost savings from use of the system may be substantially delayed, reduced or not achieved at all;

- cost overruns may be incurred or, alternatively, substantial investment may be written off if development and deployment cannot be completed successfully; and
- the system may not perform all required functions or meet user expectations, resulting in program inefficiencies, outputs and outcomes foregone, and increased costs from workarounds.

## Audit approach

6. The audit did not involve a technical review of the network. It focussed on project management, and in particular:

- i) how effectively the ADCNET project was managed;
- ii) how effectively project risks were managed; and
- iii) the extent to which project management processes have established whether ADCNET meets the specifications set by, and the expectations held by, DFAT as well as any lessons to be learnt for this and other future projects.

7. In recognition of the importance of appropriate management processes for projects of this nature, the ANAO assessed ADCNET project management and control practices against criteria based upon relevant recognised public and private sector standards and better practice. In so doing, the ANAO was conscious that, while better practice in project management has been increasingly recognised by practitioners in both the private and public sectors during the last decade, the Australian Standard 35631 “Software Quality Management Systems” was first issued in 1988 and reissued in 1991 at the same time that major ADCNET development effort was commencing.

## Overall conclusion

8. ADCNET has met a key need by providing a more functional and reliable communications facility for the department. It is now used extensively as a key business application in DFAT and several other government agencies. Feedback indicated user acceptance of ADCNET following implementation. Further, ADCNET has markedly improved work practices and resulted in reduced staff costs.

9. Notwithstanding the positive benefits achieved to date from ADCNET implementation, the ANAO considers that project management could have been strengthened to achieve better outcomes through more

cost effective system delivery. In relation to the specific audit objectives, referred to above, the ANAO concluded:

- management of the project fell short of accepted good practice in some key areas including elements of effective project management, corporate governance and accountability for performance, and independent quality assurance advice;
- a more strategic approach to risk management would have been commensurate with the levels of assurance required in a project of such significance; and
- the project will be over five years late in delivering the final technical milestone, with completion in 2003 at the earliest. A number of key security features will not be delivered until then. The project has met a key need and for this and other reasons the Department considers the project to have delivered substantial benefits and to be a success. The ANAO acknowledges the progress to date but notes that, while the benefits of the project can be broadly assessed, no post implementation performance assessment has been undertaken to ascertain in a systematic fashion whether the project has met its objectives in time, cost and quality. Such an assessment should take account of project delays and likely consequences. A structured performance assessment would also assist with identifying any lessons to be learned for the future.

## Recommendations and Departmental response

**10.** The ANAO has made nine recommendations to enhance project management of significant technology developments. DFAT has agreed with all recommendations (one with qualifications).

**11.** DFAT has commented that, inevitably, with a project of the magnitude and capability of ADCNET taken over an extended timeframe, there are lessons to be learned. DFAT agrees in principle with ANAO recommendations and suggestions for improvement in project governance. These will be taken on board in completing the ADCNET project and in any future IT development.

**12.** However, the Department emphasises that ADCNET has been successfully implemented within budget to date and is delivering the functionality sought and has the full support of users. For such a unique and complex system, developed in a period of high technological change, these are major achievements.

# Key Findings

## **ADCNET has improved work practices**

13. ADCNET is now used extensively in DFAT and several other Government Agencies (for example, AusAID, the Departments of the Prime Minister and Cabinet and Defence, and the Office of National Assessments). Feedback has indicated user acceptance of ADCNET following implementation. It has improved the efficiency of work practices and processes at overseas posts, resulting in a faster, more functional and more reliable communications network.

## **ADCNET expenditure is within budget and has achieved staff savings**

14. ADCNET expenditure to date is within funding agreements established with the (then) Department of Finance.

15. As a contribution to the gross cost of the project, ADCNET was planned to deliver a reduction of 50 staff positions, with annual savings of \$8.8 million from improved work practices. DFAT's analysis indicates that the target was exceeded by the end of the 1996-97 financial year. However, independent verification would provide greater confidence to management of this outcome. There was insufficient information for the ANAO to come to a firm conclusion.

## **Project installation delays**

16. ADCNET deployment was originally to be completed by the end of 1995-96. However, 14 sites did not receive the system by that time. Two sites were installed in 1996-97 and a further two in 1997-98. The 10 remaining small posts will receive an amended version of ADCNET, no earlier than 1998-99, three years behind the original schedule.

17. More extensive delays have occurred in the second technical milestone for the project - the so called ADCNET Release 3. This release will contain significant enhancements to security, records management and systems management functionality together with replacement of the existing message switch. It was to be installed in March 1996 but is now not expected to be completed until 2003. This delay will also require unplanned work to ensure that the current release of ADCNET is Year 2000 compliant. This work will involve, among other things, a robust test regime consistent with the significant risks involved to the relevant agencies.

## **Project management practices**

**18.** Project management roles and responsibilities were not always clearly defined, and were not consistently applied throughout the project. For example, DFAT did not formally document the project management structure or processes in an ADCNET project management plan to ensure that all concerned were aware and attuned to their particular roles and responsibilities.

**19.** A steering committee was formed with a key oversighting role. However, the focus in practice turned out to be primarily on technical aspects of the project. The steering committee did not obtain timely reports on key areas such as project status, achievement of project benefits, delivery of outcomes, and management of key risk areas. Furthermore, the committee did not meet for critical periods of the project.

**20.** The ANAO concludes that elements of DFAT's project management and governance arrangements were not operative during these periods. DFAT considers that appropriate alternative arrangements were in effect at these times, for example, through DFAT's IT Executive Committee. However, reporting to this group was oral and meetings were not documented. Consequently, there are limitations in the accountability trails for key decisions on ADCNET and less apparent project control, which would have created difficulties for strategic direction, decision-making and minimising risks as well as stakeholder confidence.

## **Project risk management**

**21.** A detailed project risk assessment report was not undertaken until 15 months after the project commenced. DFAT did not ensure that project risks were regularly and formally reassessed throughout the project. This was true also for Release 3 which, as noted earlier, is essential to completion of the project, and which has been subject to substantial delay. The consequences of such a delay need to be addressed.

**22.** The ANAO would expect, consistent with better practice, that formal risk assessment reports would be provided to the designated monitoring committees and addressed for appropriate action. This did not occur. Instead, DFAT has indicated that risks, and their clearance, were raised at these committees only at the discretion of the project manager.

**23.** The ANAO considers that a more strategic approach to risk management would have been more commensurate with the levels of assurance required in a project of such significance. The ANAO recognises that it is only in recent years that formal standards for risk management have been widely promulgated. However, best practice in managing such business critical projects has recognised for some time the importance of a

structured and consistent approach to risk management. DFAT has commented that such arrangements are excessive and would have added significantly to project costs. The ANAO considers that DFAT should adopt a more formal and systematic approach to risk management and project oversight and review for future projects of such significance, as an important element of good corporate governance practice.

### **Quality assurance**

24. In the ANAO's view, the nature and technical complexity of the project warranted independent quality assurance (QA) arrangements for stakeholder assurance. DFAT has commented that there is no fundamental requirement in the Commonwealth for independent QA checks. It did not implement independent QA arrangements, relying instead on the project manager's assessment and, through him, on the quality assurance work performed by the Prime Systems Integrator (PSI). In the ANAO's view, industry quality standards and better practice have recognised for some time that independent quality assurance is a key component in effective software development.

25. Reporting arrangements did not provide sufficient assurance of appropriate and timely reporting of quality assurance issues and of appropriate corrective action. For example, there was no mechanism for quality assurance issues to be reported to DFAT management on a timely basis or to ensure that the PSI adequately reported quality assurance issues. Future projects would benefit greatly from quality assurance arrangements more in line with better practice.

### **Project financial management**

26. DFAT's estimates indicate that the funds allocated to the ADCNET project are sufficient to complete the development and deployment of ADCNET. However, this is dependent on the adequacy of some of the development estimates, in particular for Release 3, the costs of which cannot be fully assessed until all technical issues are resolved.

27. The ANAO identified limitations in the financial data held by DFAT on the project. The ANAO concluded that DFAT's management accounting practices should be enhanced for projects of this size and complexity.

### **Performance assessment**

28. DFAT has not undertaken a formal post-implementation review of the overall effectiveness of the ADCNET project to date. The ANAO acknowledges the progress to date, the apparent user acceptance of ADCNET following the first phase of implementation and the Department's view that it has been a success despite management limitations. However, the ANAO considers that these indicators alone do not demonstrate that



the project has effectively met its objectives of time, cost and quality. The delays in the project have been noted earlier. There will be opportunity and other costs associated with such delays.

**29.** In the ANAO's view it is better practice for significant technology investments to include a more formal performance assessment than has so far been the case for assurance of all stakeholders, particularly where their impact is widespread and crucial to successful program outcomes. This is required for effective project governance. Such a review would also enable important issues identified to be addressed before final completion of the project while there is still scope to do something positive about them. It would also assist in identifying lessons for future management of significant technology projects. DFAT has acknowledged the benefit of such reviews after implementation of significant system developments.

**30.** The ANAO notes that security reviews have identified desirable security enhancements which have yet to be implemented. However, a number of key security features will only be implemented with Release 3 of ADCNET, which is not to be installed until at least 2001. A 1995 review pointed to the increasing risk to the system should this Release not proceed as was then planned. It will be over 5 years late, and DFAT are giving priority, where possible, to enhancing security in the existing version of ADCNET. In the light of project delays a further security review may be warranted, and DFAT has agreed that this is desirable.

**31.** The ANAO also noted an independent review finding that architectural authority for Release 3 rests with the PSI and not DFAT as well as the risks associated with this arrangement. This review finding is consistent with some of the project management and risk management issues identified in this audit.

# Recommendations

Set out below are the ANAO's recommendations with report paragraph reference and DFAT's abbreviated responses. More detailed responses and any ANAO comments are shown in the body of the report.

**Recommendation No. 1**  
**Para. 3.23** The ANAO recommends that project management arrangements for major projects be specified at the outset within the corporate governance framework, including regular reviews and report back requirements.

*DFAT response:* Agreed.

**Recommendation No. 2**  
**Para. 3.25** The ANAO recommends that key decisions made, and directions set, for significant technology projects and investments be adequately and appropriately documented to provide suitable accountability to stakeholders and minimise project risks.

*DFAT response:* Agreed.

**Recommendation No. 3**  
**Para. 4.14** The ANAO recommends that, for future projects, risk management and abatement plans be developed and consistently implemented including regular monitoring and review arrangements. Project management and corporate governance arrangements should require systematic risk approaches, including risk identification, analysis, prioritisation and regular assessment and reporting, for a more cohesive and integrated approach to effective risk management as part of a robust control structure.

*DFAT response:* Agreed.

**Recommendation No. 4**  
**Para. 4.16** The ANAO recommends that formal acceptance testing criteria be prepared and documented for all software releases, particularly at key decision points. Approval for the implementation of any release should be obtained from specified management authorities.

*DFAT response:* Agreed.

**Recommendation No. 5**  
**Para. 5.11** The ANAO recommends that independent quality assurance arrangements be established for all technology projects, including the development of ADCNET Release 3, and that quality assurance reports be monitored by senior management or by other appropriate governance arrangements.

*DFAT response:* Agreed with qualifications.

**Recommendation No. 6**  
**Para. 5.14** The ANAO recommends that DFAT's internal audit planning ensures appropriate coverage of future projects of the size, risk and complexity of ADCNET, to complement the independent quality assurance role.

*DFAT response:* Agreed.

**Recommendation No. 7**  
**Para. 6.3** The ANAO recommends that DFAT ensure that comprehensive, transparent and accurate financial management assessments and reports be maintained for the remainder of the ADCNET project and for future projects.

*DFAT response:* Agreed.

**Recommendation No. 8**  
**Para. 6.11** The ANAO recommends that DFAT regularly monitor project costs and expenditure for ADCNET Release 3 against budget, and update budget estimates as soon as technical and other issues impacting on costs are resolved.

*DFAT response:* Agreed.

**Recommendation No. 9**  
**Para. 7.16** The ANAO recommends that post implementation reviews be conducted at appropriate stages of the project for all significant systems development projects. These reviews should provide assessment as to how effectively business benefits have been delivered, the project's cost effectiveness, compliance with user requirements, user satisfaction and levels of use, as well as delivering to time, quality and budget.

*DFAT response:* Agreed.



## Part Two

# Audit Findings and Conclusions



# 1. Introduction

*This chapter provides the background to the audit including a brief description of the ADCNET project and the audit objectives and methodology.*

## Background

**1.1** The Australian Diplomatic Communications Network (ADCNET) is a secure communications facility used by the Department of Foreign Affairs and Trade (DFAT) for communication between Canberra and overseas posts, between posts and by some DFAT regional offices. DFAT commenced the ADCNET project in 1989 to modernise the diplomatic communications network.

**1.2** The proposal to develop ADCNET was based on the need to update DFAT's communications network which was considered to be inadequate, and subject to unacceptable levels of risk of breakdown and to security. ADCNET was to provide secure office automation capabilities in Canberra, Regional Offices and posts that would enable staff to produce higher quality, more timely, secure policy documents that could be transmitted electronically to their recipients. The key objectives of this project, approved in 1989 by the Departmental Acquisition Council (Appendix 1), were to:

- eliminate the risk of breakdown associated with the then present network;
- improve the levels of service provided in order to meet the growing requirements of the Department and its client agencies;
- reduce the security risk associated with the then present network;
- conform with external changes in communications environments both in Australia and overseas; and
- provide the essential infrastructure which will allow the Department to evolve its usage of modern information technology for the improvement of the Department's performance in policy advising and management.

**1.3** This was to be achieved through a wide area network for voice and data services and the delivery of services direct to staff desktops.

### **A technically complex project**

**1.4** The ADCNET project has been complex and has unique features given the nature of diplomatic communication systems requirements. The security requirements in particular have been paramount in a system used to transmit highly confidential/classified information globally. In this

context the Department has emphasised that while there have been significant developments in the capability to protect the security of IT communications systems with moves towards internationally acceptable security standards, these are far from mature and were less so at the time ADCNET was designed. With few relevant off-the-shelf products available, ADCNET, and equivalent systems used by overseas governments, have had to be developed to in-house specifications.

1.5 The Department has also emphasised that “there is strong evidence that other foreign governments have tried to develop similar IT systems to ADCNET but have failed, and at considerable financial loss. Such governments view the development and installation of ADCNET with considerable envy and indeed, as a ‘best practice’ secure communications system”. Accomplishments at this stage should be recognised.

### **Project development**

1.6 The project was designed to be delivered in two stages:

- stage 1 was the development and installation of the communications and office automation system and the associated network infrastructure for use by specialist communications staff; and
- stage 2 was to provide access to ADCNET for all relevant staff.

1.7 Stage 1 included two major technical milestones. The first was Release 1, which was the deployment of the core functionality to overseas posts and users within Canberra and branches using the existing IBM message switch. The second milestone, known as Release 3, was the replacement of the switch and enhancements to security, records management and systems management functionality.

1.8 Tenders were called and a Prime Systems Integrator (PSI) was appointed to undertake the major development activities. Release 1 was performed on a time and materials basis. Release 3 is to be undertaken by the PSI on a fixed price contract. DFAT undertook ADCNET installation for both stages 1 and 2 for Release 1. Release 3 is yet to be implemented for stages 1 and 2.

1.9 ADCNET is now used in the ministerial offices of the Minister for Foreign Affairs and the Minister for Trade; over 60 overseas posts (see Appendix 2); 17 DFAT Divisions in Canberra; 3 DFAT State offices (Adelaide, Darwin and Melbourne); and other Government Agencies (for example, AusAID, the Departments of the Prime Minister and Cabinet and Defence, and the Office of National Assessments).



## Audit objective

**1.10** The audit did not involve a technical review of the network. Its objectives addressed the project management process carried out by DFAT for the ADCNET project to form an opinion on:

- i) how effectively the project was managed;
- ii) how effectively project risks were managed; and
- iii) the extent to which the project management processes have established whether ADCNET meets the specifications set by, and the expectations held by, DFAT, as well as any lessons to be learnt for this and other future projects.

## Audit criteria

**1.11** The ANAO acknowledges that technical complexity and unique features have meant that ADCNET has been a high risk, but business critical, project. In recognition of the importance of appropriate management processes in projects of such nature, the ANAO assessed DFAT's performance against audit criteria based upon relevant industry and Commonwealth standards and better practice. In so doing, the ANAO was conscious that, while better practice in project management has increasingly been recognised in both the public and private sectors during the last decade, the Australian Standard 35631 "Software Quality Management Systems" was first issued in 1988 and reissued in 1991 at the same time that major ADCNET development effort was commencing.

**1.12** The audit criteria address effectiveness of project management arrangements, risk management, quality assurance, financial management, and performance assessment, and are expanded upon in Appendix 3.

## Audit methodology

**1.13** The audit team examined project documentation and deliverables where these were available; interviewed DFAT senior management and project staff; and assessed project management and control practices against recognised current public and private sector best practice and standards. The ANAO engaged Coopers & Lybrand to assist in the conduct of the audit.

**1.14** The total cost of the audit was approximately \$150,000.

## Better practice

**1.15** Better practice recognises that it is important, particularly in projects of this nature and magnitude and, risk and business criticality, that appropriate project and risk management processes are applied in a

systematic and disciplined fashion. Such processes are necessary to ensure that the project is completed on time; the project is completed within budget and quality structures set; and the developed system meets users' expectations.

**1.16** Should these objectives not be met, the likelihood is that:

- achievement of expected end user benefits and cost savings from use of the system may be substantially delayed, reduced or not achieved at all;
- significant cost overruns may be incurred to complete the project, or alternatively, a substantial investment may be written off if the development and deployment effort cannot be completed successfully; and
- the system may be implemented but not perform all required functions or meet user expectations resulting in program inefficiencies, outputs and outcomes foregone and increased costs being incurred from workarounds.

**1.17** Appendix 4 identifies better practice considerations in those aspects of IT project management addressed in this audit. The ANAO considers them to be of relevance to all significant IT projects.

## 2. Project Implementation

*This chapter describes the outcome to date of ADCNET implementation. It concludes that staff savings have been achieved. However, all planned deliverables have not been achieved within the required timeframes. In particular, 12 posts scheduled for ADCNET implementation had not been implemented by 30 June 1997 and Release 3, which includes significant security improvements, will be at least five years late. It notes that a Year 2000 compliant version of Release 1 is now required because of delays to Release 3.*

### Audit criteria

**2.1** The relevant audit criteria applicable to this chapter were that all deliverables specified were delivered in full and on time. Other chapters address quality and cost.

### Implementation outcomes

#### Required deliverables were not achieved on time

**2.2** The stage 1 Departmental Acquisition Council submission required ADCNET to be delivered to 83 posts at a rate of approximately 25 posts per year over three years from 1992-93. This schedule was amended in the staff impact statement, included in the April 1993 ADCNET stage 2 Acquisition Council report, to take into account the implementation of ADCNET stages 1 and 2 at posts at the same time.

**2.3** Installation of ADCNET was to be completed by the end of 1995-96. DFAT achieved installation of 63 sites by the target date. Two sites were installed in 1996-97 and a further two were installed in 1997-98, making a total of 67 sites installed. There was therefore a delay of approximately 18 months completing this aspect of the project. Remaining posts have yet to have ADCNET installed and are to receive a reduced version of ADCNET, as discussed below.

**2.4** The original planned 83 sites for installation has been reduced to 77 as a result of post closures and openings (a net reduction of two) and a decision not to install ADCNET in four sites due to low volume of work or change in post status. This leaves 10 sites yet to receive ADCNET.

**2.5** During the installation phase, DFAT recognised that installation of a full ADCNET version at small single A based officer posts was not cost effective. Consequently, it was decided in 1997 that an administratively simpler version of ADCNET would be developed and implemented for

these 10 remaining sites. This version would provide secure creation, receipt and storage of cables and electronic mail and is expected to reduce the cost of installation substantially from the current \$200 000-\$250 000 per post. On the evidence of three pilot sites, DFAT consider that the installation costs for the simpler version of ADCNET will average \$30 000 per site.

2.6 Work on this later version has commenced. Installation in three pilot posts is scheduled for May and June 1998. Depending on the successful outcome of the pilot exercise, installation in a further seven posts is scheduled for 1998-99, three years behind the original schedule for completion of installation.

### Staff Savings were achieved

2.7 The staff impact statement included in the April 1993 ADCNET stage 2 Acquisition Council report indicated that 50 staff positions would be withdrawn with annual savings of \$8.8 million as a result of efficiencies from the use of ADCNET. DFAT's analysis indicates that the following staff savings (Table 1) have been achieved to the end of the 1996-97 financial year.

**Table 1**  
**Staff Savings**

Year	Acquisition Council submission	Actual achieved	Variance
	\$	Staff positions	Staff positions
1991-92	0	0	1
1992-93	0	0	4
1993-94	\$1 948 000	14	12
1994-95	\$4 207 000	16	19
1995-96	\$7 133 000	15	25
1996-97	\$8 797 000	5	1
Total		50	62

2.8 The Department estimates that it has achieved \$183 000 saving per position compared with a planned \$175 940 per position. However, such a conclusion would benefit from independent verification, as well as advice by posts and work units. There was insufficient information for the ANAO to form a conclusion as to whether savings resulted solely from the use of ADCNET, or have been contributed to by other changes. Chapter 7 addresses the benefits of a more formal assessment of project outcomes.

## **Delays in project completion**

**2.9** ADCNET Release 3 will complete the project which was originally scheduled for installation commencing in 1994. Following the decision to implement stages 1 and 2 at posts at the same time, this timetable was changed to January 1996 for Canberra and March 1996 for posts. This revised schedule has not been met and Release 3 will now not be available until at least 2001, with installation in all posts not expected to be completed until 2003. Release 3 is the second and final major technical milestone, and project documentation indicates that Release 3 contains a number of significant security and other features which will enhance ADCNET's effectiveness. Realisation of benefits and outcomes from completion of ADCNET have therefore been substantially delayed by over five years. This should form part of any performance assessment undertaken (see Chapter 7).

**2.10** The ANAO notes that the delays in implementation of ADCNET Release 3 have resulted in the requirement for DFAT to ensure Release 1 is Year 2000 compliant. This was not contemplated as part of the original plans, as Release 3 would have addressed Year 2000 compliance. It will involve, among other things, a robust test regime consistent with the significant risks involved to the relevant agencies.

## **Performance assessment**

**2.11** Assessment of the outcomes of the ADCNET project is discussed further in Chapter 7.

# 3. Project Management Issues

*This chapter assesses the project management processes throughout the ADCNET project. It concludes that DEAT did not formally document the project management structure or processes and that the agreed structures were not consistently operative. Transparency of lines of accountability for some key decisions could have been improved.*

## Better practice in project management

**3.1** The management framework should ensure adequate and appropriate management at both strategic and operational levels in a project. Effective arrangements for project management are critical to providing appropriate assurance about the project investment throughout the life of the project and to ensure the project is delivered on time and to meet user requirements.

**3.2** In addressing project management as part of good corporate governance the audit criteria had regard to better practice, which would include:

- project management roles and responsibilities being clearly defined;
- baseline time and cost schedules being prepared and used by all levels of project management to monitor the project's progress;
- regular and appropriate project meetings, with appropriate action initiated for all matters raised;
- project management team members having the required authority and expertise; and
- high risk issues, project milestones and delivery of required project benefits being appropriately monitored throughout the project lifecycle.

**3.3** In this context a clear point of responsibility exists, usually in the form of a project steering committee, to:

- be accountable for the achievement of the project objectives;
- monitor progress against time and cost schedules;
- focus on the major issues affecting benefits, cost, timescales and risks;
- ensure appropriate actions are taken to address revised assessments of the benefits, cost, timescales and risks; and

- receive and assess independent information on the quality of the work undertaken by the project team and the accuracy of progress reports.

3.4 ANAO findings against these criteria are discussed below.

## Project management arrangements

3.5 DFAT advised that several project teams had defined management roles within the ADCNET project. These were:

- DFAT's IT Executive Committee to consider key IT issues with broad departmental impact;
- DFAT's Systems Policy Committee to assess IT policy issues and to monitor progress on IT initiatives;
- the ADCNET Steering Committee to monitor progress of the ADCNET project;
- the ADCNET Security Subcommittee to report to the ADCNET steering committee with responsibility for the definition and maintenance of the security policy; and
- the Configuration Control Board to control technical change management requirements including deployment at overseas posts.

3.6 The ANAO review concluded that appropriate personnel were appointed to these teams.

### **Project management structure was not formally documented**

3.7 The Prime Systems Integrator (PSI) prepared project management plans for ADCNET Phase 1 in February 1991 and Phase 2 in November 1993. These plans defined the relationship between DFAT and the PSI and were agreed by DFAT. They indicated that DFAT would perform the following project management roles:

- project authority;
- security authority;
- deputy project authority;
- quality assurance authority; and
- contract authority.

3.8 The project management plan did not define the specific tasks to be undertaken by each of these roles nor did it specify how DFAT was to manage the project.

3.9 Consistent with good practice, the ANAO would have expected DFAT to document the project management structure or processes in an ADCNET project management plan for the information and guidance of

all those involved. This did not happen. Instead, DFAT relied on the existing branch organisation structure, performance agreements for individual branch managers, workplans for sections and appointment of a full time project manager to specify the tasks to be undertaken. Good corporate governance stresses the need for strong integration of the various elements of the management framework. Some basic documentation is essential to ensure that all participants are fully aware of the various links in large and complex projects to minimise overlap and duplication on the one hand as well as preventing oversight and unnecessary risk exposure on the other.

### **Project management teams**

**3.10** The ADCNET Security Subcommittee and Configuration Control Board appear to have met regularly throughout the project and actively considered issues within their areas of responsibility. Regular project progress reports were also provided to the Systems Policy Committee and their meeting minutes indicated that project issues were discussed.

**3.11** The IT Executive Committee was established to review and address high level issues. This committee, for example, discussed the status of the PSI contract and recommendations on the architectural authority for ADCNET Release 3 which would impact on the approved levels of security it provides.

**3.12** DFAT advised that the IT Executive Committee has been involved in decisions through the life of the ADCNET project and particularly during periods when the ADCNET Steering Committee did not meet. Information conveyed to this group relied on oral reporting. Meetings/discussions, resolutions and/or decisions were not documented. The ANAO considers that a more formal and documented approach for key decisions on ADCNET would have provided more appropriate management and accountability trails to limit risk exposure as well as the necessary assurance to all stakeholders in both the decision-making process and project outcomes.

### **ADCNET Steering Committee did not meet for key project periods**

**3.13** The ADCNET Steering Committee's role included:

- coordination of the various sources of ADCNET advice in a formal committee mechanism;
- provision of oversight and broad policy decisions; and
- management of the more urgent and significant tasks required to decide the future of the project.

**3.14** The ADCNET Steering Committee would therefore be expected to provide input into all significant decisions concerning, for example, project



schedules, costs and changes to planned implementation plans. It would also be expected to make recommendations to the Systems Policy Committee where changes to schedules, costs or implementation plans were required.

**3.15** However, the ANAO's review of available Steering Committee documentation indicated that the focus of meetings was just on the technical aspects of the project, important as they undoubtedly were. The ANAO noted that the Steering Committee did not obtain timely reports on the following key areas:

- the project status;
- the project's financial status;
- achievement of project benefits, including savings in areas such as staffing that were required as part of the project funding agreement;
- delivery of outcomes; and
- management of key risk areas.

These latter areas are central to the achievement of cost effective outcomes and demonstrated accountability for performance.

**3.16** Furthermore, the ADCNET Steering Committee did not meet for significant periods of project development from October 1992 to December 1994; from April 1995 to April 1997; and from August 1997 to December 1997. From October 1992 to December 1994, for example:

- approximately 40 posts were scheduled for implementation including the initial role out of stage 1 and stage 2 of the project; and
- Release 3 was scheduled for development and then significantly delayed.

**3.17** From April 1995 to April 1997:

- savings of at least 20 staffing positions were due as part of the project;
- approximately 20 posts were scheduled for implementation, and significant implementation delays occurred;
- the requirement for the small posts ADCNET was assessed; and
- delays in the delivery of required technology occurred with a subsequent significant impact on the implementation of Release 3.

**3.18** Finally, in the period in 1997 when the Committee did not meet, the status of the Release 3 contract was the subject of business critical negotiations with the PSI.

**3.19** The ANAO concludes that a key element of DFAT's corporate governance arrangements was not operative during these periods. However, DFAT considers that alternative arrangements were in effect to

address significant aspects of the project during these periods; for example the IT Executive dealt with these matters. Nonetheless, as discussed at 3.11, such meetings were not documented which left an apparent gap in communication and knowledge of other stakeholders. Consequently there were severe limitations in the project management accountability trails for consideration of these project matters and less apparent project control, which, among other things were likely to create difficulties for strategic direction and decision-making and to increase project risks in achieving required outcomes.

### **Project team progress meetings did not always occur**

**3.20** The ADCNET project management plan stipulated that weekly progress meetings would be held with the PSI to review status of major activities, progress against the project schedule and critical issues arising during the project.

**3.21** These meetings were held each fortnight for periods of the project. However, it appears that these meetings did not occur as frequently during the period August 1992 to January 1993 during which significant development activities were undertaken. DFAT advised that these meetings had occurred, although there was no evidence that they had actually taken place. The same situation was likely to have been experienced by those not immediately involved in such meetings with the attendant corporate risks referred to earlier.

## **Conclusion**

**3.22** The ANAO concludes that project management roles and responsibilities were not always clearly defined, and were not consistently operative throughout the project. The ANAO also found that business critical decisions were not always documented, increasing the risk of management failure as well as making lines of accountability difficult to trace for stakeholder assurance.

## **Recommendation No.1**

**3.23** The ANAO recommends that project management arrangements for major projects be specified at the outset within the corporate governance framework, including regular reviews and report back requirements.

### *DFAT response*

**3.24** The Department agrees with this recommendation. DFAT considers that all parties understood their responsibilities during the ADCNET project but will consider simplifying the committee structure and other governance arrangements to ensure that reporting is effective.

## Recommendation No.2

3.25 The ANAO recommends that key decisions made, and directions set, for significant technology projects and investments be adequately and appropriately documented to provide suitable accountability to stakeholders and minimise project risks.

### *DFAT response*

3.26 The Department agrees with this recommendation. DFAT considers that all important decisions were documented but accepts that simplified governance arrangements will assist in the documentation of future technology projects.

## 4. Risk Management - An Integral Part of Corporate Governance

*This chapter assesses DFAT's risk management approach for the ADCNET project. It notes that a detailed project risk assessment was not prepared until 15 months after the project commenced and concludes that, while risk management processes were implemented for periods of time, they were not enforced throughout the project lifecycle. It also notes that there was no formal reporting of project risks.*

### Better practice in project risk management

**4.1** The need to manage risk systematically has been increasingly recognised in both the public and private sector over the last decade or so. It is now recognised as integral to good business practice and is a key part of the current APS reform agenda. "The need to manage risk systematically applies to all organisations and to all functions and activities within an organisation and should be recognised as of fundamental importance by all managers and staff in the APS" (*Guidelines for Managing Risk in the Australian Public Service*, MAB/MIAC Report No. 22 1996)

**4.2** In addressing risk management of the ADCNET project the audit criteria had regard to better practice, which would include:

- a project risk assessment undertaken to identify, assess, prioritise and agree actions required to manage high (particularly business critical) risk issues;
- risk reporting processes which ensure that risk issues are raised at the appropriate levels and forums;
- high level risks being monitored throughout the project lifecycle and the project risk assessment updated to address changing project circumstances and risk profiles; and
- appropriate project acceptance criteria clearly defined and all deliverables assessed against them.

**4.3** Appropriate project processes to achieve these risk management outcomes include:

- a formal risk assessment at the commencement of the project and updated at key milestones;
- a risk management strategy defined and agreed with the project steering committee;

- appropriate risk management activities planned to address key identified risks and be appropriately executed;
- regular review of project risks to address project changes and to ensure issues are identified at the earliest possible time; and
- close monitoring of risk management activities by the project steering committee.

**4.4** In considering these criteria the ANAO recognised that formal risk management guidelines were not available for Commonwealth Agencies until 1996.

## Risk management arrangements for ADCNET

### Risk Assessment

**4.5** DFAT advised that several risk management activities were undertaken during the ADCNET project. These included:

- a visit to the United States and the United Kingdom in November 1989 by key project team members to assess the activities these countries undertook for similar projects;
- a further overseas visit in January 1991 to assess the risks of building complex messaging systems from other similar projects in the United States, Canada and Europe;
- a post implementation visit to the Manila and Kuala Lumpur pilot sites in November 1992;
- a risk assessment for Release 3 in April 1994;
- an assessment of financial risks for Release 3 in June 1994; and
- an assessment of legal risks of Release 3 by the Attorney-General's Department in August 1994.

**4.6** A Risk Management Plan was prepared by the PSI for the ADCNET project in April 1991, although there is no evidence that this was formally accepted by DFAT. The components of this plan are set out in Figure 1.

## Figure 1

### Proposed ADCNET risk management arrangements

- A risk management team (RMT) would be formed comprising the ADCNET Project Director, Technical Manager and representatives from DFAT's Diplomatic Communications Branch
- Each project team leader would be responsible for defining how a risk will be identified.
- Risks would be assessed in accordance with the risk management plan.
- The RMT would maintain a Risk Abatement Plan.
- The RMT would examine risks from a project perspective and identify the interdependence of risks and consequences.
- The RMT would coordinate a survey of concerns and problems as perceived by the client, users and project staff.
- A risk identification form would be used.

4.7 The ANAO found that some aspects of the above risk management arrangements had been put into effect. These included:

- preparation of a Technical Risks Report in March 1992;
- ADCNET project risk was discussed in a number of communications, particularly during the period March 1992 to July 1992, which included the pilot site implementation;
- the Risk Management Team met over the period July 1992 to April 1993; and
- risk abatement plans were prepared (1 March 1993, 31 March 1993, 28 April 1993, 27 January 1994 and 15 March 1994) which appeared to address key aspects of the project.

4.8 DFAT did not, however, produce a detailed project risk assessment report until 15 months after the project commenced. Nor did DFAT ensure that project risks were regularly and formally assessed throughout the project. In addition, there is no evidence that the Release 3 risk assessments were regularly and formally reassessed and updated throughout the project lifecycle (although there is evidence that some technical issues were addressed which had previously been identified as key project risks). As noted earlier, this part of the project is essential to completion and has been subject to substantial delay. The consequences of such a delay need to be addressed.

4.9 Apart from meetings on 29 August 1995 and 18 December 1995, there is no evidence of the Risk Management Team meeting prior to February 1992 or after April 1993. Whilst assessments were prepared of technical risks for Release 3 and financial risks, it is not clear what the involvement of the risk management team was.

**4.10** The ANAO concludes that there is no evidence that risk abatement plans were developed and implemented in a timely, consistent and coordinated manner for substantial periods of the project.

#### **Formal risk reporting did not occur**

**4.11** The ANAO would expect, consistent with better practice, that formal risk assessment reports would be provided to the ADCNET Steering Committee or the Systems Policy Committee, in accordance with the roles of those committees and addressed for appropriate action. There is no evidence that this occurred. DFAT indicated that risks, and their clearance, were raised at these committees, when they met, only at the discretion of the project manager, with informal reporting of key risks. Distribution of any risk abatement plans that were prepared was limited to the risk management team members only. Accordingly, the ANAO considers that the ADCNET Steering Committee was not in a position to monitor effectively all project risks throughout the project lifecycle.

#### **Acceptance testing criteria have not always been prepared**

**4.12** The ANAO found that formal acceptance testing criteria and reports were prepared for release 1.3.10, which was released by the PSI. However, formal acceptance criteria were not always applied. For example, similar detailed documentation was not available for release 1.3.20, which was completed and tested by DFAT staff. Consistent with better practice, the ANAO considers that formal test documentation should be prepared for in-house releases in the same manner as for PSI releases.

## **Conclusion**

**4.13** The ANAO recognises that it is only in recent years that formal standards for risk management have been widely promulgated. However, best practice in managing such business critical projects has recognised for some time the importance of a structured and consistent approach to risk management, particularly for large scale complex IT projects. DFAT has commented that such arrangements are excessive and would have added significantly to the project costs. However, the ANAO considers that recognition of the benefits of such an approach would have been advantageous to ADCNET project management and been more commensurate with the levels of assurance required in a project of such significance and involving expenditure in excess of \$100 million. The ANAO considers that DFAT should seek a more formal, systematic, structured and consistent approach to risk management for all significant projects in the interest of all stakeholders as part of good corporate governance practice.

## Recommendation No.3

**4.14** The ANAO recommends that, for future projects, risk management and abatement plans be developed and consistently implemented including regular monitoring and review arrangements. Project management and corporate governance arrangements should require systematic risk approaches, including risk identification, analysis, prioritisation and regular assessment and reporting, for a more cohesive and integrated approach to effective risk management as part of a robust control structure.

### *DFAT response*

**4.15** The Department agrees with this recommendation. DFAT notes that its risk assessment procedures followed accepted practice at the time and that the few major problems which did arise had been covered by earlier risk assessments.

## Recommendation No.4

**4.16** The ANAO recommends that formal acceptance testing criteria be prepared and documented for all software releases, particularly at key decision points. Approval for the implementation of any release should be obtained from specified management authorities.

### *DFAT response*

**4.17** The Department agrees with this recommendation. DFAT has always performed thorough acceptance testing of each release of ADCNET and few significant problems have been experienced on deployment. DFAT will ensure that formal documentation of all testing is retained for future releases of ADCNET and other technology systems.



## 5. Quality Assurance

*This chapter assesses DFAT's quality assurance processes throughout the ADCNET project. It concludes that DFAT did not implement appropriate independent project quality assurance and recommends that this be done for ADCNET Release 3 and all subsequent projects of this nature and complexity.*

### Better practice quality assurance

**5.1** The requirements for appropriate and effective quality assurance are set out in internationally adopted quality standards. The Australian Standards Association, in discussing *ISO 9000-3: 1991 Quality management and quality assurance standards - Part 3: Guidelines for the application of ISO 9001 to the development, supply and maintenance of software*, notes the following:

*Software does not "wear out" and, consequently, quality activities during the design phase are of paramount importance to the final quality of the product.*

**5.2** DFAT has commented that there is no fundamental requirement in the Commonwealth for an agency to implement Quality Assurance (QA) checks through an independent authority. It considers that while there may be merit in having a second and independent opinion on QA deliverables from the project, it is by no means clear that the additional benefits over having the Project Manager undertake such responsibilities are cost justified. It has commented that this is a case where the risk needs to be assessed and managed.

**5.3** However, the ANAO notes that numerous studies of systems development activities have highlighted the cost savings to be achieved from the early identification of risk areas and immediate and appropriate management action. Independent quality assurance is regarded as a key component in this process.

**5.4** In addressing quality assurance the audit criteria therefore had regard to those standards and good practice experience. These indicate better practice would include:

- appropriate independent quality assurance throughout the project lifecycle;
- quality assurance activities highlighting project risks and monitoring risk mitigation strategies throughout the project lifecycle;

- quality assurance reports provided to the project owner and project steering committee in an appropriate and timely manner; and
- quality assurance issues discussed and actioned by the project owner and project steering committee.

## Quality assurance processes for ADCNET

### No independent project quality assurance

5.5 The PSI prepared project management plans in February 1991 and in November 1993. DFAT agreed to these project management plans, which indicated that DFAT would appoint a Quality Assurance Authority. This role was to complement the quality assurance work performed by the PSI.

5.6 DFAT did not subsequently nominate an independent Quality Assurance Authority. The ANAO was advised that DFAT intended this role to be performed by the DFAT ADCNET Project Manager. The Department believes that, with such a technically complex project as ADCNET the costs for hiring an independent QA Authority would have been significant and would not have provided demonstrable “added value” to the project. It believes that the common practice across government IT projects is not to employ independent resources to undertake QA.

5.7 In the ANAO’s view, the DFAT approach is not in accordance with good practice, which recognises that a project manager is not sufficiently independent from the project team to undertake this role with sufficient assurance to the various stakeholders. The ANAO considers that an independent QA adviser for a project of this size and complexity would have been more appropriate, particularly as it is in an area where there has not been extensive experience in the public sector. Such an approach is recognised as better practice for business critical developments on benefit/cost grounds. An independent adviser could have fulfilled many of the roles envisaged in the Project Management plans.

5.8 In the absence of independent QA arrangements, reliance was placed on the quality assurance work performed by the PSI. Again, this is not consistent with good practice with quality being assessed by the provider. Moreover, there is no evidence that issues identified by the PSI’s quality assurance were actually brought to the attention of DFAT project management. While quality assurance was initially a standard item on the PSI’s project status reports, these reports only summarised the work performed and did not highlight issues or concerns. By April 1992, quality assurance was no longer included in the PSI’s status reports. Furthermore, there was no evidence of the DFAT ADCNET project manager reporting on quality assurance activities which would be necessary for performance assessment and accountability.

## Limitations in quality assurance reporting

5.9 The ANAO found that there was no structure for ensuring that quality assurance issues were monitored and reported to DFAT management on a timely basis. In particular:

- as discussed above, there was no actual mechanism to ensure that the PSI adequately reported quality assurance issues to DFAT;
- while DFAT indicated that they had regular informal feedback on this area as part of their day to day liaison with the PSI, there is no evidence that DFAT project managers received the Prime Systems Integrator's quality assurance reports, or reviewed status reports on actions taken to address quality assurance issues; and
- there were no regular formal quality assurance reports to the ADCNET steering committee.

5.10 In the ANAO's view, the nature and extent of the project warranted greater independence in the reporting of quality assurance issues which may have impacted adversely on the ability of the project to meet user needs on time and within budget and on stakeholder assurance. Further, reporting arrangements did not provide sufficient assurance of appropriate and timely reporting of quality assurance issues and of appropriate corrective action. Future such projects would benefit greatly from quality assurance arrangements more in line with accepted better practice.

## Recommendation No.5

5.11 The ANAO recommends that independent quality assurance arrangements be established for all technology projects, including the development of ADCNET Release 3, and that quality assurance reports be monitored by senior management or by other appropriate governance arrangements.

### *DFAT response*

5.12 DFAT agrees with the recommendation with qualifications. The Department believes that any decision on independent QA should be based on cost/benefit assessment, taking account of any "added value" such independent assurance will bring to the project and the organisation. Senior management, through the governance arrangements, will monitor QA issues for the final stage of the project.

### **Internal Audit**

5.13 In the absence of alternative arrangements, some independence in quality assurance could have been provided by Internal Audit scrutiny. However, the ANAO was advised that there had been no review of

ADCNET by Internal Audit. The ANAO considers that a project of such significance and materiality, warrants consideration for coverage in a risk based internal audit program.

## **Recommendation No.6**

**5.14** The ANAO recommends that DFAT's internal audit planning ensures appropriate coverage of future projects of the size, risk and complexity of ADCNET, to complement the independent quality assurance role.

### *DFAT response*

**5.15** The Department agrees with this recommendation.

## 6. Project Financial Management

*This chapter identifies the overall outcome of the ADCNET funding process following ANAO's assessment. It concludes that the ADCNET project has been undertaken within approved funding levels. It notes that a Year 2000 compliant version of Release 1 is now required because of delays to Release 3. It also recommends that expenditure be monitored against budget throughout the project lifecycle.*

### Audit criteria

6.1 The relevant audit criteria were:

- deliverables were developed within the budget defined in the resource agreement;
- project documentation included complete and accurate records of project expenditure; and
- adequate funding is reserved for outstanding requirements.

### Project financial management outcomes

#### ADCNET financial records

6.2 It took considerable effort for DFAT to provide data to the ANAO on approved and actual ADCNET expenditure from the commencement of the project to 30 June 1997. The information provided at the commencement of the audit was revised several times during subsequent audit work as it did not agree with DFAT's financial records. In addition, DFAT were unable to provide the ANAO with an authorised copy of the ADCNET stage 1 resource agreement that it was required to negotiate with the then Department of Finance at the outset of the project. In forming an opinion on compliance with funding approvals for stage 1, the ANAO used a document provided by DFAT which we were advised was the final agreement. The ANAO concluded that DFAT's management accounting practices should be enhanced for projects of this size and complexity.

### Recommendation No.7

6.3 The ANAO recommends that DFAT ensure that comprehensive, transparent and accurate financial management assessments and reports be maintained for the remainder of the ADCNET project and for future projects.

## DFAT response

6.4 The Department agrees with this recommendation.

### ADCNET costs

6.5 On the basis of the data supplied by DFAT, funding and expenditure, actual and projected, for ADCNET are as set out in Table 2.

**Table 2**

### ADCNET expenditure

Elements	Funding available	Expenditure
Approved funding to June 1997	\$109 294 000	
Expenditure to June 1997		\$101 950 000
Balance carried over at June 1997	\$7 344 000	
Further funding to June 1999	\$10 470 000	
<b>Total available to June 1999</b>	<b>\$17 814 000</b>	
<i>Estimated costs to be incurred after 30 June 1997 to develop and deploy:</i>		
Release 3		\$10 253 000
ADCNET at 10 small posts		\$385 000
Year 2000 compliance version		\$750 000
<b>Total</b>		<b>\$11 388 000</b>
Funds available at completion of development and deployment, required for maintenance to June 1999	\$6 426 000	

6.6 As well as funding development and deployment, DFAT will also require funds to maintain ADCNET, including for ongoing software maintenance licences; asset replacement; and software functionality improvements through upgrades. DFAT has estimated that maintenance costs will average \$7.6 million per annum from 1 July 1997 to 30 June 2003, at which time DFAT plan to have converted all relevant posts to Release 3. DFAT expects that the additional funds required for maintenance will be obtained from both the extension of existing resource agreements and from running cost budgets, as has been achieved through the life of the project to date.

### Adequacy of ADCNET funding

6.7 On the basis of the above figures the funds allocated to ADCNET in 1997-98 are sufficient to complete the development and deployment of ADCNET. However, this is dependent on the adequacy of some of the remaining development estimates, as discussed below.

### Release 3 funding uncertain

**6.8** DFAT expects ADCNET Release 3 to cost \$19.8 million to develop and implement to the period ending 30 June 2003. This comprises \$9.6 million for the PSI (fixed price contract, and included in Table 2 expenditure to June 1997) and \$10.7 million DFAT costs.

**6.9** Aspects of the Release 3 technical solution require the development of additional software to replace a component which was expected to be commercially available but was withdrawn by the developer. The above estimate includes \$1 million for this development, together with a contingency of approximately 20 per cent.

**6.10** The adequacy of this contingency cannot, however, be assessed until all technical issues are resolved. Consequently, the ANAO was unable to form an opinion on the adequacy of funds reserved for Release 3.

### Recommendation No.8

**6.11** The ANAO recommends that DFAT regularly monitor project costs and expenditure for ADCNET Release 3 against budget, and update budget estimates as soon as technical and other issues impacting on costs are resolved.

#### *DFAT response*

**6.12** The Department agrees with this recommendation.

### Year 2000 Funding

**6.13** The delays in the implementation of ADCNET Release 3 have resulted in the requirement for DFAT to ensure Release 1 is Year 2000 compliant. Year 2000 compliance work for Release 1 was not contemplated when the original ADCNET plans and funding projections were calculated as Release 3 was expected to be operational by this time. As a result, there is no provision for funds for this implementation.

**6.14** DFAT were unable to provide a detailed analysis of the cost of ensuring Year 2000 compliance for Release 1 as the majority of the development work is to be performed by in-house staff within existing work programs. However, DFAT have estimated approximately \$150 000 in additional expenditure to the PSI for assistance in this effort. A project plan has been prepared which requires installation at posts through 1998 with completion by June 1999.

**6.15** Additional expenditure will be required to implement the Year 2000 compliant version of ADCNET Release 1 at all posts. DFAT estimate these costs to be approximately \$750 000, although documentation to support this estimate was not available.<sup>1</sup>

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<sup>1</sup> The Auditor-General has recently tabled Report No. 27 *Managing the Year 2000 Problem, Risk Assessment and Management in Commonwealth Agencies*.



# 7. Performance Assessment

*This chapter assesses performance assessment processes for the ADCNET project. It concludes that, although a review of the pilot implementation was conducted in 1992, a formal performance assessment has not been performed and recommends that DFAT ensure such reviews are conducted at appropriate stages for all significant projects. It notes that user input has been received from posts and an ADCNET users group, and that DFAT considers the project a substantial success.*

## Better practice

**7.1** Effective performance measurement and assessment are key contributions to cost effective use of resources to achieve required outcomes. The ANAO considers that better practice for investments in significant technology projects indicates that performance assessment be undertaken to ensure that project deliverables satisfactorily meet each of the project key criteria. For the ADCNET project these criteria are likely to include:

- communications security;
- user acceptance and level of use;
- cost-efficiency and effectiveness;
- quality;
- timely response to user requirements and technical needs;
- maintenance of installation schedules; and
- ability to evolve to meet future needs.

## A formal post implementation review has not been undertaken

**7.2** DFAT has undertaken some formal and informal reviews of the effectiveness of aspects of ADCNET. These reviews include an initial review of implementation at three pilot sites to confirm that technical requirements were met; two independent security reviews; and limited user surveys within the pilot sites and Canberra. In addition, a number of posts provided feedback after approximately six months of operation. DFAT considers this feedback has indicated high user acceptance of the ADCNET system.

**7.3** DFAT has not, however, undertaken a formal post implementation review of the overall effectiveness of the ADCNET project at this stage. (The ADCNET project manager did request that a review be undertaken. However the ANAO could find no evidence of action on the request or

reasons for inaction). Consistent with good practice, the ANAO considers that a formal post implementation review of ADCNET would have been appropriate after completion of the initial releases and installation at a number of key posts in order to assess whether:

- ADCNET performs in accordance with defined and agreed requirements;
- anticipated benefits and savings have been achieved;
- ADCNET was developed and implemented in a timely fashion and in accordance with the agreed schedules;
- project delays have significant impact and opportunity costs;
- operational problems were identified as early as possible and appropriate corrective action taken;
- project costs have been clearly identified and accounted for; and
- users satisfaction with ADCNET.

7.4 A timely post implementation review would have enabled issues identified to be addressed during the development and implementation of Release 3. It would also assist with appropriate corrective action to address issues raised, both for the project being reviewed and for future projects. In this context the ANAO notes the very considerable delay in completion of the project, with completion of Release 3 deferred now to 2003. There will be opportunity and other costs associated with this delay.

## Cost efficiency has not been reviewed

7.5 There has been no detailed review of the cost effectiveness of the ADCNET project to ensure that the solution delivered was delivered in a cost effective manner; or that on-going operation is cost effective.

## Some security issues to be actioned

7.6 DFAT has undertaken two security assessments of the ADCNET software. The first was a review by the Defence Signals Directorate (DSD) in August 1995 of the Canberra installation (but not of posts). The second review by Admiral Computing in April 1996 addressed Release 3. DFAT also advised that independent security reviews focusing on physical security are regularly performed for higher risk overseas posts by the Technical Services Section. These reviews include physical aspects of ADCNET where applicable.

7.7 Although DFAT accepted the recommendations of the DSD report, some key issues raised have not yet been addressed. For example, DSD emphasised the importance of DFAT establishing an IT security section having overall responsibility for all aspects of computer and

communications security. Because of resource consideration this section has not yet been established. Also, a number of improvements to user identification and authentication, such as lockout after a number of failed login attempts and password aging, have not yet been implemented.

**7.8** The DSD review also found that the ADCNET security policy is continuing to evolve and, to some extent, is constrained by available technology and that a significant number of the safeguard deficiencies identified by the review team can only be remedied by the introduction of Release 3 of ADCNET.

**7.9** DFAT has indicated that prior releases of ADCNET included some security functionality; interim systems are addressing risk areas identified by DSD; and enhancements to security are receiving priority in future release planning. However, as identified in the DSD review, a number of key security features will not be implemented until Release 3 of ADCNET. Release 3 was originally scheduled for installation commencing 1994. At the time of the DSD review it was expected to be implemented in 1996; it is now not due for implementation until at least 2001, with completion by 2003. The DSD review noted the increasing risk to the system should Release 3 not proceed as then planned. In the light of this, a review of the security implications of a delay in Release 3 may be warranted, and DFAT has agreed that this is desirable.

## User acceptance

**7.10** Several posts provided informal feedback and status reports approximately six months after ADCNET's implementation at that post. These reports indicate that, generally, posts are satisfied with the functions provided by ADCNET and its performance; and that it has improved the efficiency of work practices and processes at Posts and resulted in a faster, more functional and reliable communications network. Feedback to ANAO from other audit work has also identified initial user acceptance of ADCNET as a substantial improvement in work practice.

**7.11** User feedback, from these assessments and an ADCNET user group, also indicate that users believe that improvements and enhancements are required. A number of ADCNET releases have been prepared to address issues raised, however DFAT has indicated that many of the required enhancements will not be implemented until Release 3 is deployed, commencing 2001.

## DFAT consider ADCNET a success

7.12 Although there has been no formal review of ADCNET, DFAT consider that it has been a substantial success. In their view the project was “leading edge” technology at the time it was developed; other countries have struggled to put in similar networks; and the project is within budget. It is considered to have markedly changed work practices and processes and to have exceeded expected savings.

## Conclusion

7.13 The ANAO acknowledges ADCNET progress to date, the apparent user acceptance of ADCNET following the first phase of implementation, and the Department’s view that it has been a success. However, the ANAO considers that these indicators alone do not demonstrate that the project has effectively met its objectives of time, cost and quality. As described in chapter 2, Release 1 was completed behind the original schedule and Release 3 will not be completed, on current estimates, until 2003. There will be opportunity and other costs associated with such delays.

7.14 In the ANAO’s view it is better practice for significant technology investments to include a more formal performance assessment than has so far been the case for assurance of all stakeholders, particularly where the impact is widespread and crucial to successful program outcomes. This is required for effective project governance. Such a review would also enable important issues identified to be addressed before final completion of the project in 2003 while there is still scope to do something positive about them. It would also assist in identifying lessons for future management of significant technology projects. DFAT has acknowledged the benefit of such reviews after implementation of significant systems developments.

7.15 The ANAO also considers that a security review of the impact of delays in Release 3 of ADCNET may be warranted, and DFAT have agreed that this is desirable.

## Recommendation No.9

7.16 The ANAO recommends that post implementation reviews be conducted at appropriate stages of the project for all significant systems development projects. These reviews should provide assessments as to how effectively business benefits have been delivered, the project’s cost effectiveness, compliance with user requirements, user satisfaction and levels of use, as well as delivering to time, quality and budget.

### *DFAT response*

7.17 The Department agrees with this recommendation.

## Independent review of DFAT IT needs

7.18 DFAT commissioned an independent review during 1997 of the IT needs of users including, *inter alia*, how well ADCNET meets those needs. This review noted that “architectural authority for Release 3 rests with the Prime Systems Integrator and not DFAT” and commented on the risk that this opened up that the outcome may not “mirror Departmental needs of flexibility and growth.”

7.19 The review recommended that DFAT renegotiate with the PSI to transfer architectural authority for Release 3 to DFAT. In the ANAO’s view, this independent review finding is relevant to some of the project management, corporate governance and risk management issues identified in earlier chapters of this report.

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Canberra ACT  
12 May 1998



P.J. Barrett  
Auditor-General



## Part Three

# Appendices





## Appendix 1

### ADCNET objectives

The Department of Foreign Affairs and Trade (DFAT) has responsibility for the provision of a secure communications network to service the needs for secure communication by itself and other government agencies to and between posts. ADCNET was designed to replace its predecessor network, which was obsolescent and subject to unacceptable levels of risk of breakdown and susceptible to the emerging security penetration technologies.

The major objectives of ADCNET approved in 1989 by the Acquisition Council were to:

- eliminate the risk of breakdown associated with the then present network;
- improve the levels of service provided in order to meet the growing requirements of the Department and its client agencies;
- reduce the security risk associated with the then present network;
- conform with external changes in communications environments both in Australia and overseas;
- provide the essential infrastructure which will allow the Department to evolve its usage of modern information technology for the improvement of the Department's performance in policy advising and management.

A 1992 Resource Agreement between the Department of Finance and DFAT confirmed these objectives and identified the project outcomes expected with completion of the project:

- continued and extensive usage of both the formal messaging and backbone network by DFAT and Other Government Organisations (OGOs);
- an evaluation of system security by independent external evaluators to ensure system security is in accordance with DFAT's approved security policy and will protect both Australian Government and externally sourced classified information;
- further reductions in message handling and distribution time and in the amount of manual correction work;
- improvements in system availability, functionality and levels of service;
- significant improvement in the analysis, distribution, storage and retrieval of formal messages.

## Appendix 2

### DFAT posts using ADCNET

ALMATY  
AMMAN  
ANKARA  
ATHENS  
BANGKOK  
BEIJING  
BEIRUT  
BERLIN  
BONN  
BRASILIA  
BRUNEI  
BRUSSELS  
BUDAPEST  
BUENOS AIRES  
CAIRO  
CAPETOWN  
CARACAS  
COLOMBO  
DAKHA  
DAMASCUS  
DUBLIN  
GENEVA

HANOI  
HARARE  
HO CHI MINH  
HONG KONG  
HONIARA  
HONOLULU  
ISLAMABAD  
JAKARTA  
KUALA LUMPUR  
LONDON  
MADRID  
MALTA  
MANILA  
MEXICO CITY  
MOSCOW  
NAIROBI  
NEW DEHLI  
NEW YORK UN  
NOUMEA  
OTTAWA  
PARIS EMB  
PNOMH PENH

PORT MORESBY  
PORT VILA  
PRETORIA  
RANGOON  
RIYADH  
ROME  
SANTIAGO  
SEOUL  
SHANGHAI  
SINGAPORE  
STOCKHOLM  
SUVA  
TAIPEI ACIO  
TEHRAN  
TEL AVIV  
THE HAGUE  
TOKYO  
VIENNA  
VIENTIANNE  
WARSAW  
WASHINGTON  
WELLINGTON

## Appendix 3

### Audit criteria

The audit criteria were:

- a) responsibility for project management was clearly defined;
- b) regular meetings were held throughout the project and appropriate action taken on matters raised;
- c) the composition of the monitoring committee was appropriate;
- d) committee minutes and actions reflected continual monitoring of high risks, monitoring of completion dates missed and reasons, confidence that planned benefits will be provided on time and in budget;
- e) a risk assessment was undertaken;
- f) a risk reporting mechanism was in place to allow risk issues to be raised;
- g) appropriate risk monitoring and management was undertaken; and
- h) high risk issues would have go/no go parameters established to contain the risk;
- i) there was independent quality assurance on the project;
- j) quality assurance reports were delivered to the designated authority for review;
- k) quality assurance issues raised were appropriately actioned and followed up;
- l) deliverables were developed within the budget defined in the resource agreement with the then Department of Finance;
- m) all deliverables specified were actually delivered in full, that is 25 posts per year for three years;
- n) the funding reserved for Release 3 is adequate;
- o) appropriate performance measurement processes were undertaken for each of the key project criteria, including:
  - communications security;
  - user acceptance and level of use;
  - cost-efficiency;
  - timely response to user requirements and technical needs;
  - maintenance of installation schedules; and
  - ability to evolve to meet future needs.

## Appendix 4

### Better practice guide

This Appendix identifies better practice considerations in those aspects of IT project management addressed in this audit. The ANAO considers them to be of relevance to all significant IT projects.

#### Project management

Project governance refers to the framework set in place to ensure adequate and appropriate management at both strategic and operational levels in a project. Effective arrangements for project governance are critical to providing appropriate assurance about the project investment throughout the life of the project. Better practice would include:

- project management roles and responsibilities being clearly defined;
- baseline time and cost schedules being prepared and used by all levels of project management to monitor the project's progress;
- regular and appropriate project meetings, with appropriate action initiated for all matters raised;
- project management team members having the required authority and expertise; and
- high risk issues, project milestones and delivery of required project benefits being appropriately monitored throughout the project lifecycle.

In this context a clear point of responsibility, usually in the form of a project steering committee, is required to:

- be accountable for the achievement of the project objectives;
- monitor progress against time and cost schedules;
- focus on the major issues affecting benefits, cost, timescales and risks;
- ensure appropriate actions are taken to address revised assessments of the benefits, cost, timescales and risks; and
- receive and assess independent information on the quality of the work undertaken by the project team and the accuracy of progress reports.

ANAO findings against these criteria are discussed below.

#### Project risk management

The need to manage risk systematically has been increasingly recognised in recent years and is described in the Australia/New Zealand Standard for Risk Management (AS/NZS 4360: 1995) and in APS *Guidelines for Managing Risk in the Australian Public Service* MAB/MIAC Report No. 22 1996.

Systematically managing risk is integral to good business practice, is central to the APS reform agenda, and is equally important for significant technology projects.

Better practice for such projects would include:

- a project risk assessment undertaken to identify, assess, prioritise and agree actions required to manage high (particularly business critical) risk issues;
- risk reporting processes which ensure that risk issues are raised at the appropriate levels and forums;
- high level risks being monitored throughout the project lifecycle and the project risk assessment updated to address changing project circumstances and risk profiles; and
- appropriate project acceptance criteria clearly defined and all deliverables assessed against them.

Appropriate project processes to achieve these risk management outcomes include:

- a formal risk assessment at the commencement of the project and updated at key milestones;
- a risk management strategy defined and agreed with the project steering committee;
- appropriate risk management activities planned to address key identified risks and be appropriately executed;
- regular review of project risks to address project changes and to ensure issues are identified at the earliest possible time; and
- close monitoring of risk management activities by the project steering committee.

### **Quality assurance**

The requirements for appropriate and effective quality assurance are set out in internationally adopted quality standards. The Australian Standards Association, in discussing *ISO 9000-3: 1991 Quality management and quality assurance standards - Part 3: Guidelines for the application of ISO 9001 to the development, supply and maintenance of software*, notes the following:

*Software does not “wear out” and, consequently, quality activities during the design phase are of paramount importance to the final quality of the product.*

Numerous studies of systems development activities have highlighted the cost savings to be achieved from the early identification of risk areas and

immediate and appropriate management action. Independent quality assurance is regarded as a key component in this process.

Better practice quality assurance practices would include:

- appropriate independent quality assurance throughout the project lifecycle;
- quality assurance activities highlighting project risks and monitoring risk mitigation strategies throughout the project lifecycle;
- quality assurance reports provided to the project owner and project steering committee in an appropriate and timely manner; and
- quality assurance issues discussed and actioned by the project owner and project steering committee.

### **Project financial management**

Those aspects of good financial management which are of particular relevance to such projects include:

- ensuring all expenditure and deliverables are achieved within approved funding/budget;
- project documentation which includes complete and accurate records of project expenditure;
- adequate funding reserved for outstanding requirements.

### **Performance assessment**

Effective performance measurement and assessment is a key contribution to cost effective use of resources to achieve desired outcomes. The ANAO considers that better practice for investments in significant technology projects indicates that performance assessment be undertaken to ensure that project deliverables satisfactorily meet each of the project key criteria.

The timing of such assessments is dependent upon the length and size of the projects. In general, however, consistent with good practice, a formal post implementation review would be appropriate after completion of initial releases and installation in order to assess whether:

- the system performs in accordance with defined and agreed requirements;
- anticipated benefits and savings have been achieved;
- development and implementation was timely and in accordance with agreed schedules;
- operational problems were identified as early as possible and appropriate corrective action taken;

- project costs have been clearly identified and accounted for; and
- users are satisfied with outcomes.

A timely post implementation review enables issues identified to be addressed during the development and implementation of subsequent phases of a project. It also assists with appropriate corrective action to address issues raised, both for the project being reviewed and for management of future projects.

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