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Business Support Process Audit

Capitalisation of Software

Australian National Audit Office

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Australian National
Audit Office

Canberra ACT
23 June 2003

Dear Mr President
Dear Mr Speaker

The Australian National Audit Office has undertaken a business support process audit across agencies in accordance with the authority contained in the *Auditor-General Act 1997.* I present the report of this audit, and the accompanying brochure, to the Parliament. The report is titled *Capitalisation of Software.*

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

Yours sincerely

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

AUDITING FOR AUSTRALIA

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

For further information contact:
The Publications Manager
Australian National Audit Office
GPO Box 707
Canberra ACT 2601

Telephone: **(02) 6203 7505**
Fax: **(02) 6203 7519**
Email: **webmaster@anao.gov.au**

ANAO audit reports and information about the ANAO are available at our internet address:

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Audit Team
John Hawley
Peter Green

Contents

Abbreviations/Glossary

AAS	Australian Accounting Standard
Amortisation	Amortisation or depreciation is used to allocate the cost of assets over time. It is also an indicator of the rate at which the 'service potential' of assets diminishes over the useful life of the assets.
ANAO	Australian National Audit Office
Asset	An asset is any item that will provide an entity with some form of future benefit. For the purposes of this audit, assets were defined as software with a useful life of more than 12 months.
Asset Management Handbook	ANAO Better Practice Guide published in 1996 to assist asset managers to interpret and implement asset management principles.
Asset Management Plan	A plan of action linking an entity's corporate objectives with individual planning for each stage of the asset life-cycle, namely acquisition, operation and maintenance, and disposal.
Asset threshold	The minimum value for the recording and reporting of assets in the financial statements.
CAC Act	*Commonwealth Authorities and Companies Act 1997*
Capital use charge	The cost of capital as applied to an entity's net assets (equity). A capital use charge was implemented by the Department of Finance and Administration in conjunction with accrual budgeting from 1999–2000. The charge will be discontinued from 1 July 2003.
CEIs	Chief Executive's Instructions
Depreciation	Depreciation is 'an expense recognised systematically for the purpose of allocating the depreciable amount of a depreciable asset over its useful life.' (Australian Accounting Standard AAS 4 *Depreciation*, paragraph 14.1).

Finance Minister's Orders (FMOs)	In the context of this audit, Orders issued by the Minister for Finance and Administration under the *Financial Management and Accountability Act 1997* and the *Commonwealth Authorities and Companies Act 1997* outlining the requirements and guidance for the preparation of financial statements of Commonwealth entities. A new set of Orders is usually issued for each reporting year. References to the FMOs in this report relate to the financial year ended 30 June 2002. Finance Minister's Orders may also be issued for other purposes.
FMA Act	*Financial Management and Accountability Act 1997*
Gross book value	The original cost or updated valuation of an asset.
Impairment losses	Impairment losses represent reductions in the future economic benefits of software assets that can occur due to physical damage, a rise in obsolescence and a significant change in the asset's market value.
Intangible asset	An identifiable non-monetary asset without physical substance held for use in the production or supply of services or for administrative purposes.[1]
Intellectual property	Intellectual property includes all copyright (including rights in relation to phonograms and broadcasts), all rights in relation to inventions (including patent rights), plant varieties, registered and unregistered trademarks (including service marks), registered designs, circuit layouts, and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.[2]
Internal audit	An independent, objective assurance and advisory activity designed to add value and improve an entity's operations. It helps an entity accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes (definition as approved by the Board of Directors of the Institute of Internal Auditors in June 1999).

[1] International Accounting Standards Committee Board, International Accounting Standard 38—*Intangible Assets*, July 1998.

[2] Barrett, Pat (Auditor-General for Australia), *Management of Intellectual Property in the Public Sector* Presentation at Australian Government Solicitor Seminar on 26 February 2002.

Internal control framework	Management's philosophy and operating style, and all the policies and procedures adopted by management to assist in achieving the entity's objectives. It comprises the interrelated components of risk assessment, control environment, control activities, monitoring and review processes, and information and communication processes.
IT	information technology
Net book value (NBV)	The original cost or updated valuation of the asset, less accumulated depreciation to date. The net book value reduces over the life of the asset, reducing to zero or the residual value at the end of the estimated useful life of the asset.
Software	Computer software is the general term used for various kinds of programs that operate computers and related devices.
Sound and better practices	Business practices, which, if adopted, would strengthen the internal control framework and lead to improved effectiveness and efficiency of outputs and outcomes.
Useful life	The estimated period of time over which a depreciable asset is expected to be used, or the benefits represented by the asset are expected to be derived.
Valuation	The value applied to software assets in the financial statements of entities.
Write-off	The retirement of assets that are no longer in operation, are lost or damaged.

Summary and Recommendations

Summary

Background

1. Computer software is the general term used for various kinds of programs that operate computers and related devices. Software is generally divided into application programs—programs that users directly interact with to do a particular job, and operating systems—programs required to support application software.

2. Application software includes both packaged software, such as accounting and human resource systems, and in-house developed software, such as social security, tax collection and healthcare systems. In-house developed systems tend to be built for a unique purpose only when the general packaged market cannot supply such items. Other categories of software commonly used in the application environment include office support packages for word processing and spreadsheets and communication services such as email and Internet browsers.

3. The Commonwealth's use of computer software permeates every aspect of daily business from email to accounting and payroll. It is pervasive in the delivery of services by all entities and is rapidly changing the way the public interacts with entities through the ongoing growth of Internet enabled services. Software is now part of the core infrastructure in all government entities.

4. At 30 June 2002, the Commonwealth's computer software assets were valued at more than $2.9 billion, not including software assets under development of $645 million.[3] This total investment relates to software that is purchased off-the-shelf, or developed internally and externally to meet an entity's specific needs.

5. The treatment of the costs associated with computer software in financial statements can be an important management and accounting issue for entities. Commonwealth public sector accounting and budgeting policies, provided through Finance Minister's Orders (FMOs),[4] require software costs to be either:

- *capitalised* as an asset on the basis that the costs result in a future economic benefit to the entity and the cost of the asset can be reliably measured; or

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[3] Consolidated Financial Statements of the Commonwealth for the year ended 30 June 2002.

[4] Reporting requirements are set by the Finance Minister in Orders under the powers given to the Minister by the FMA Act and CAC Act. Formally, the 2001–2002 requirements were set out in a Schedule (Schedule 1) common to both the Financial Management and Accountability (Financial Statements 2001–2002) Orders and the Commonwealth Authorities and Companies (Financial Statements 2001–2002) Orders.

- *expensed* in the year in which they are incurred.

6. The extent to which software costs can be capitalised also provides some implicit measurement of the extent to which expenditure has been a sound investment of public money.

Audit objectives and coverage

7. The objectives of the audit were to:

- determine whether selected entities have established effective internal control frameworks for the capitalisation of externally acquired and internally developed software;
- assess whether software costs are capitalised in accordance with organisational policy, accounting standards and relevant legislation; and
- identify sound and better practices in the capitalisation of software.

8. The audit focussed on current software capitalisation processes and ongoing software projects within the selected entities. The audit did not cover, in detail, the intellectual policy issues of software acquisition and development.

9. The audit was undertaken in four Commonwealth entities, as follows:

- Australian Bureau of Statistics;
- Australian Electoral Commission;
- Australian Quarantine and Inspection Service; and
- Centrelink.

Audit conclusion

10. The ANAO concluded that most of the entities had established internal control frameworks and mechanisms that effectively addressed software capitalisation control risks and supported the identification and capitalisation of software costs, in accordance with internal policy, accounting standards and Commonwealth Government financial reporting requirements.

11. Most audited entities recognised the importance of a life-cycle approach to asset management and some had instigated internal reviews of their asset management frameworks. The ANAO concluded that asset management and planning could be improved by linking formal asset management plans to accounting policies and practices so that sufficient funds are available for assets to be replaced once they reach the end of their useful lives.

12. Most entities had adequately documented policies and procedures in place that addressed software capitalisation but these required amendment, to varying degrees, to address revisions to, or specific requirements of, the accounting standards and FMOs.

13. While the approach to identifying and capitalising software costs differed across the entities, the ANAO concluded that, generally, the approaches adopted were within the framework provided by accounting standards and the FMOs. There were some instances, however, where entities had failed to comply with particular elements of the framework.

Key audit findings

Risk assessment

14. Three entities had completed organisational-level risk assessments and established risk management policies, plans and guidelines. The remaining entity was in the process of establishing sound risk management policies, plans and guidelines.

15. Most entities had considered risks related to software development and acquisition on a project basis during the development of the project's business case and planning process, although none had specifically considered risks to the appropriate identification and protection of intellectual property.

Control environment

16. Although most entities had established reasonably comprehensive policies, procedures and guidelines for the capitalisation of software, all entities could improve their policies by incorporating specific FMO and accounting requirements. One entity's practices were not consistent with the accounting polices reflected in its financial statements.

17. One entity's software related policies and guidelines incorporated intellectual property issues, and two entities had initiated reviews to consider intellectual property issues and develop intellectual property strategies and registers.

18. None of the entities had established asset management plans. As a result, there was no formalised link between the entities' accounting policies, which include the determination of amortisation rates and funding for software assets, and plans for future software asset acquisition or replacement.

Control activities

19. The ANAO found that, while most of the audited entities had established mechanisms that addressed software capitalisation control risks, the arrangements for reviewing and reconciling software capitalisation costing information to the time recording system in two entities could be improved to provide additional assurance on the accuracy of the data. In most entities, robust arrangements were not evident to ensure that timely information was provided to the finance area on software assets that became operational or were ready for use so that they could be accounted for appropriately.

20. The approach to accounting for software assets was not always consistent with standard accounting practice or commonly accepted practice in Commonwealth entities.

Information and communication

21. The ANAO found generally that all entities had suitable information and communication processes in place, which involved the information technology and finance areas, as well as senior management and relevant stakeholders.

Monitoring and review

22. The ANAO considers that, while monitoring and review arrangements in the entities were generally satisfactory and well established, only two entities had formal requirements in place for post-implementation reviews of significant software projects.

Sound and better practices

23. In undertaking the audit, the ANAO observed examples of sound and better practices in the software capitalisation arrangements adopted by the entities audited. A summary of the sound and better practices is provided in Table 1.

Table 1

Examples of sound and better practices in software capitalisation arrangements observed by the ANAO during the audit

Risk assessment	• Business cases and the project management framework for software projects incorporated risk assessment and management. • 'Off-the-shelf' software applications were tested in the entity's IT environment to develop a list of approved software applications for use within the entity.
Control environment	• Documented software polices and procedures were based on an asset life-cycle approach. The policies were directed at relevant stakeholders and incorporated detailed FMO requirements, delegated responsibilities, time recording procedures and capitalisation requirements. • Annual reviews of recorded software assets were undertaken to identify software assets no longer in use.
Control activities	• IT contractor costs recorded in the general ledger were regularly reconciled to those in the time recording system.
Information and communication	• Comprehensive templates were used to assist in the performance assessment of software projects at the planning, approval and assessment stages. • Formal processes were in place to ensure regular communication between IT and finance functions. • Membership on committees included senior management and appropriate stakeholders. • Asset and software policies, procedures and information were available on entity's intranets.
Monitoring and review	• Management and executive committees were responsible for the ongoing monitoring and review of software projects. • Management and executive committees regularly reviewed the progress of software projects. • Post-implementation reviews were undertaken for significant software projects. • Standard templates were used to report progress on individual software projects as well for the results of post-implementation reviews. • Internal audit was involved in project steering committees for significant projects. • IT development area obtained Quality Certification under AS/NZ ISO 9001:2000.[5]

[5] Standards Australia, Australian/New Zealand Standard AS/NZ ISO 9001:2000: *Quality management systems—Requirements*, 15 December 2000. One entity advised that it had considered AS/NZ ISO 9001:2002 in the past but had not been confident that the benefits would justify the costs involved.

Recommendations

The recommendations set out below are based on the findings from the entities reviewed but may have relevance to other Commonwealth entities.

Risk assessment

Recommendation No.1 Para 3.18

The ANAO recommends that entities:

- assess risks in relation to software development and acquisition, and specifically software capitalisation, including intellectual property issues, as part of the business project planning phases; and
- establish suitable processes to monitor those risks throughout the software project.

Control environment

Recommendation No.2 Para 4.40

The ANAO recommends that entities:

- develop clear policies, procedures and guidelines for software assets that reflect the requirements of the Finance Minister's Orders and incorporate appropriate guidance on intellectual property;
- ensure that the useful lives of software assets are reviewed at least annually to meet accounting standard requirements and ensure they reflect factors such as asset usage and the rate of technical obsolescence; and
- review capitalisation thresholds to ensure that accounting policies and practices are consistent.

Recommendation No.3 Para 4.41

The ANAO recommends that entities develop asset management plans, which incorporate software assets, and are based on an asset life-cycle approach.

Control activities

Recommendation No.4 Para 5.29

The ANAO recommends that entities:

- establish adequate processes to inform the finance area on a timely basis when software assets become operational, or ready for use, to ensure amortisation commences;
- capture project management and operational staff time for specific software projects; and
- improve the controls over the accuracy of capitalised software costs by, either routinely reviewing the data manually extracted from the time recording system, or enhancing the functionality of the system to automatically produce the required data.

Information and communication

Recommendation No.5 Para 6.11

The ANAO recommends that entities ensure appropriate arrangements are established for regular communication between the IT and finance areas to enhance understanding of the roles and responsibilities of each area, particularly on accounting issues.

Monitoring and review

Recommendation No.6 Para 7.21

The ANAO recommends that entities:

- ensure that decisions taken by senior management committees responsible for software projects are appropriately documented and actioned; and
- undertake post-implementation reviews for significant software projects, which incorporate software capitalisation issues, and report the results to appropriate management committees.

Responses to the recommendations by entities included in the audit

24. Each of the audited entities agreed with the recommendations.

25. A similar grouping of recommendations was made in a detailed report to each of the entities. The recommendations varied according to the adequacy of

the individual control framework operating within the entity. A number of the entities indicated that remedial action had been undertaken before the audit was completed.

Audit Findings and Conclusions

1. Introduction

Background

1.1 Computer software is the general term used for various kinds of programs that operate computers and related devices. Software is generally divided into application programs—programs that users directly interact with to do a particular job, and operating systems—programs required to support application software.

1.2 Application software includes both packaged software such as accounting and human resource systems and in-house developed software, such as social security, tax collection and healthcare systems. In-house developed systems tend to be built for a unique purpose only when the general packaged market cannot supply such items. Other categories of software commonly used in the application environment include office support packages for word processing and spreadsheets and communication services such as email and Internet browsers.

1.3 The Commonwealth's use of computer software permeates every aspect of daily business from email to accounting and payroll. It is pervasive in the delivery of services by all entities and is rapidly changing the way the public interacts with entities through the ongoing growth of Internet enabled services. Software is now part of the core infrastructure in all government entities and businesses.

1.4 At 30 June 2002, the Commonwealth's computer software assets were valued at more than $2.99 billion.[6] There was also a further $645 million of software assets under development. This total investment relates to software that is purchased off-the-shelf, or developed internally and externally to meet an entity's specific needs.

1.5 The value of software assets has increased from $1.9 billion in 1999[7] and reflects an increased dependence on information technology (IT) solutions within the Commonwealth, which is consistent with public sector and business trends internationally.

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[6] Consolidated Financial Statements of the Commonwealth for the year ended 30 June 2002.

[7] Consolidated Financial Statements of the Commonwealth for the years ended 30 June 1999, 2000, 2001 showed the value of software assets as $1.9 billion, $2.4 billion and $2.7 billion respectively.

Software asset management

1.6 The management of software assets should be based on a life-cycle approach that includes acquisition, replacement, operation, enhancement and disposal. Such an approach should include policies and procedures that ensure:

- expenditure on software is appropriately controlled and only accounted for in accordance with relevant accounting standards and Commonwealth Government guidance;
- adequate funds are in place when required to replace or enhance software assets; and
- software costs are captured, and accounted for, in accordance with the Finance Minister's Orders (FMOs)[8] and relevant accounting standard requirements.

Treatment of software costs

1.7 The treatment of the costs associated with computer software in financial statements can be an important management and accounting issue for entities. FMOs require that software costs must be either:

- *capitalised* as an asset on the basis that the costs result in a future economic benefit to the entity and the cost of the asset can be reliably measured; or
- *expensed* in the year that they are incurred.

1.8 The extent to which software costs can be capitalised also provides some implicit measurement of the extent to which expenditure has been a sound investment of public money.

Previous reviews of asset management/software assets

1.9 The ANAO has previously reported two audits on asset management in June 1996[9] and April 1998.[10] Both audits dealt principally with physical assets but Report 41 noted that '... intangible assets are of growing significance and worthy of a separate audit in the future'.[11]

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[8] 'Finance Minister's Orders' is the widely used term for a document entitled *Requirements and Guidance for the Preparation of Financial Statements of Commonwealth Agencies and Authorities*. The document provides a set of accounting and budgeting policies to be applied across the Commonwealth.

[9] ANAO Audit Report No.27 1995–1996, *Asset Management*.

[10] ANAO Audit Report No.41 1997–1998, *Asset Management*.

[11] ibid, p. 2.

1.10 In the 1996 audit, the ANAO found that there was significant scope for improvement in most entities through the adoption of a strategic approach to asset management. The ANAO made six specific recommendations directed to achieving this end and published an Asset Management Handbook based on strategic asset management principles and approaches.

1.11 The 1998 audit found that minimal progress had been made by most entities since the issue of the 1996 audit report, and that more would need to be done with the introduction of accrual budgeting, a capital use charge and insurance arrangements from 1999 for better asset management to be achieved.

1.12 Additionally, the Joint Committee of Public Accounts and Audit (JCPAA) completed an inquiry into asset management, Report 363 *Asset Management by Commonwealth Agencies* in mid 1998. The Committee concluded that there were further opportunities for improving asset management mainly through the raising of awareness of the importance of good asset management.

1.13 In undertaking financial statement audits of major Commonwealth entities, the ANAO has identified and reported a number of issues relating to software assets. Recently these have included:

- failure to regularly perform end of month procedures;[12] and
- lack of appropriate systems in place to determine the costs of software development projects.[13]

Audit objectives and scope

1.14 The objectives of the audit were to:

- determine whether selected entities have established effective internal control frameworks for the capitalisation of externally acquired and internally developed software;
- assess whether software costs are capitalised in accordance with organisational policy, relevant accounting standards, FMOs and relevant legislation; and
- identify sound and better practices in the capitalisation of software.

1.15 The scope of the audit included:

- the identification of the arrangements in place to capitalise internally developed and externally acquired software;

[12] ANAO Audit Report No.29 2001–2002 *Audits of the Financial Statements of Commonwealth entities for period ended 30 June 2001.*

[13] ANAO Audit Report No.25 2002–2003 *Audits of the Financial Statements of Commonwealth entities for period ended 30 June 2002.*

- the policies and procedures associated with software capitalisation and valuation;
- the processes and controls in place to ensure that internally developed and externally acquired software costs are capitalised appropriately, and accounted for and disclosed correctly in financial statements; and
- the identification and application of sound and better practice principles, where appropriate.

1.16 For the purposes of the audit, the capitalisation of software was considered to cover all aspects of the arrangements in place to ensure that entities:

- controlled and captured all information on the costs of externally acquired and internally developed software;
- collated the information appropriately; and
- capitalised costs and established valuation and amortisation policies in accordance with relevant Government guidance and relevant accounting standards.

1.17 The audit focussed on current software capitalisation processes and ongoing software projects within the selected entities. In undertaking the audit, the ANAO applied the requirements of the current Australian Accounting Standards and FMOs, as detailed in Chapter 2.

1.18 The audit did not cover the issue of intellectual property in software development in detail as the subject is being examined as part of a performance audit currently in progress.

Audit approach

1.19 The audit made use of audit work undertaken by internal audit and financial statement audit where that work was relevant to the audit objectives.

1.20 The audit was undertaken at four Commonwealth entities subject to the *Financial Management and Accountability Act 1997* (FMA Act). Information on the number of employees, annual operating revenue and net book value of non-current assets of each of the entities is outlined at Table 2.

Table 2
Audited entities' financial information: 2001–2002

Entity	Number of employees[14]	Approximate revenue ($ million)	Net book value of non-current assets ($ million)[2]
Australian Bureau of Statistics	3 550	375	128
Australian Electoral Commission	807	152	19
Australian Quarantine and Inspection Service	2 251	241	22
Centrelink	22 488	1 854	326

Source: Entities' financial statements for the year ended 30 June 2002.

1.21 An overview of the 2001–2002 financial data relating to the capitalisation of software for each of the audited entities is shown at Table 3.

Table 3
Audited entities' software capitalisation activity: 2001–2002

Entity	Net book value of internally developed software ($'000)	Net book value of purchased software ($'000)	Software assets under construction ($'000)
Australian Bureau of Statistics	61 302	4 146	8 977
Australian Electoral Commission	9 625	157	-
Australian Quarantine and Inspection Service	6 326	57	-
Centrelink	87 345	54 312	52 356

Source: ANAO based on entity data.

Audit criteria

1.22 The audit is one in a series of audits looking at business and financial processes in the Commonwealth. The criteria for these audits have been based on the internal control framework detailed in the ANAO's *Better Practice Guide to Effective Control*[16] and consist of:

- risk assessment;
- control environment;
- control activities;
- information and communication; and

[14] Average staffing level for the year ended 30 June 2002 from the entities' financial statements.

[15] Non-current assets includes property, plant, equipment and intangibles.

[16] *Better Practice Guide to Effective Control, Control Structures in the Commonwealth Public Sector: Controlling Performance and Outcomes,* 1997.

- monitoring and review.

1.23 The internal control framework can be described as follows:

> The control environment is the foundation for the effectiveness of all the other components. It reflects management's commitment and attitude to establishing an effective control structure. It is sometimes referred to as the 'tone at the top' and is dependent on firm leadership and clarity of direction from the governing body.
>
> Risk assessment and control activities include the identification, analysis and assessment of risks to achieving objectives and the design of control policies and procedures to manage those risks, focussing on those that have potential for more significant exposures and are critical to the business.
>
> Regular and relevant information needs to be collected and communicated to enable performance to be monitored and reviewed. The effectiveness of the control structure also requires on-going monitoring and review.[17]

Detailed criteria

1.24 The above criteria have been adapted and expanded to take account of the varied risks, operations and processes in relation to the capitalisation of software. Development of the criteria also incorporated consideration of sound and better practice in the capitalisation of software.

1.25 Detailed audit criteria for each of the components of the internal control framework against which each selected entity's capitalisation of software was assessed, is shown at the start of each chapter of the report.

Audit methodology

1.26 The audit methodology involved interviews with selected officers, the examination of documentation and records supporting the capitalisation of software, and general observation and inspection.

1.27 The ANAO provided each entity reviewed with a management report on the audit, which included a number of detailed and specific recommendations relevant to the particular entity.

1.28 KPMG undertook the audit for the ANAO on a contract-managed basis, in accordance with ANAO auditing standards. The audit cost approximately $291 000.

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[17] ibid.

Structure of the remainder of the audit report

1.29 Chapter 2 sets out the relevant accounting framework in respect of the capitalisation of software costs. Chapters 3–7 discuss the findings and recommendations of the audit against each component of the internal control framework.

1.30 The ANAO's observations are presented in two categories:

- ***Audit findings*** which detail control weaknesses contributing to a breakdown in both efficiency and effectiveness in the internal control framework; and
- ***Sound and better practices***, which, if adopted, would strengthen the internal control framework and lead to improved effectiveness and efficiency of the capitalisation of software.

2. Accounting for Software

Introduction

2.1 Commonwealth entities are expected to account for software costs in accordance with the requirements of Australian Accounting Standards and the accounting and reporting requirements set by the Finance Minister.[18]

Accounting Standards

Australian Accounting Standards[19]

2.2 There is currently no Australian Accounting Standard that comprehensively addresses the accounting treatment and disclosure requirements relating to intangible assets. Accounting for software is subject to a number of standards including:

- AAS 4—*Depreciation*.
  While software assets are subject to the requirements of AAS4 *Depreciation*, the term amortisation is often used in relation to intangible assets, which generally includes software assets. Both depreciation and amortisation have the same meaning, in that they represent the expense recognised systematically for the purpose of allocating the depreciable amount of a depreciable asset over its useful life.[20] The term amortisation is used in this report.
- AAS 13—*Accounting for Research and Development Costs*;
- AAS 21—*Acquisitions of Assets*;
- AASB 1041—*Revaluation of Non-current Assets*; and
- AAS 29—*Financial Reporting by Government Departments*.

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[18] Reporting requirements are set by the Finance Minister in Orders under the powers given to the Minister by the FMA Act and CAC Act. Formally, the 2001–2002 requirements were set out in a Schedule (Schedule 1) common to both the Financial Management and Accountability (Financial Statements 2001–2002) Orders and the Commonwealth Authorities and Companies (Financial Statements 2001–2002) Orders.

[19] The Australian Accounting Standards are set and modified on an ongoing basis by the Australian Accounting Standards Board (AASB). The standards comprise *AASB Accounting Standards* (AASBs) and *Australian Accounting Standards* (AASs). Prior to 1 January 2000, the AASBs applied to entities regulated under companies legislation and the AASs applied to all other types of entities. AASBs issued from 2000 onwards apply to all reporting entities, unless the scope of a particular standard is specifically narrowed or broadened. The AAS series continue to apply to non-company entities but will be phased out over time.

[20] Australian Accounting Standards Board, AAS4 *Depreciation*, August 1997.

International Accounting Standards

2.3 International Accounting Standard (IAS) 38 *Intangible Assets* sets out accounting and reporting requirements for intangible assets, including software. An exercise to harmonise Australian Accounting Standards with International Accounting Standards is currently in progress.

2.4 The private sector will be required to implement the new standards for reporting periods beginning on, or after, 1 January 2005. The implications and possible adoption period for Commonwealth entities is currently being assessed by the Department of Finance and Administration, although it is likely that it will directly impact on the accounting and reporting of software.

Finance Minister's Orders

2.5 Commonwealth entities are required to comply with mandatory policy and schedules of the FMOs, which are designed to promote consistency across entities.

2.6 The FMOs are updated on an annual basis and:

- cover issues not dealt with in Australian Accounting Standards or legislation;
- specify the preferred alternative(s) when the standards or legislation permit choice; and
- clarify any ambiguity in the standards or legislation.[21]

2.7 Incorporated in the FMOs are explanatory notes and guidance designed to assist in their interpretation.

2.8 In undertaking the audit, the ANAO applied the requirements of the relevant FMOs, which for the financial years ending on or after 30 June 2002 were FMO Clause 13 *Software* (FMO 13) and FMO Clause 16 *Analysis of Property, Plant and Equipment, and Intangibles* (FMO 16).[22]

FMO 13

2.9 FMO 13[23] specifically addresses the treatment of software and states:

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[21] Commonwealth of Australia, Department of Finance and Administration, *Requirements and Guidance for the Preparation of Financial Statements of Commonwealth Agencies and Authorities*, Financial years ending on or after 30 June 2002.

[22] FMOs for financial years ending on or after 30 June 2003 were being finalised at the time of the audit.

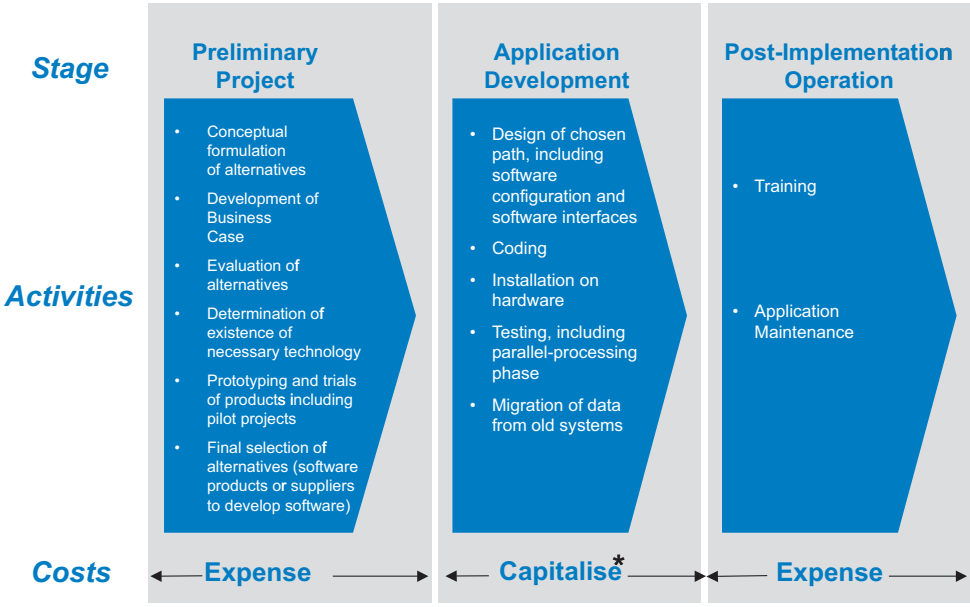
[23] FMO 13 refers readers to International Accounting Standard 38 *Intangible Assets* that sets out accounting and reporting requirements that relate to software assets on the adoption of the harmonised standards.

Internally developed and externally acquired computer software for internal use must initially be recognised and, where applicable, capitalised at the cost of development or acquisition.

After initial recognition internally developed software should be carried at its cost less any accumulated amortisation and any accumulated impairment losses. The capitalised costs (or revalued amounts) of development or acquisition must be amortised over the useful life of the software.

2.10 The explanatory notes set out the three main stages of software development, the typical activities in these stages, and the costs that should be capitalised and expensed. This is represented diagrammatically at Figure 1 below.

Figure 1
Explanatory notes to FMO 13 (for financial year ending on or after 30 June 2002)



*Excluding general and administrative costs

Source: Summarised from explanatory notes (13.1.2 to 13.1.19) to FMO 13 and ANAO Analysis.

2.11 FMO 13's explanatory notes also provide guidance on amortisation and software classification as follows:

- *Amortisation*—In determining and periodically reassessing the estimated useful life over which the costs incurred for internal-use computer software will be amortised, entities should consider the effects of obsolescence, technology, competition and other economic factors. Consideration should also be given to whether management intends to promptly replace technologically inferior software or hardware.

- ***Classification of software***—Judgement may be required in determining whether software should be classified as an intangible asset or as part of property, plant and equipment. Where software is an integral part of associated hardware, either in a physical or practical sense, it should be classified as part of property, plant and equipment. Otherwise, the software should be classified as an intangible asset (refer International Accounting Standard 38 'Intangible Assets').

2.12 Where the cost of internal use software is capitalised, the Finance Minister has, since 2001–2002, required that the software be reported at historical cost less accumulated depreciation and impairment losses.[24] Prior to 2001–2002, entities had the option of accounting for software on either an historical cost or a valuation basis. Under transitional arrangements for the introduction of a revised accounting standard AASB 1041 *Revaluation of non-current assets*, reporting entities could move from a valuation basis to a cost basis either by:

- determining what the amortised historical cost would have been if the asset had been accounted for on a cost basis since acquisition; or
- deeming the carrying amount at 30 June 2001, as reported in the financial statements, to be cost.

FMO 16

2.13 FMO 16 sets out how entities should present information on property, plant, equipment and intangibles in the notes to their financial statements.

Disclosure requirements

2.14 The financial statements of Commonwealth entities must disclose, where material:

- the accounting policies employed in relation to accounting for software;
- the carrying amount (gross amount less accumulated amortisation) of software assets;
- the useful lives and amortisation expense for the year; and
- movements in the carrying amount of software during the year.

[24] Impairment losses represent reductions in the future economic benefits of software assets that can occur due to physical damage, a rise in obsolescence, and a significant change in the asset's market value.

2.15 Those software development costs that are expensed are not usually identified separately in financial statements because, typically, expenses are reported by nature (for example, employee expenses) rather than by function (for example, software development).

Commonwealth financial framework

Accrual budgeting

2.16 The accrual budgeting framework was introduced from 1999–2000 and included the following financial management and reporting changes:

- implementation of outputs and outcomes reporting;
- introduction of full accrual budgeting; and
- the devolvement of budget estimates formulation, financial management and transactional banking to Commonwealth entities.

2.17 While entities and authorities had been reporting on an accrual basis for a number of years, 1999–2000 was the first year in which they were required to budget and manage on that basis. One of the aims of the Commonwealth financial framework was to encourage entities to actively manage their total resource base. For this reason, they are currently funded for the full cost of their outputs, including asset depreciation or amortisation for intangible assets.

2.18 The funding of depreciation and amortisation costs is designed to provide Commonwealth entities with funds for asset investment, development and replacement. This requires entities to establish financial and asset management arrangements that extend beyond an annual planning phase and ensure that funding for depreciation is appropriately applied to the entity's asset base. Where robust arrangements and asset management strategies are not in place, entities are exposed to the risk that they may not have sufficient funds to replace, or upgrade, software and other assets when required.

2.19 In reviewing the Commonwealth budget estimates and financial framework, the Department of the Treasury and the Department of Finance and Administration have identified a number of amendments to the current arrangements. The ANAO understands that these changes will be implemented over an agreed timeframe and will eventually include:

- the discontinuation of the Agency Banking Incentive Scheme and changes to the approach to cash draw-downs by relevant Commonwealth entities; and
- confirmation of the continuation of the capital budgeting arrangements currently in place, and specifically the requirement that business cases are submitted to support new policy proposals for capital funding.

3. Risk Assessment

Introduction

3.1 The design of appropriate and cost-effective controls should be based on an assessment of risks within an organisation and its business processes. A sound risk assessment also ensures that the responsibility for managing the identified risks is appropriately allocated within the entity on the basis of relevant skills, accountability and authority.

3.2 To ensure that the entity's control framework and related activity are designed to minimise and mitigate the impact of identified risks, risk assessments should be conducted at:

- organisational-level; and
- process level.

Organisational-level risk assessment

3.3 Organisational-level risk assessment is the assessment of risks facing the entity, in terms of their relative impact on the entity's ability to achieve its outcomes and outputs efficiently and effectively. Risk management activities at the organisational level generally commence with a risk assessment that involves:

- formally identifying risks across the range of organisational activity;
- evaluating the identified risks based on the likelihood that the event will occur and the potential impact on the entity's activities and functions; and
- determining any strategies, controls and resources to be applied to address the evaluated risks.

3.4 The organisational-level risk assessment generally provides management with the necessary knowledge and understanding to manage risks and the tools. Further development of risk assessment of specific projects is required to fully understand the control requirements.

Process-level risk assessment

3.5 Process-level risk assessments are the basis for subsequent design of the control environment, specific control activities, information and communication processes, and monitoring and review procedures. Process-level risk assessments can lead to enhanced control structures, the detection of control weaknesses, prevention of control breakdown, and increased operational efficiency.

3.6 The capitalisation of software is a component of an entity's overall arrangements for the management of software and IT, and the associated financial management and reporting issues. The ANAO expected that assessments of risks related to the capitalisation of software would not be undertaken separately but may be integrated with risk assessments for software projects.

Audit findings and comments

3.7 Table 4 summarises the relevant principle and audit evaluation criteria, which were used to examine an entity's risk assessments.

Table 4
Risk assessment

Principle	Management effectively uses risk assessments to identify, assess and manage the risks associated with software purchase, development and capitalisation.
Audit evaluation criteria	Entities would be expected to have undertaken risk assessments of their business operations. The reliance on computer software and its importance in allowing entities to deliver their outcomes, outputs and business objectives would have been incorporated in the risk assessments. The assessments should incorporate potential intellectual property issues in respect of the acquisition and development of computer software. Specifically, the assessments would identify the risks associated with internally developed versus externally acquired software, such as project overruns and over-capitalisation.

3.8 The ANAO reviewed the audited entities' approach to assessing risk across the entity in order to provide a context for risk assessment of software and software capitalisation at the operational or process-level.

3.9 Three entities had undertaken an organisational-level risk assessment and had documented risk management plans and policies. The remaining entity was in the process of establishing a risk management policy, plan and guidelines.

3.10 Although none of the audited entities considered software capitalisation specifically as part of the organisational-level risk assessment, two entities had considered other software related risks such as information security and system failure. The entities generally considered that they had established processes to manage the risks associated with software.

3.11 The assessment and management of software risks was evident at the process-level on a project-by-project basis. Three entities required specific risk assessments to be undertaken as part of the business case for individual software projects. In these entities, the business case formed a central part of the entity's project management framework, which was set out in detailed procedures and guidelines. The guidelines detailed the approach to be adopted in undertaking and documenting a project risk assessment.

3.12 Two entities had developed standard business case templates, which included the risk areas to be considered, such as:

- risk to existing business if project does not proceed;
- loss of business opportunity if the project does not proceed;
- IT skills availability;
- resource and staff availability; and
- achievability of timeframes and deadlines.

3.13 One entity's software project risk assessments included details of triggers and warning signs for project managers to consider in respect of specific identified risks. The risk assessments undertaken by entities with established project management frameworks reflected a consideration of the identified risks on the basis of:

- the likelihood that the risk will occur; and
- the resulting consequences or impact.

3.14 One entity had established a specific section responsible for the acquisition of purchased software and had developed a list of 'off-the-shelf' software that had been tested in the entity's IT environment and approved for use within the entity. The ANAO considers this reflects better practice because it allows the entity to manage the risk of overspending on purchased software and ensures that purchased software is compatible with the entity's IT infrastructure.

3.15 In its risk management policy and guidelines, one entity had identified intellectual property as a possible area of risk impact. None of the entities had specifically considered risks to the appropriate identification and protection of intellectual property as part of their software project risk assessments. The ANAO noted that, in their standard contracts with third parties, all the entities had incorporated clauses to protect Commonwealth intellectual property rights.

Conclusion

3.16 Three entities had completed organisational-level risk assessments and established risk management policies, plans and guidelines. The remaining entity was in the process of establishing risk management policies, plans and guidelines.

3.17 Most entities had considered risks related to software development and acquisition on a project basis during the development of the project's business case and planning process, although none had specifically considered risks to the appropriate identification and protection of intellectual property.

Recommendation No.1

3.18 The ANAO recommends that entities:

- assess risks in relation to software development and acquisition, and specifically software capitalisation, including intellectual property issues, as part of the business project planning phases; and
- establish suitable processes to monitor those risks throughout the software project.

4. Control Environment

Introduction

4.1 A control environment is the organisational context that reflects management's commitment and attitude to the implementation and maintenance of an effective control structure.[25]

4.2 The level of positive support by management strongly influences the design and operation of control policies and procedures. Without an effective control environment, managers will be unable to assure themselves of the adequacy of the software capitalisation control framework.

4.3 For an entity to have an effective control environment for the capitalisation of software costs, it needs to be able to demonstrate a commitment at management level by having:

- documented software capitalisation policies and procedures, including accounting policies;
- clearly defined responsibilities for managing computer software assets and valuations; and
- established asset management and capital expenditure plans.

Audit findings and comments

4.4 Table 5 summarises the relevant principle and audit evaluation criteria, which were used to assess an entity's control environment.

Table 5
Control environment

Principle	Management's pro-active approach and leadership ensure a robust control environment for the capitalisation of software.
Audit evaluation criteria	Entities would be expected to have: • issued policy and guidance on the capitalisation of software; • determined appropriate accounting policies; • determined responsibilities for managing computer software assets and valuations; • established asset management frameworks and plans that incorporate software assets; • formulated a capital expenditure plan; and • developed procedures for policy implementation.

[25] ANAO Better Practice Guide—*Controlling Performance and Outcomes.*

Policies and procedures

4.5 Policies and procedures that are up-to-date and can be readily accessed by staff are a key element of a robust control environment. This is particularly so in relation to software capitalisation because entities often rely on small teams with technical expertise and experience to develop software. Small teams are more adversely affected, for example, by any level of staff turnover.

4.6 Comprehensive policies and procedures also provide clear guidance for non-accounting staff on the requirements of the FMOs and how these requirements should be incorporated in day-to-day processes.

4.7 All the audited entities had formal documented Chief Executive's Instructions (CEIs) and asset management policies in place. However, not all instructions and policies were up to date or specifically covered software assets. A number of the entities had recognised the need to review and revise their software related policies and procedures as part of their internal reviews of asset planning and management arrangements.

4.8 Three entities had established software related policies and procedures, and project management frameworks for which detailed procedures, guidelines and templates had been issued. The detailed procedures and guidelines varied across the entities and ranged from general guidance to detailed procedures and guidelines that the ANAO considered reflected better practice.

4.9 One entity had incorporated intellectual property issues in its CEIs, which detailed that employee developed software intellectual property rights rest with the Commonwealth and that contracts with consultants must specify clauses to protect intellectual property rights. The ANAO noted that two of the entities had initiated reviews to consider intellectual property issues and develop intellectual property strategies and registers.

4.10 Those documents or asset manuals that reflected sound and better practice were based on an asset life-cycle approach; directed at relevant stakeholders; and incorporated detailed FMO requirements, delegated responsibilities, time recording procedures and capitalisation requirements.

4.11 Most entities had utilised their Intranet to communicate policies and procedures. This approach provided a central reference source where the relevant information could be readily accessed by staff.

Entities' accounting policies for the capitalisation of software

4.12 In reviewing the content of the policies, the ANAO examined how the software assets were valued, as well as how useful lives and capitalisation thresholds were determined.

4.13 The ANAO found that all the audited entities policies and procedures required some amendments to reflect specific requirements and guidance of FMO 13, in particular that:

- from 2001–2002, internally generated software must be valued at cost;
- internally developed software costs can only be capitalised and recognised when they meet specific requirements; and
- software assets should be classified as property, plant and equipment where they are an integral part of the associated hardware.

4.14 One of the entities had specifically established accounting policies and procedures that were consistent with International Accounting Standard 38 *Intangible Assets*.

Value of software assets

4.15 Under the requirements of FMO 13, internally developed and externally acquired software for internal use must initially be recognised and, where applicable, capitalised at the cost of development or acquisition. As stated earlier, where software assets had previously been recognised on a valuation basis, entities were able to deem the carrying amount to be cost for the 2001–2002 financial year.

4.16 All of the entities audited had valued their software assets at cost or deemed cost, as reflected in their accounting policies in their financial statements for the year ended 30 June 2002, and were, therefore, complying with this FMO requirement.

Useful lives of software assets

4.17 An important aspect of effective asset management is the establishment, at the time of purchase or completed development, of the asset's estimated useful life. This is the time over which the asset will provide economic benefit to the entity. The estimated useful life enables an entity to allocate the cost of the software asset over the life of the asset (amortisation) and sets the timeframe for the entity to consider disposing of the software and/or replacing it.

4.18 Under accounting standards, the amortisation rates for assets must be reviewed at least annually and, if necessary, adjusted so that they will reflect the most recent assessments of the useful lives of the respective assets, having regard to such factors as asset usage and the rate of technical and commercial obsolescence.[26]

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[26] op.cit., AAS4 *Depreciation* 1997, section 6.1.

4.19 The accounting policies of three entities stated that the useful lives of their software assets are reviewed at financial year-end, and necessary adjustments processed. One of these entities advised the ANAO that a review had been undertaken but it had not been documented.

4.20 The remaining three entities had not undertaken a formal review of the useful lives of their software assets but two had undertaken annual reviews of their asset registers to identify software assets no longer in use and which should be fully written off.

4.21 The ANAO noted that this asset register review allows entities to ensure that their asset register information is appropriately reported in the entity's financial statements and is up to date. The ANAO considers that this review could be extended to incorporate a review of the useful lives of software assets.

Capitalisation thresholds

4.22 The ANAO's Better Practice Guide on asset management[27] indicates that an asset threshold should be set so that at least 95 per cent of the total non-current assets by value are reported in the financial statements.

4.23 Most of the entity's audited had established different thresholds for purchased and internally developed software. The thresholds for purchased software ranged from $1000 to $2000, which is generally consistent with standard practice across Commonwealth entities.

4.24 The capitalisation thresholds established by the entities for internally developed software varied considerably but were generally based on materiality considerations. One entity's policy was a $1000 threshold for purchased and internally developed software while the others had established the following thresholds:

- all internally developed software costs allowable under FMO 13 to be capitalised;
- $50 000 for new software projects and $20 000 for software development costs relating to enhancements or additions to existing software assets; and
- $500 000, where software product costs would not be capitalised or recognised where total project costs, which included both costs that can be capitalised and expensed, did not exceed this threshold.

4.25 The $500 000 threshold applied by one entity meant that it would not capitalise costs, and recognise software assets, for any projects with total costs

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[27] ANAO Better Practice Guide *Asset Management Handbook* June 1996.

below this threshold. This could result in a risk that the assets in the financial statements were understated. The ANAO considers that the application of a threshold to the capitalised element, rather than total project costs, would ensure that internally developed software asset values are more accurately captured and reported in the financial statements.

4.26 The ANAO also noted instances where the capitalisation thresholds applied in practice were not consistent with established thresholds. In one entity, the inconsistency related to those thresholds reflected in its financial statements and asset policies and procedures. In another entity, the inconsistency related to the internal organisational thresholds for the consideration and review of software projects by the IT management committee.

Responsibility for software assets

4.27 In the audited entities, the IT area was generally responsible for the purchase or development of significant software projects. The IT area and the specific project managers were then accountable to the chief information officer, or equivalent, and the relevant IT management and executive committees. In some of the entities, project sponsors were identified from the relevant business areas to oversee and monitor software projects.

4.28 The level of involvement by finance staff in software projects varied across the entities but generally focused on ensuring that the treatment of costs complied with FMOs. This involvement included liaising with IT staff, providing guidance on how costs should be treated, reviewing cost information, and providing financial information.

Asset management planning

4.29 As reflected in the ANAO's *Asset Management Handbook*,[28] an asset management plan, which incorporates software assets, allows an entity to ensure its asset planning is:

- based on a life-cycle approach that includes acquisition and replacement, operation, enhancements, disposal and funding;
- linked to strategic plans and supports informed decision making and organisational objectives; and
- consistent with better practice principles.

[28] ibid.

4.30 Asset management planning is particularly important under the Commonwealth accrual budgeting framework because entities are funded for depreciation and amortisation annually. In practice this means that:

> On expiration of an individual asset's life, the agency should ideally be able to fund capitalised repairs or replacements on an on-going basis. This would only be feasible if the agency develops and implements an asset replacement plan and regularly sets aside a portion of its current period funding for this future use. In most instances this will be equal to or more that the amount of funding provided to offset depreciation charged on the individual item over its useful life.[29]

4.31 As none of the entities audited had established formal asset management plans, they relied on the CEIs or asset management policies to guide asset management planning. Although one entity had reflected the life-cycle approach and better practice principles in its asset management policy, it had not developed any methodology, or guidance, to ensure the policy was applied in practice.

4.32 The absence of formal asset management plans indicated that the entities were not directly linking their accounting policies to their asset management and planning. The determination of useful lives for assets, for example, should be linked to an asset replacement plan that incorporates strategies, which provide for sufficient funds to replace assets as they reach the end of their useful lives.

4.33 The ANAO found that the entities recognised the importance of a life-cycle approach to asset management and the integration of asset management with strategic business plans. Two entities had commenced projects to review their asset management framework and establish asset management plans where financial management is linked with strategic management for assets, including software. The ANAO noted that these entities had also generally incorporated a review of policies and procedures as part of these projects.

Capital expenditure planning

4.34 Under the *Charter of Budget Honesty Act 1998*, Commonwealth entities are required to provide information for the preparation of the report on the budget economic and fiscal outlook for the budget year and the following three financial years.[30] This information forms the basis of the annual Portfolio Budget Statements (PBS) for the Commonwealth.

4.35 The entities had all established capital expenditure plans, which allowed them to compile PBS information. The plans were reviewed and approved on

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[29] Department of Finance and Administration, Accounting Centre of Excellence, Finance Brief 2 —*Guidelines for Use of and Reporting about Funding for Depreciation of Long Lived Assets*, issued November 2001.

[30] *Charter of Budget Honesty Act 1998*, Part 5, Division 1.

an annual basis to take account of policy, funding and other relevant developments. The plans at each entity were reviewed and approved by the appropriate executive committee.

4.36 In general, the capital expenditure plans incorporated details of planned acquisitions, disposals, write-offs and amortisation for software assets. Most of the entities recognised that their budgeted capital expenditure balances beyond a one year period were estimates that should be linked to asset management plans and specifically replacement plans.

Conclusion

4.37 Although most entities had established reasonably comprehensive policies, procedures and guidelines for the capitalisation of software, all entities could improve their policies by incorporating specific FMO and accounting requirements. One entity's practices were not consistent with the accounting polices reflected in its financial statements.

4.38 One entity's software related policies and guidelines incorporated intellectual property issues, and two entities had initiated reviews to consider intellectual property issues and develop intellectual property strategies and registers.

4.39 None of the entities had established asset management plans. As a result, there was no formalised link between the entities' accounting policies, which includes the determination of amortisation rates and funding for software assets, and plans for future software asset acquisition or replacement.

Recommendation No.2

4.40 The ANAO recommends that entities:

- develop clear policies, procedures and guidelines for software assets that reflect the requirements of the Finance Minister's Orders and incorporate appropriate guidance on intellectual property;
- ensure that the useful lives of software assets are reviewed at least annually to meet accounting standard requirements and ensure they reflect factors such as asset usage and the rate of technical obsolescence; and
- review capitalisation thresholds to ensure that accounting policies and practices are consistent.

Recommendation No.3

4.41 The ANAO recommends that entities develop asset management plans, which incorporate software assets, and are based on an asset life-cycle approach.

5. Control Activities

Introduction

5.1 Control activities are the specific practices, processes and methodologies that help an entity ensure that:

- risks are reduced whilst opportunities for improvement are identified;
- irregularities are prevented or detected and addressed;
- assets are safeguarded; and
- financial records and relevant data are complete, and accurately reflect the activities of an entity.

5.2 An effective governance framework includes controls that minimise the impact of risks and contribute to the efficient and effective delivery of quality outputs and outcomes. Control activities promote compliance with organisational policies and procedures through the integrity, accuracy and completeness of administrative processes. Conversely, the failure of controls can create wide-ranging risks and, for this reason, emphasis should be more on preventative rather than detective controls.

Audit findings and comments

5.3 Table 6 summarises the relevant principle and audit evaluation criteria, which were used to assess an entity's control activities.

Table 6

Control activities

Principle	The establishment of specific control mechanisms for the capitalisation of software.
Audit evaluation criteria	Entities would be expected to have systems for capturing and reporting software capitalisation information, with close links between the general ledger, asset register and software project management tools. Each entity would be expected to have specific controls for: • approving related expenditure; • authorising the in-house development of software as opposed to external provision; • reconciling software asset data, and verifying cost and asset register information; • calculating amortisation costs; • determining the useful lives of the software assets; • undertaking valuations of software assets; and • establishing capitalisation thresholds.

Systems for capturing software capitalisation costing information

5.4 The guidance in the explanatory notes to FMO 13 emphasises the importance of entities having systems in place to reliably measure the costs of software development to ensure that only appropriate costs are capitalised.

5.5 The majority of software development costs are related to time spent by employees and contractors on individual projects. All of the entities audited had applications and systems in place to capture time spent on software projects. Staff and contractors input time directly to time recording applications for individual projects, generally on a daily or weekly basis, to which an hourly or daily rate was applied to calculate the software costs.

5.6 The information in time recording applications formed the basis of monthly balances posted to the general ledger and asset register.

5.7 In two entities, the ANAO noted that the data in the time recording system was transferred to spreadsheets, either electronically or manually, which were then manipulated to determine amounts to be capitalised by the finance section. As the use and manipulation of spreadsheets can increase the risk of errors where appropriate controls are not in place, the ANAO expected to find that the spreadsheets were reviewed for accuracy on a regular basis.

5.8 In the entities that transferred data from the time recording system to spreadsheets, there was no review or checking of the information by a second officer to ensure that the spreadsheet information was accurate. In one entity the ANAO found errors in the information provided to the finance section.

Approval and authorisation processes

5.9 Capitalised software costs need to be approved by an authorised delegate within the entity and be based on an understanding of costs that can be capitalised under the FMOs. In all the audited entities, approval procedures were in place to authorise invoices for purchased software and for contractor work on software projects. The appropriate project manager generally gave this approval.

5.10 Time charged to software projects by staff and contractors was generally subject to regular review and monitoring by project managers. In three entities, this review was based on the project managers' day-to-day knowledge of the work undertaken by staff and contractors and involved a review against project budgets.

5.11 Approval procedures were also evident at a software project level. Each entity had established processes whereby significant software projects required:

- approval and/or consideration by a management committee with IT responsibilities; and
- project and funding approval by an executive committee, usually as part of the annual budgeting process.

Accounting for software costs

Staff and contractor costs

5.12 The explanatory notes to FMO 13 allow for the capitalisation of 'payroll and payroll related costs (including employee benefits) for employees who are directly associated with and devote time to the software project.' Three of the entities audited had calculated rates based on the actual costs of contractors or direct staff costs.

5.13 Furthermore, the explanatory notes to FMO 13 specifically state that, in the application development stage of a software project, 'general and administrative costs and overhead costs should not be capitalised as costs of internal use software.'

5.14 In the audited entities, the calculation of costs in their time recording systems was based on an hourly or daily rate. One entity, in calculating the hourly rate for staff and contractor time charged to software projects, had specifically included an element for overheads to cover administrative support and accommodation costs. This was not consistent with the recommendations of the FMO explanatory notes and meant that the value of the entity's software assets may be overstated.

Project management costs

5.15 The capitalisation of the costs of project management time directly associated with the development of a software asset is not prohibited by the explanatory notes to FMO 13. The allocation of project management time against specific software projects ensures that both project and software costs are accurately recorded and reported.

5.16 One entity had not recorded project management time against specific software development tasks and, as a result, none of these costs was capitalised.

5.17 Another entity had established a process to reflect the time spent by operational staff on the development of internally developed software projects not directly captured in its time recording system. This process involved the application of a significant standard percentage increase to capitalised software costs. Although the entity indicated that this percentage was determined by monitoring a number of selected projects and considered the estimate to be

materially correct, the ANAO considers that it would be more accurate for this time to be captured in the time recording system.

5.18 One entity had established an approach whereby a deflator percentage was applied to internally developed software costs to ensure that inefficiencies were not capitalised and the risk of overcapitalising software assets was reduced. This approach was adopted to mitigate possible events such as:

- research/trial and error, which does not enhance the functionality of the software, being incorrectly capitalised;
- project managers charging 'non-direct' costs to the software capitalisation phases; and
- the scope of the project changing, which may mean that some of the prior development costs were irrelevant to the finished product.

5.19 While the use of deflators in respect of software projects was not a common practice, the ANAO considers that it reflected an approach, which ensured that the entity's software assets were not overstated. However, there remains a risk that the deflator could be used to manipulate or incorrectly split software project costs between capital and expense elements with a resulting impact on the entity's financial statements. The risks associated with the determination and application of deflators would need to be managed by ensuring that appropriate supporting documentation is maintained for the calculation and a periodic review process is in place that captures:

- the decision making process followed and entity staff involved; and
- the assumptions or information on which the deflator is based.

Assets under construction

5.20 Under standard accounting practice, capitalised costs of the development of software assets are recorded in work-in-progress or assets under construction (AUC) accounts. Amortisation is not applied to assets classified as AUC.

5.21 One entity had not utilised an AUC account when accounting for its capitalised software costs. The ANAO noted that this treatment implied that all software assets had been fully developed and were either in operation or were ready for use. However, audit testing highlighted a number of significant software projects where amortisation had commenced even though the projects had not been completed.

5.22 When the asset is put into operation or is held ready for use, amortisation is then applied in accordance with AAS 4 *Depreciation*. As amortisation is not applied to assets classified as AUC, there must be a process in place to ensure

that the asset is reclassified on a timely basis and the asset is amortised once it has been completed and is ready for use. This process is usually reliant on the IT section or project managers providing timely information to the entity's finance section, which is the area generally responsible for maintaining the entity's asset register.

5.23 The ANAO noted that most entities did not have documented and routine processes in place to ensure that the finance section received timely information when software assets became operational or ready for use. The ANAO noted that one entity had established a quarterly process to identify these software assets. However, the process relied on the finance section being advised by project managers, who were not always clear on their responsibilities in relation to AUC and the implications of the information they provided.

Reconciliation procedures

5.24 Appropriate reconciliation procedures allow an entity to ensure that the systems used to capture and record software costs hold consistent and accurate data. The periodic reconciliation process should highlight any discrepancies requiring corrective action.

5.25 Three entities generally carried out reconciliations between the asset register and the general ledger on a monthly basis and there was evidence of review or checking by a second officer. The other entity undertook reconciliations between the general ledger and asset register for internally developed software in April and again at the end of the financial year. The reconciliations were not undertaken more frequently because the entity had established a monthly procedure, with a clear audit trail, to post balances to the general ledger and asset register.

5.26 Most entities had established processes that allowed the reconciliation of time recording system balances to the general ledger. In one entity, the ANAO noted that the information provided to the finance section was not sufficiently detailed to allow capitalised costs to be split into their component elements, such as employee, contractor and other costs and be appropriately reconciled. The specific reconciliation of IT contractor costs recorded in the general ledger to those in the time recording system provided another entity with additional comfort that contractor balances are appropriately treated.

Conclusion

5.27 The ANAO found that, while most of the audited entities had established mechanisms that addressed software capitalisation control risks, the

arrangements for reviewing and reconciling software capitalisation costing information to the time recording system in two entities could be improved to provide additional assurance on the accuracy of the data. In most entities, robust arrangements were not evident to ensure that timely information was provided to the finance area on software assets that became operational or were ready for use so that they could be accounted for appropriately.

5.28 The approach to accounting for software assets was not always consistent with standard accounting practice or commonly accepted practice in Commonwealth entities.

Recommendation No.4

5.29 The ANAO recommends that entities:

- establish adequate processes to inform the finance area on a timely basis when software assets become operational, or ready for use, to ensure amortisation commences;
- capture project management and operational staff time for specific software projects; and
- improve the controls over the accuracy of capitalised software costs by, either routinely reviewing the data manually extracted from the time recording system, or enhancing the functionality of the system to automatically produce the required data.

6. Information and Communication

Introduction

6.1 Effective information and communication arrangements are fundamental for an entity to ensure that it achieves its strategic and business objectives by providing a solid foundation for informed decision making and performance reporting. Information and communication arrangements can differ depending on the size, structure and geographical distribution of the entity and involve both manual and computerised systems.

6.2 In respect of software, effective information and communication arrangements are required to ensure that software assets are developed, capitalised and managed appropriately.

Audit findings and comments

6.3 Table 7 summarises the relevant principle and audit evaluation criteria, which were used to assess an entity's information and communication.

Table 7
Information and communication

Principle	Information and communication arrangements provide relevant information to the right people at the right time.
Audit evaluation criteria	Entities would be expected to have regular two-way information flows between the staff responsible for overseeing and managing the software acquisition or development process, the senior management group and the finance area.

6.4 Although the value and complexity of the software assets usually means that a number of different operational and corporate areas within an entity can be involved in the project, the key areas involved in the entities audited tended to be the finance and IT sections.

6.5 The ANAO noted that, in three entities, the communication processes could be enhanced through periodic, scheduled meetings involving the IT and finance areas to address accounting and financial reporting requirements for software costs. The ANAO noted that, where regular communication was not evident between the IT and finance areas in an entity, problems were likely to arise in respect of capitalised software costs. This was generally due to a lack of understanding of required processes and controls, particularly in respect of accounting requirements.

6.6 Most entities had formal and informal processes in place whereby there was regular communication between IT and finance staff. The formal processes

included regular meetings, involvement in project steering committees and attendance at IT management committees.

6.7 Two entities had adopted an approach where senior managers in the relevant business area were closely involved in the software project as project sponsors or members of project steering committees.

6.8 All of the entities had established committee structures, which were responsible for monitoring and reviewing software projects and met on a regular basis, generally either quarterly or monthly. The membership of the committees ensured that information on software projects was communicated to the entity's senior management and to appropriate stakeholders.

6.9 All of the entities utilised Intranet technology to provide access to asset and software information although the ANAO noted that the range of information varied and as a minimum comprised CEIs and asset policies. Most entities included details of committee responsibilities, capital expenditure plans, IT area roles and responsibilities, and risk assessment policies and guidelines.

Conclusion

6.10 The ANAO found generally that all entities had suitable information and communication processes in place which involved the IT and finance areas, as well as senior management and relevant stakeholders.

Recommendation No.5

6.11 The ANAO recommends that entities ensure appropriate arrangements are established for regular communication between the IT and finance areas to enhance understanding of the roles and responsibilities of each area, particularly on accounting issues.

7. Monitoring and Review

Introduction

7.1 Monitoring and review is the final component of an effective control framework. It is a key element of an entity's continuous improvement process that helps ensure the entity implements effective processes and tools to monitor and review relevant data. An effective monitoring and review environment is based on an established chain of accountability and includes use of periodic reviews, such as those undertaken by internal audit and external consultants, as well as in-built review mechanisms.

Performance measurement

7.2 The establishment of performance measures focuses monitoring and review processes and allows a quantitative assessment of progress and the achievement of goals or objectives. Performance measurement, based on reliable data, also allows entities to identify problems and take corrective action on a timely basis.

7.3 Performance measures can incorporate key performance indicators or targets, milestones, financial or completion budgets and timeframes.

Methods to undertake monitoring and review

7.4 In addition to monitoring performance measures, the effectiveness of the control structure itself also needs to be monitored and reviewed.

7.5 Control monitoring and review can be undertaken in various ways, including:

- on-going monitoring which is an inherent part of the process, and by encouraging staff to identify breakdowns, redundancies, duplications and gaps in control procedures; and
- separate periodic reviews and evaluations, such as internal audit or process reviews. These reviews look at the effectiveness of control structures from another perspective and often provide the opportunity for on-going monitoring procedures to be revisited.

7.6 The scope and frequency of monitoring and review activities will depend primarily on an assessment of risks and the effectiveness of on-going monitoring. The greater the on-going monitoring, the less need there will be for separate

evaluations. It is also important to note that the effectiveness and appropriateness of the control framework can change as the operational environment changes.

Audit findings and comments

7.7 Table 8 summarises the relevant principle and audit evaluation criteria, which were used to assess an entity's monitoring and review.

Table 8
Monitoring and review

Principle	Monitoring and review takes place on an appropriate periodic basis that enables the entity to check the internal control framework and ensure the entity's strategic objectives are being achieved.
Audit evaluation criteria	Each entity would be expected to have regular monitoring and review processes to ensure that policies and procedures are adhered to and properly applied. This might be achieved by reporting against performance measures, particularly in respect of costs and timeliness, internal checking and auditing processes.

Performance measures

7.8 The ANAO found that entities were regularly reviewing performance measures for software projects. All the entities had established project objectives and targets, which were reviewed and updated on an ongoing basis. The targets established were primarily cost and deadline based aimed at ensuring that projects were completed within budget and within the required timeframe.

Ongoing monitoring

7.9 The ongoing monitoring and review of software projects was undertaken on a number of levels by the entities audited. The ANAO noted that this generally involved:

- project managers, generally within the IT section, being responsible for the day-to-day monitoring of software projects with regular review of costs and progress against timeframes;
- IT or business management committees, which generally comprised of IT, finance and relevant operational senior management, considering periodic reports from project managers for individual projects. The committees also considered total software project financial and progress information and endorsed corrective action for overspends or delays; and
- executive committees, or groups of senior executives, considering reports or information, provided by the IT management committee on significant software projects.

7.10 Three entities had enhanced their monitoring and review arrangements by establishing individual project steering committees, chaired by a formal project sponsor, who was usually an executive from the relevant business area.

7.11 To facilitate monitoring processes, most audited entities had established standard templates for progress reports for submission to management and executive committees.

7.12 The decisions taken by senior management committees need to be clearly documented and captured to allow the committee members to ensure that appropriate action is taken. The ANAO noted some instances where committee decisions were not clearly captured and documented in minutes.

7.13 One entity had processes in place to monitor software maintenance costs so that it could identify when software assets require enhancement, to improve their operation and functionality, or replacement.

Post-implementation reviews

7.14 Post-implementation reviews of significant software projects allow entities to ensure that the software is performing as required, and review the software development process to identify better practice and areas for improvement.

7.15 Post-implementation reviews of software capitalisation issues should include consideration of whether:

- the functionality of time recording systems allowed capitalised costs to be readily captured and identified;
- capitalised software costs were in line with budget and expectations, and variances were explored and addressed; and
- the entity's policies and guidelines provided a practical framework, in accordance with the FMOs, that supported the appropriate treatment of software project costs and specifically capitalised software costs.

7.16 Two entities had established formal requirements and processes to ensure that post-implementation reviews were undertaken for significant software projects and considered by the relevant IT or business management committee. The ANAO noted that, in these entities, this requirement was documented in the software project guidelines, which formed part of the entity's project management framework.

7.17 To facilitate the consideration and comparison of the post-implementation reviews, some entities had established standard templates for the review report. One other had engaged external consultants to undertake the review of specific significant projects.

Audit arrangements

7.18 Two of the entities had used the internal audit function as a means of monitoring software capitalisation processes and controls, or had reviews scheduled to be performed in their current strategic internal audit plan. In one entity, internal audit was involved on significant software project steering committees.

7.19 In one entity, the area responsible for software systems development had obtained Quality Certification under AS/NZS ISO 9001:2000.[31] As a result, the area had documented procedures in place that were subject to external review twice a year.

Conclusion

7.20 The ANAO considers that, while monitoring and review arrangements in the entities were generally satisfactory and well established, only two entities had formal requirements in place for post-implementation reviews of significant software projects.

Recommendation No.6

7.21 The ANAO recommends that entities:

- ensure that decisions taken by senior management committees responsible for software projects are appropriately documented and actioned; and
- undertake post-implementation reviews for significant software projects, which incorporate software capitalisation issues, and report the results to appropriate management committees.

Canberra ACT
23 June 2003

P. J. Barrett
Auditor-General

[31] Standards Australia, Australian/New Zealand Standard AS/NZ ISO 9001:2000: *Quality management systems—Requirements*, 15 December 2000.

Index

T

U

V

W

Series Titles

Audit Report No.1 Performance Audit
Information Technology at the Department of Health and Ageing
Department of Health and Ageing

Audit Report No.2 Performance Audit
Grants Management
Aboriginal and Torres Strait Islander Commission

Audit Report No.3 Performance Audit
Facilities Management at HMAS Cerberus
Department of Defence

Audit Report No.4 Audit Activity Report
Audit Activity Report: January to June 2002
Summary of Outcomes

Audit Report No.5 Performance Audit
The Strategic Partnership Agreement between the Department of Health and Ageing and the Health Insurance Commission
Department of Health and Ageing and the Health Insurance Commission

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Fraud Control Arrangements in the Department of Veterans' Affairs

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Client Service in the Child Support Agency Follow-up Audit
Department of Family and Community Services

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The Senate Order for Department and Agency Contracts (September 2002)

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Centrelink's Balanced Scorecard

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Management of International Financial Commitments
Department of the Treasury

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Medicare Customer Service Delivery
Health Insurance Commission

Audit Report No.12 Performance Audit
Management of the Innovation Investment Fund Program
Department of Industry, Tourism and Resources
Industry Research and Development Board

Audit Report No.13 Information Support Services
Benchmarking the Internal Audit Function Follow–on Report

Audit Report No.14 Performance Audit
Health Group IT Outsourcing Tender Process
Department of Finance and Administration

Audit Report No.15 Performance Audit
The Aboriginal and Torres Strait Islander Health Program Follow-up Audit
Department of Health and Ageing

Audit Report No.16 Business Support Process Audit
The Administration of Grants (Post-Approval) in Small to Medium Organisations

Audit Report No.17 Performance Audit
Age Pension Entitlements
Department of Family and Community Services
Centrelink

Audit Report No.18 Business Support Process Audit
Management of Trust Monies

Audit Report No.19 Performance Audit
The Australian Taxation Office's Management of its Relationship with Tax Practitioners
Australian Taxation Office

Audit Report No.20 Performance Audit
Employee Entitlements Support Schemes
Department of Employment and Workplace Relations

Audit Report No.21 Performance Audit
Performance Information in the Australian Health Care Agreements
Department of Health and Ageing

Audit Report No.22 Business Support Process Audit
Payment of Accounts and Goods and Services Tax Administration in Small Commonwealth Agencies

Audit Report No.23 Protective Security Audit
Physical Security Arrangements in Commonwealth Agencies

Audit Report No.24 Performance Audit
Energy Efficiency in Commonwealth Operations—Follow-up Audit

Audit Report No.25 Financial Statement Audit
Audits of the Financial Statements of Commonwealth Entities for the Period Ended 30 June 2002
Summary of Results

Audit Report No.26 Performance Audit
Aviation Security in Australia
Department of Transport and Regional Services

Audit Report No.27 Performance Audit
Management of Commonwealth Guarantees, Warranties, Indemnities and Letters of Comfort

Audit Report No.28 Performance Audit
Northern Territory Land Councils and the Aboriginals Benefit Account

Audit Report No.29 Audit Activity Report
Audit Activity Report: July to December 2002
Summary of Outcomes

Audit Report No.30 Performance Audit
Defence Ordnance Safety and Suitability for Service
Department of Defence

Audit Report No.31 Performance Audit
Retention of Military Personnel Follow-up Audit
Department of Defence

Audit Report No.32 Business Support Process Audit
The Senate Order for Departmental and Agency Contracts (Spring 2002 Compliance)

Audit Report No.33 Performance Audit
Management of e-Business in the Department of Education, Science and Training

Audit Report No.34 Performance Audit
Pest and Disease Emergency Management Follow-up Audit
Department of Agriculture, Fisheries and Forestry—Australia

Audit Report No.35 Performance Audit
Fraud Control Arrangements in the Australian Customs Service

Audit Report No.36 Performance Audit
Monitoring of Industry Development Commitments under the IT Outsourcing Initiative
Department of Communications, Information Technology and the Arts

Audit Report No.37 Performance Audit
Passport Services
Department of Foreign Affairs and Trade

Audit Report No.38 Performance Audit
Referrals, Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999

Audit Report No.39 Performance Audit
Navy Operational Readiness
Department of Defence

Audit Report No.40 Performance Audit
R & D Tax Concession
Department of Industry, Tourism and Resources, the Industry Research and Development Board and the Australian Taxation Office

Audit Report No.41 Performance Audit
Annual Reporting on Ecologically Sustainable Development

Audit Report No.42 Performance Audit
Managing Residential Aged Care Accreditation
The Aged Care Standards and Accreditation Agency Ltd

Audit Report No.43 Performance Audit
The Sale of Sydney (Kingsford Smith) Airport

Audit Report No.44 Performance Audit
Review of the Parenting Payment Single Program
Department of Family and Community Services
Centrelink

Audit Report No.45 Business Support Process Audit
Reporting of Financial Statements and Audit Reports in Annual Reports

Audit Report No.46 Performance Audit
Australian Industry Involvement Program
Department of Defence

Audit Report No.47 Performance Audit
Implementation and Management of the Indigenous Employment Policy
Department of Employment and Workplace Relations

Audit Report No.48 Performance Audit
Indigenous Land Corporation—Operations and Performance Follow-up Audit
Department of Immegration and Multicultural and Indigenous Affairs

Audit Report No.49 Performance Audit
Management of the Navigation Aids Network
Australian Maritime Safety Authority

Audit Report No.50 Information Support Services
Managing People for Business Outcomes, Year Two
Benchmarking Study

Audit Report No.51 Performance Audit
Defence Housing and Relocation Services
Department of Defence

Audit Report No.52 Performance Audit
Absence Management in the Australian Public Service

Audit Report No.53 Performance Audit
Business Continuity Management Follow-on Audit

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Asset Management Handbook	Jun 1996
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