



LEGISLATIVE ASSEMBLY OF THE NORTHERN TERRITORY

Public Accounts Committee

**Management of ICT Projects by
Government Agencies**

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Chair's Preface

Rarely has the need for change been demonstrated more clearly than through the failure of the Asset Management System project. To spend around \$70 million dollars only to make the system worse is clearly unacceptable. The added expense and delays in the other projects the Committee examined further demonstrates that action to improve the management of ICT projects is required to not only get better levels of service provision but also to avoid crippling waste.

The problems the Territory faces in this area are not unique. Governments around Australia and around the world have seen huge losses of public money through expensive ICT projects that run well over time and budget or fail altogether. This has resulted in significant work to improve the management of such projects worldwide over the last decade. Recurrent themes in that work are the need to develop robust governance systems for ICT projects, to develop the necessary capacity for the management of such projects in the public sector, and to adopt appropriate project management methodologies.

The Committee has found that similar work is required in the Northern Territory, and is pleased to see that the Government has already moved in this direction with the adoption of an ICT Governance Framework.

The Committee encourages the implementation of the Framework but also calls for further action to ensure that the principles of good governance, capacity building and project management are implemented for all ICT projects not just major projects or those deemed to be of critical importance to government. This means developing a strategy for the effective implementation of the Framework at agency level.

Another finding of the Committee was that agencies need to improve collaboration with the local ICT industry to get a higher level of engagement in project development and to help build local industry capacity to respond to the Government's needs.

The significant costs associated with poor implementation of ICT projects means that inaction in this area is not an option. ICT provides a huge potential for improving Government services and enabling agencies to operate more efficiently, but also the potential for huge losses. Prudent investment in the management of such projects will provide significant returns.

The Northern Territory cannot afford another debacle like the AMS project. The Committee therefore commends its recommendations to the Government for its consideration and will be returning to this issue to ensure that the principles contained in the ICT Governance Framework are translated into improved ICT project management throughout Government agencies.

I would like to thank those who assisted the Committee with its inquiry by making submissions and giving evidence at hearings. The Committee was impressed by the response of local industry representatives and pleased by the assistance and openness of the agencies which were subject to the scrutiny of the Committee. As always, the Auditor-General was of great assistance to the Committee and we extend

our thanks. I also thank my fellow Committee Members for their continued constructive and enthusiastic approach to the work of the Committee.



Ms Lia Finocchiaro MLA

Chair

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On 3 April 2014 Ms Larisa Lee, and Mr Francis Kurrupuwu, were discharged from the Committee and replaced by Mr Gary Higgins on 3 April 2014 and the Mr Nathan Barrett on 6 May 2014. On 19 April 2014 Ms Natasha Fyles was discharged from the Committee and replaced by Mr Kon Vatskalis.

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Acronyms and Abbreviations

ACS	Australian Computer Society
AIPM	Australian Institute of Project Management
AMC	Asset Management Capability
AMS	Asset Management System
AoG	All-of-Government
BPR	Business Process Reengineering
CEO	Chief Executive Officer
CIO	Chief Information Officer
COTS	Commercial off-the-shelf product
DCI	Department of Construction and Infrastructure
DCIS	Department of Corporate and Information Services
DoH	Department of Health
DOI	Department of Infrastructure
DPI	Department of Planning and Infrastructure
DPLG	Department of Planning and Local Government
FTE	Full time equivalent
GMS	Grants Management System
ICT	Information and Communication Technology
IGMF	Integrated Grants Management Framework
NGO	Non-Government Organisation
NRETAS	Department of Natural Resources, Environment, the Arts and Sports
NSW	New South Wales
NT	Northern Territory
NTPFES	Northern Territory Police, Fire and Emergency Services
NTG	Northern Territory Government
OCPE	Office for the Commissioner of Public Employment
PMO	Project Management Office
PWC	Power and Water Corporation
SFIA	Skills for the Information Age
SMEs	Small to medium enterprises
UK	United Kingdom

Terms of Reference

In accordance with its resolution on 28 August 2013, the Public Accounts Committee has adopted the following terms of reference for an inquiry into the Management of ICT Projects:

The Committee inquire into and report on issues regarding the management by government agencies of the implementation of information and communication technology (ICT) projects in the Northern Territory arising from the Auditor-General's reports on the Department of Infrastructure's Asset Management System, the Department of Health's Grants Management System and the Power and Water Corporation's Asset Management System, including:

1. The factors that are considered to have determined either success or failure in outcomes in regards to:
 - (a) Cost
 - (b) Time
 - (c) Meeting user needs
 - (d) Meeting project objectives
2. Lessons learned from the implementation of each of the projects mentioned above and how that experience might influence the management of future ICT projects.
3. Options for improving ICT procurement and management across government.

Executive Summary

Conduct of the Inquiry

The Inquiry into the Management of ICT Projects in the Northern Territory was self-referred by the Public Accounts Committee on 28 August 2013. The Inquiry was prompted by ongoing concerns raised by the Auditor-General regarding the management of information and communication technology projects in the Department of Infrastructure (Asset Management System), the Department of Health (Grants Management System), and the Power and Water Corporation (Asset Management Capability).

The purpose of the Inquiry was to identify the factors which contributed to the success or failure of the above projects in relation to cost; time; meeting user needs; and meeting project objectives. A second aim was to identify the lessons learned from these projects with a view to influencing the management of future ICT projects and developing options for improving ICT procurement and management across government. The Terms of Reference are listed in full on page 11.

The findings of this Inquiry are based on submissions to the Committee, evidence from key stakeholders provided during public hearings, documentation from each of the three projects reviewed, and the broader literature on ICT project management. Submissions, and transcripts of public hearings, are available on the Committee's web page.

Literature Review

Information and communication technology (ICT) is central to contemporary life in both the personal and public domains. Although ICT clearly sits at the heart of government business, many government ICT systems are outdated and unable to deliver the required functionality.¹ This has resulted in the implementation of a large number of ICT projects both in Australia and overseas, a substantial number of which have had poor outcomes. One overseas study found that one in six of the projects examined had '... a cost overrun of 200%, on average, and a schedule overrun of almost 70%'.² Similarly, in Australia, 30-40 percent of ICT projects experience some form of escalation, with cost overruns averaging 43-189 per cent; 30-40 per cent of projects resulting in no perceptible benefits; and 80-90 per cent of ICT investments failing to meet their performance objectives.³

A key theme to emerge from the literature is the importance of distinguishing between ICT projects, which are primarily concerned with technology, and ICT-enabled

¹ Victorian Ombudsman's Office, *Own motion investigation into ICT-enabled projects*, report prepared by GE Brouwer, Victorian Ombudsman in consultation with DDR Pearson, Victorian Auditor General, Victorian Ombudsman's Office, Victoria, November 2011.

² B Flyvbjerg and A Budzier, 'Why your IT project may be riskier than you think', *Harvard Business Review*, vol 89, no. 9, 2011, p. 3.

³ R Young, *Case Studies – How Boards and Senior Management Have Governed ICT Projects to Succeed (or Fail)*, Standards Australia, Sydney, 2006, cited in Victorian Ombudsman's Office, *Own motion investigation*, p. 11.

projects, which use ICT to facilitate a transformation of business and services. This is an important distinction because if an ICT-enabled project is primarily thought of in terms of its technology aspects it is more likely to be driven by technological imperatives and less likely to be managed in a way that delivers the sought after business benefits. All three of the projects examined in this Inquiry are, properly speaking, ICT-enabled projects.

A key finding from the literature review (Chapter 2) was the need for the public sector to become an 'intelligent client'. This concept refers to the core capabilities an organisation requires to successfully undertake an ICT-enabled project. An intelligent client is one which has an in-depth understanding of: the level of technical challenge involved and how to meet it; the business processes the organisation seeks to change and how to incorporate this into the design process; and the additional resources and skills needed to supplement existing capabilities. The absence of these characteristics is likely to contribute to miscommunication, poor client-vendor relations, and poorly constructed design specifications, all of which will have an ongoing adverse effect throughout the life of the project. For instance, the ability to understand when and how to reengineer business processes is essential if the effectiveness and efficiency of the organisation is to be maximised. In addition, an intelligent client who understands the extent to which business processes can be reengineered is more likely to: choose a technical solution that will deliver the required business transformation; avoid excessive customisation and scope creep; and to ensure that detailed design specifications are developed early on in the project. These outcomes will have a positive impact on vendor relations and on the overall progress of the project.

The literature review also flagged a pressing need to improve the governance and management of ICT-enabled projects and to enhance capacity in these areas through the use of appropriate project methodologies and the employment of accredited project managers with experience in ICT-enabled projects. Governance structures and processes should clearly define: lines of accountability; roles and responsibilities; and decision making and reporting processes. An 'active governance' approach which requires committee members to be informed; to have relevant experience and expertise; to be prepared to challenge project managers and to closely investigate selected aspects of a project, is considered essential.

A major factor in achieving good project governance, better risk management and, ultimately, project success, is strong commitment from the top levels of management. Senior level engagement has been identified as a meta factor which mediates other critical success factors such as project methodologies and management, stakeholder and change management, planning, and staffing. Commitment at this level prompts the creation of mechanisms to provide effective direction and management of the business transformation, as directors of the business unit are in a better position to understand the impact of the transformation on stakeholders and working practices. It also ensures that Project Sponsors are invested with the authority to facilitate the

process or organisational changes required to mitigate project risks which are outside the authority of the project team.⁴

Inadequate oversight of projects and failure to evaluate projects at key stages has been cited as an integral factor in cost blowouts, time delays, failure to terminate when appropriate, and failure to collate and disseminate lessons learned. In response, many jurisdictions are now implementing a Gateway Review system which requires a team of independent experts to investigate a project at key milestones. There is substantial evidence to suggest that staged implementation of ICT-enabled projects, coupled with an independent review of the project at each stage, reduces project risk because it enables informed decisions to be made at key points, including whether the project should continue or be terminated. However, there is also evidence that the effectiveness of Gateway Reviews is compromised when (a) it is not mandatory to undertake all stage gates, (b) it is not mandatory to address recommendations from the review, (c) results of the review do not have to go to the Executive and (d) reviewers are not adequately qualified.

Northern Territory Government (NTG) ICT-Enabled Projects

Of the three NTG projects reviewed for this Inquiry, the Department of Infrastructure's Asset Management System (AMS) project constitutes the most significant failure. The AMS was a complex multi-agency project which aimed to replace the nine legacy systems used to manage the Government's asset management information systems and business processes with an integrated commercial off the shelf product (COTS).⁵ Costs for this project blew out from an original budget of \$14 million to a final cost for the incomplete project of around \$70 million. The original timeline proposed a completion date of April 2010 but the project was not terminated until March 2014. At the time of termination, the system was providing less efficiency than that previously provided by the nine legacy systems the project was intended to replace.

The failure of the AMS was significantly influenced by: poorly conceived governance structures and processes; inadequate documentation and reporting; issues with the vendor; a shortfall in staff resources; poor monitoring, analysis and reporting of risks; ineffective training and testing strategies; inadequate resourcing of the change management strategy; and a lack of engagement by client agencies. Overall, there was little evidence of timely commitment and support from senior management and a failure to act on risks as they eventuated.

The Power and Water Corporation's (PWC) Asset Management Capability (AMC) project was initiated in 2006 to replace a suite of old systems which were poorly integrated and no longer supported by vendors. The original budget of around \$15 million blew out to approximately \$51.8 million and the proposed completion date was extended from March 2011 to August 2012. However, the AMC project has delivered to specification, is providing some business benefits and is expected to provide further benefits into the future. Key factors that adversely impacted on this project include

⁴ Young & Jordan, Top management support, p.720.

⁵ Auditor-General for the Northern Territory, Report to the Legislative Assembly, March 2013, p.15.

data quality and migration issues; inadequate risk management; and lack of experience in estimating the time and costs required to complete activities. In general, planning processes, risk management and quality management could have been more effective. However, the successful and timely delivery of the AMC project was also influenced by the failure of the Casuarina Zone substation and the subsequent Mervyn Davies report.⁶ This had a significant impact because it required an increase in the Corporation's capital programme and consequently diverted resources away from the project. It also required the scope of the project to be expanded to take account of changes recommended by the Report.

Although management of the AMC could have been improved, there is also evidence of good practice. In particular, project management took effective actions to reorient the project when significant issues threatened project success. In the absence of a formal Gateway System to monitor the progress of state sponsored ICT projects, Power and Water effectively reviewed the business case at key stages through the engagement of independent consultants. This is likely to be a significant factor in the ultimate success of the project despite the fact that it went over time and over budget.

The purpose of the Department of Health's Grants Management System (GMS) project is to develop and implement an ICT system to support the management of service agreements with NGOs. The original budget for the project was around \$684,000 and the expected final cost is \$979,220.⁷ Although the proposed completion date was November 2011 the project is still running and is expected to be completed by the end of June 2014. The project can be divided into two periods. The first period relates to the development of the ICS GrantsTracker solution, with Fujitsu as prime contractor and ICS as sub-contractor, and extends from 10 March 2011 to 10 September 2012. The second period relates to the Contract Variation in which ICS was terminated and Fujitsu became the sole contractor charged with developing a bespoke system, and extends from 10 September 2012 to the present.⁸

Key factors associated with the failure of phase one of the GMS include ineffective management of the design specifications stage and communication breakdown between all three parties. Both of these can, in large part, be attributed to the Department's lack of expertise and experience in managing and delivering an ICT-enabled project. Although the initial development of the project was contracted out to an ICT consultant, neither the Project Director nor the Project Manager had expertise in ICT-enabled project delivery. This led to unrealistic expectations and an inability to respond appropriately to issues as they arose. In addition, there appears to have been little understanding of the importance of the business reengineering process. This is evident from the failure to complete and sign off on the Integrated Grants Management Framework (IGMF) which was the mechanism for creating the standard business processes and workflows to underpin the technical solution.

⁶ Mervyn Davies, *Independent Enquiry into Casuarina Substation Events and Substation Maintenance across Darwin, Final Report*, Power and Water Corporation, 2009, available from: https://www.powerwater.com.au/about_power_and_water/major_projects/power_supply_update

⁷ NT Department of Health, GMS Deed of Variation, 2013.

⁸ Department of Health, GMS Project Update, to CEO and Executive Leadership Team, 19 December 2012.

Although the Department is confident that phase 2 will be successful, it is well over schedule and, while costs associated with the Contract Variation have been minimised through effective negotiation with Fujitsu, there will still be substantial indirect costs in terms of staff time and resources, and the continuance of inefficient management of NGO Grants while waiting for the solution to be implemented.

Lessons Learned

The projects examined in this Inquiry demonstrate that delivering ICT-enabled projects is complex. It entails business analysis, organisational change management, project management and ICT expertise, including systems design and data management. Successfully delivering such projects requires effectively managing all these areas. This requires both the capacity to manage these different aspects of the project, and robust governance arrangements to keep the project on track, manage the risk of failure, and guide the project to achieve business benefits. As is common with complex systems, there was not one single factor that could be isolated as the sole cause of the problems that arose with these projects, but rather the compounding of a range of factors, or the compounding effect of failure to adequately deal with a problem. For example, in both the AMS and GMS, significant issues were encountered in the design specification stage with these having a flow on effect throughout the remainder of the project.

More specifically, it has become evident that there is a need to develop more robust governance mechanisms for ICT-enabled projects and to foster a culture of active governance at the senior management level. Agency capacity to manage ICT-enabled projects also needs to be increased so that staff have sufficient expertise to make appropriate decisions and to liaise effectively with ICT consultants and vendors. Mechanisms need to be developed to improve business case development and to ensure that sufficient detail is provided in relation to costs, staging of the project, procurement strategy, business readiness, risk management and governance. ICT-enabled project delivery would also benefit from a more consistent and formal approach to project management and the acknowledgement that this is a specialised area requiring different skills to those held by operational managers. A notable lesson from this Inquiry is the importance of ensuring adequate oversight and evaluation of projects at key stages of development. Staged implementation would reduce wastage and result in more effective management while a Gateway Review process would facilitate the timely identification of problems and provide an expert and objective view of project status, of actions needed to ensure project health and of whether the project should proceed or be terminated.

There is also considerable scope for improving relations with vendors. The adoption of a partnership approach characterised by clear communication, identification of mutual goals and a collaborative approach to problem solving is essential, and will achieve better outcomes than apportioning blame. Better communication will partly be achieved by building the ability of staff to understand ICT concepts and to 'share a common language' with ICT consultants and experts. However, misunderstandings and contractual conflicts can also be reduced by ensuring that variations in project

scope and other changes are clearly documented and managed, and this will enable enforcement and redress if the relationship breaks down.

Contracting to large multi-national vendors has proved to be neither cost effective nor efficient. Compared to local vendors, multi-nationals are less likely to understand how the NTG works and less likely to have the same level of commitment, as they are not dependent on the NTG for future projects. In addition, contracts with large multinational vendors are more likely to result in a fly in fly out mentality and a high turnover of staff. Consequently, it will be important to work more closely with local industry and to assist local vendors to build their knowledge and expertise. This will deliver long term benefits such as more cost effective service agreements, an increase in the pool of local consultants and greater depth in the industry.

One of the most important lessons to be learned from these projects is the absolute necessity of having a coherent all-of-government (AoG) framework to govern and oversight ICT-enabled projects and to provide mechanisms for guidance, support and improvement. This was not available to the AMS, AMC and GMS during the period over which they were developed and delivered. A coherent ICT Governance Framework would provide a mechanism for developing the government's capability to deliver these highly complex projects and for ensuring adequate oversight and scrutiny at a high level.

Options for Improvement.

Pathways to improving the future management of ICT-enabled projects include the development of: an AoG ICT Governance Framework; an ICT Capability Strategy; and a Project Management Methodology Framework. ICT governance, staff capability, and project management methodologies influence how an ICT-enabled project is conceived, planned, procured, managed and implemented. If the inputs from these systems are of high quality then it is likely that the outcomes for ICT-enabled projects will be significantly improved. Although these frameworks and strategies need to be implemented at the AoG level, to achieve maximum benefits it will be essential to ensure that the core principles, policies and practices of these frameworks and strategies are also embedded at the agency level.

The NTG has already taken the first step by developing the *NTG ICT Governance Framework*, which is the core document underpinning an integrated package for the management of ICT investments across government. This brings a much needed strategic approach to government ICT investments and outlines core principles and actions to improve ICT-enabled project delivery. Although the new ICT Governance Framework is a positive development, the Committee is concerned that the purpose of the Framework has primarily been construed in terms of the oversight of major/critical projects, with little emphasis placed on improving project management, governance, and capability across the board. While major/critical projects will be oversighted by the ICT Governance Board, the oversight and guidance of smaller, less significant projects will be undertaken by agencies. As it stands, the Framework lacks the strategies and mechanisms required to adequately embed its core principles, policies and practices at the agency level.

The significant gaps in public sector knowledge and expertise in relation to project management, particularly with regard to ICT-enabled projects, have had a major impact on all aspects of the projects reviewed in this Inquiry. Strengthening public sector capability through the development of an AoG ICT Capability Strategy would improve a range of project management practices such as stakeholder engagement, change management, business analysis and vendor management. In addition, this would bring the NTG into line with other jurisdictions that have recently made reforms in this area. The Committee recommends that the ICT Governance Board collaborate with the Office of the Commissioner for Public Employment (OCPE) to develop an ICT Capability Strategy and that this be based on the Skills for the Information Age (SFIA) Capability Framework. As this will take some time to implement, the Committee recommends the adoption of short term strategies, such as professional development for existing staff, to build capacity in the interim.

Currently, the NTG has no AoG guidelines, policies, procedures or training programmes in relation to the selection or use of project management methodologies. An AoG Project Management Framework would provide agencies with guidance on how to select project methodologies appropriate to their agency and the types of projects they implement while also ensuring that they met specified AoG requirements. It would facilitate a more consistent approach to ICT-enabled project management, build staff capacity, improve project governance and management, and facilitate the collation and dissemination of lessons learned.

The problems confronting the NTG in its delivery of ICT-enabled projects are not unique. The Territory is fortunate in that it is in a position to learn from the documented experiences of other jurisdictions and to draw on the significant array of resources that have already been developed to improve the governance, procurement and management of government ICT-enabled projects.

Recommendations

RECOMMENDATIONS ON GOVERNANCE

Recommendation 1

The Committee recommends the prompt implementation of the All-of-Government ICT Governance Framework.

Recommendation 2

The Committee recommends that membership provisions for the ICT Governance Board, ICT Leadership Group and Ministerial ICT Advisory Council, require that at least one member has ICT qualifications and expertise in the development and management of ICT-enabled projects.

Recommendation 3

The Committee recommends that the ICT Governance Board consider the appointment of a government chief information officer and delegating authority for coordination of Framework activities to this position.

Recommendation 4

That the ICT Governance Board initiate the development of mechanisms for the collation and dissemination of lessons learned from all ICT-enabled projects undertaken by NTG agencies.

Recommendation 5

The Committee recommends that the ICT Governance Board develop a specific strategy, separate from the ICT Strategy currently under development, to:

- a) Inform agencies of changes to ICT governance arising from the new Framework;
- b) Ensure reforms proposed by the new Framework are implemented at agency level and not operationalized only in relation to projects classified as major/critical; and
- c) Support agencies to implement continuous improvement in relation to their delivery of ICT-enabled projects.

Recommendation 6

The Committee recommends that the all-of-Government ICT Governance Framework be amended:

- a) To ensure clarity of terminology, particularly regarding 'major/critical' and 'major' projects.
- b) To include a mandatory requirement for major/critical projects to be subject to a staged Gateway Review system unless there are exceptional circumstances, defined in the Framework, which negate the need for a review.

Recommendation 7

The Committee recommends that the ICT Governance Board consider the adoption of open ICT standards in line with practices of other jurisdictions.

Recommendation 8

The Committee recommends that the role of Project Sponsor be:

- a) Clearly defined in the Project Plan as part of the 'Governance Arrangements';
- b) Appointed at a senior level; and
- c) Realistically resourced in terms of the proportion of FTE allocated to this position.

Recommendation 9

The Committee recommends that agencies identify responsible executives and senior project staff in project business cases and that their personal performance agreements reflect their accountability for successful project delivery.

Recommendation 10

The Committee recommends that the ICT Governance Board initiate the development of a contract framework more suited to ICT-enabled projects and which takes into account factors that have a strong influence on the contract management of these projects such as intellectual property rights, insurance levels which encourage small to medium enterprises and the benefits of standard contracts. In this respect, the NSW Government's new contract framework, *Procure IT version 3*, which was negotiated with industry, provides a useful resource.

Recommendation 11

The Committee recommends that the ICT Governance Board initiate the development of Guidelines to assist agencies in the procurement and management of ICT-enabled projects, taking note of those recently developed by the Victorian Government, specifically, the *ICT Projects technical guidance 'Business Case Development'* and *'Procure and Deliver'*, and including:

- a) The need for agencies to assess their capacity to deliver the project in the early planning stages and develop plans to address any gaps;
- b) Clear pathways for accessing advice on ICT-enabled project delivery;
- c) An ICT Governance Education Program for Project Sponsors and members of project boards, with a view to providing a forum where executives can learn what to expect when taking responsibility for an ICT-enabled project or program and how to lead an ICT-enabled project to ensure the best result for the organisation;
- d) Incorporating internal ICT governance controls within their existing corporate governance model that are appropriate to their organisational requirements and consistent with the NT ICT Governance Framework;

- e) Advice on costing of ICT projects; and
- f) Guidance on implementing adequate scrutiny and contract management arrangements.

RECOMMENDATIONS ON CAPACITY

Recommendation 12

The Committee recommends that the ICT Governance Board collaborate with the OCPE:

- a) In the development of an ICT Capability Framework for the NTG and consider the SFIA Framework as the basis for the development of that framework.
- b) In the short term, to identify staff capability gaps in relation to ICT Project Management and develop strategies, such as professional development seminars, to address these gaps.

Recommendation 13

The Committee recommends that the ICT Governance Board:

- a) Liaise with the OCPE regarding the development of strategies to attract and retain staff with skills in ICT-enabled project management;
- b) Collaborate with industry in the development of strategies to increase private sector capacity to expand the pool of ICT consultants and contractors available to the public sector; and
- c) Compile and maintain a list of NTG staff with particular ICT-based skills. This will facilitate appropriate secondments to ICT-enabled projects and provide a basis for developing mentoring arrangements.

Recommendation 14

The Committee recommends that the ICT Governance Board initiate an ongoing register of ICT consultants and contractors used by the NTG which includes details of NTG projects they have worked on and key performance indicators.

RECOMMENDATIONS ON PROJECT MANAGEMENT METHODOLOGY

Recommendation 15

The Committee recommends that the ICT Leadership Group:

- a) Develop a project management methodology framework to provide an AoG context within which agencies can select project management methodologies suitable to their needs; and
- b) Review the Victorian Government Guideline, *Selecting a project management methodology*, with a view to developing a comparable guideline to assist NTG agencies to select appropriate project management methodologies for ICT-enabled projects.

1 Introduction

- 1.1 Successive Auditor-General reports have identified ongoing issues with the management of information and communication technology (ICT) projects in the Department of Infrastructure (Asset Management System), the Department of Health (Grants Management System), and the Power and Water Corporation (Asset Management Capability). Based on the Auditor-General's reports, the Committee resolved to inquire into and report on these issues.

Scope of the Inquiry

- 1.2 The Terms of Reference for this Inquiry asked the Committee to identify and explore the factors which contributed to either the success or failure of these ICT projects with reference to the following outcomes: cost; time; meeting user needs; and meeting project objectives. The Terms of Reference also requested that the Committee identify the lessons learned from these projects, with a view to influencing the management of future ICT projects and developing options for improving ICT procurement and management across government.
- 1.3 Consequently, the Committee reviewed and analysed each of the above projects in order to determine the key factors influencing the success or failure of ICT projects in the Territory. This review included an examination of project documentation, submissions, and public hearing transcripts, with analysis of the findings contextualised within the broader literature on ICT projects. The Committee's review and analysis forms the basis for suggested improvements to agency structures, procedures and practices, with a view to improving the future management of ICT projects in the Territory.
- 1.4 The purpose of the Inquiry is not to allocate blame to individuals, or agencies, but to identify both the generic, and ICT specific, areas of weakness that have come to the fore during the implementation of large complex ICT projects.

Conduct of the Inquiry

- 1.5 The Committee adopted the Terms of Reference in accordance with the resolution made at its meeting on 28 August 2013.
- 1.6 The Committee requested and received extensive documentation on each of the ICT projects under review.
- 1.7 At its meeting on 28 August 2013, the Committee called for submissions by 8 November 2013. The call for submissions was advertised on the Assembly website and by advertisement in the NT News. The Committee also directly contacted a number of individuals and organisations to advise them of the call for submissions.
- 1.8 The Committee received 13 submissions, listed at Appendix 1 and held four public hearings in Darwin, with these listed at Appendix 2.

2 Background

Context

- 2.1 Over the last few decades, information and communication technology has become central to contemporary life. Key aspects of government business such as day to day communication, document management, and the provision of services, cannot be effectively managed without ICT. In addition, ICT facilitates the collection and analysis of large amounts of data, thus enabling a more strategic approach to both planning and policy development. Although ICT clearly sits at the heart of government business, many government ICT systems are outdated and unable to deliver the required functionality.⁹
- 2.2 This has resulted in the implementation of a large number of ICT projects across Australia, many of which are large and complex. Some, such as the Queensland Health Payroll project, have received significant negative media attention due to extensive cost and time blowouts and failure to deliver effectively functioning systems. However, a review of the national and international literature indicates that negative experiences with ICT projects are common both within Australia and overseas. One overseas study found that while the average overrun was only 27 per cent, one in six of the projects examined had ‘... a cost overrun of 200%, on average, and a schedule overrun of almost 70%’.¹⁰ Similarly, in Australia:¹¹
- 15-28 per cent of ICT projects are abandoned before completion;
 - 30-40 per cent of ICT projects experience some form of escalation, with cost overruns averaging 43-189 per cent;
 - 30-40 per cent of projects are implemented without perceptible benefits;
 - 80-90 per cent of ICT investments fail to meet their performance objectives.
- 2.3 This chapter reviews a selection of the literature and informs the findings of subsequent chapters which: identify the key issues associated with ICT-enabled projects in the Northern Territory (Chapter 3); consider lessons learned (Chapter 4); and canvass options for improving the outcome of these projects (Chapter 5). It first discusses several concepts which either frame or inform discussions on ICT-enabled projects, then draws out key themes emerging from the literature and, finally, discusses and summarises the characteristics associated with successful ICT projects.

⁹ Victorian Ombudsman’s Office, Own motion investigation.

¹⁰ Flyvbjerg & Budzier, Why your IT project may be riskier than you think, p.3.

¹¹ R Young, Case Studies – How Boards and Senior Management Have Governed ICT Projects to Succeed (or Fail), p.11.

Key concepts

ICT Projects or ICT-enabled Projects?

- 2.4 Projects relating to information and communication technology are frequently referred to as 'ICT projects', however, to some extent this is a misnomer. Strictly speaking, the term ICT project refers to projects which are primarily concerned with technology while an ICT-enabled project refers to projects which use ICT to facilitate a transformation of business and services. Examples of the former include the replacement of communications equipment or the maintenance of an organisation's computers.
- 2.5 Based on the above, this Inquiry is concerned with ICT-enabled projects rather than ICT projects, as the purpose of all three projects reviewed in this Inquiry is to transform the policies, processes and procedures which underpin a particular aspect of the organisation's core business. This is an important distinction, as the framework from which a project is viewed informs how it is managed. If an ICT-enabled project is primarily thought of in terms of its technology aspects it is more likely to be driven by technological imperatives and less likely to be managed in a way that will deliver the sought after business benefits. As the Victorian Ombudsman notes, 'While the former may be the responsibility of ICT experts, the latter must be driven by the business to succeed'.¹² This tension between the technology and business aspects of ICT-enabled projects emerges as a key theme in both the literature and the analysis of the three NTG projects (Chapter 3).

Project Success or Project Management Success?

- 2.6 The research literature on ICT-enabled projects suggests that it is important to distinguish between project success and project management success, as the factors associated with each type of success are different. Project success is primarily connected to business success, as measured by user satisfaction and benefits to the organisation.¹³ By contrast, project management success is typically defined in terms of a project being on time, within budget and to specifications.¹⁴
- 2.7 On one level, it is perfectly legitimate to base the evaluation of a project on the extent to which it is on time, within budget and to specifications, particularly for government projects which are accountable for how public money is spent. However, project management success does not necessarily guarantee that the project itself will be successful. For example, a project may be delivered on time, within budget and to specifications but if the specifications are poorly constructed and not accurately aligned with business objectives and outcomes,

¹² Victorian Ombudsman's Office, Own motion investigation, p.10.

¹³ G Thomas & W Fernandez, 'Success in IT projects: A matter of definition?', *International Journal of Project Management*, vol. 26, 2008, pp.733-742, p.734

¹⁴ R Young, & E Jordan, 'Top management support: Mantra or necessity?' *International Journal of Project Management*, vol. 26, 2008, pp. 713-725.

then it is unlikely that anticipated benefits will be realised.¹⁵ In this sense, a project which meets the criteria for project management success may still be deemed a failure if it fails to increase user satisfaction and deliver benefits for the organisation. Equally, project success can occur in the absence of project management success. The ideal combination is, of course, to achieve both project success and project management success.

2.8 The literature suggests that formally defining success at the inception of the project, and measuring the extent to which the parameters for success have been met post implementation, has a positive impact on project outcomes.¹⁶ Project success has been cited as having a direct relationship to effective corporate governance at a top management level.¹⁷ This is because a primary objective of top level managers is to ensure that business benefits are realised. By contrast, the primary focus of project managers is to ensure that the project is delivered on time, on budget and to specifications. Young and Jordan note that this difference in focus has implications for those involved in directing and managing ICT-enabled projects, in particular¹⁸:

- 'Boards and top managers may have to accept that they personally have the most influence on whether a project succeeds or fails'; and
- 'Project managers must recognise the limitations of project methodologies and allow projects to focus on project success rather than project management success even though they cannot be accountable for the realisation of outcomes/benefits'.

Intelligent Client

2.9 For ICT-enabled projects to be successful it is essential that the client be actively involved throughout the project. The client organisation also has to be able to act as an 'intelligent client', defined by the UK National Audit Office as 'An organisation with the knowledge, skills and authority required to negotiate with and manage both suppliers and users and to contract with suppliers'.¹⁹ More specifically, this includes the following characteristics:²⁰

- The ability to form productive value-for-money relationships with suppliers;
- An in-depth understanding of the business process the organisation seeks to change;
- An in-depth understanding of the level of technical challenge involved and how to meet it; and

¹⁵ Thomas & Fernandez, *Success in IT projects*, p.736.

¹⁶ *Ibid.*, p.736

¹⁷ Young & Jordan, *Top management support*, p.714.

¹⁸ *Ibid.*, p.721.

¹⁹ National Audit Office, *Delivering Successful IT-enabled Business Change*, report prepared by J Bourn, Comptroller and Auditor General, National Audit Office, London, 2006, p.7.

²⁰ *Ibid.*

- A clear understanding of the additional resources and skills needed to supplement existing capabilities
- 2.10 The concept of an intelligent client relates specifically to the core capabilities an organisation requires to successfully undertake an ICT-enabled project. These go beyond typical project management skills, as they require the client organisation's staff to be willing to step into the ICT world and familiarise themselves with technological concepts which are not generally a part of their normal working life. Failing this, they require the employment of additional staff with the requisite skills and experience or a third party consultant with these capabilities. Each of the capabilities identified above requires some understanding of ICT; of how the development of a new system will impact on the organisation; and of what the development and implementation of a new system will require from the organisation.
- 2.11 Lack of such knowledge impedes the establishment of constructive and open relationships with the vendor, as the client will find it difficult to determine whether emerging problems are due to poor performance or to genuine difficulties that need to be resolved by both parties.²¹ Similarly, if a client organisation does not thoroughly understand its business processes then it is unlikely to be able to communicate to suppliers the processes it is seeking to transform.²² This is a major cause of problems at the design stage, with this having a ripple effect throughout the life of the project in relation to cost and time blow-outs.²³
- 2.12 Understanding the level of technical challenge is essential to the ability to anticipate risks effectively and also impacts on the ability to identify which resources and skills will be required to supplement existing capabilities. Identifying the gaps in capability is clearly crucial as failure to manage these gaps effectively can affect all phases of the project. For instance, an agency which has no real capacity for understanding the technological aspects of an ICT-enabled project will need to fill this gap by engaging third party advice to assist in the procurement phase and also throughout the project to ensure that quality assurance is adequate. Other areas in which capacity may be low, and which frequently contribute to time and cost overruns, include data quality management and change management.
- 2.13 The characteristics associated with the concept of an intelligent client are common themes in the literature and will be discussed in more depth below.

²¹ *ibid.*, p.34.

²² *ibid.*, p.34.

²³ A Grasso, 'Information technology acquisition: A common sense approach', *Defense AT&L*, March-April 2009, pp.10-15.

Key Themes in the Literature

Contextual Themes

- 2.14 Several recurrent themes in the literature relate to issues that are reasonably common in the public sector context such as challenges associated with:
- Managing large and complex projects;
 - Multi agency projects; and
 - Public sector capability.

Managing Large and Complex Projects

- 2.15 Public sector ICT-enabled projects are often large, complex, and in the public eye. The primary aim of many such projects is to provide services to the community at minimal cost to the public purse, with this exerting significant pressure on the departments and executives responsible for developing and implementing projects. The National Audit Office in the United Kingdom notes that the large scale of many government projects increases risk, and:

... creates particular issues around complexity, cost control and the interoperability of different systems, particularly where more than one government department or agency is involved.²⁴

- 2.16 There is an increasing trend away from large scale ICT-enabled projects towards those which are smaller and more defined.²⁵ Central to this trend is the use of an incremental approach which allows successes or failure to be identified early and puts capabilities in the hands of users more quickly.²⁶ One example of this approach can be found in the South Australian Government's plan to prototype small "chunks" of projects with a view to scaling them up once they are proven to work.²⁷ However, agreement on the value of implementing smaller projects is not unanimous, with the Australian Computer Society (ACS) commenting that making IT projects smaller and more defined will actually introduce new risks. Drawing on evidence from the NSW Independent Commission against Corruption, ACS notes that these risks arise from the opportunities for profiteering and corruption that occur in a context where government lacks adequate processes for assuring contractor capability.²⁸

²⁴ National Audit Office UK, Delivering Successful IT-enabled Business Change, p.24.

²⁵ Australian Computer Society, *Submission to the Public Accounts Committee*, 8 November 2013, p.6.; Northern Territory Department of Education, *Submission to the Public Accounts Committee*, 12 November 2013, p.3; R Merret, 'SA government's ICT strategy to speed up project delivery', CIO Magazine, 27th March, 2013, available at: <http://www.cio.com.au/article/457439/sa-government-ict-strategy-speed-up-project-delivery/>;

²⁶ Grasso, Information technology acquisition, p.14.

²⁷ Merret, SA government's ICT strategy, p.1.

²⁸ ACS, Submission, p.7.

Multi-agency Projects

- 2.17 The complexity of large scale government projects increases significantly when they are implemented across agencies, because programs and processes cross organizational boundaries and intersect multiple governing bodies. This can result in ambiguity about lines of authority and responsibility and can leave program managers disenfranchised.²⁹ Consequently, for effective collaboration to occur, multi-agency projects require strong governance arrangements with a clear decision making structure and high level representation from all participating agencies.
- 2.18 From a technical perspective, multi-agency projects often face greater challenges in relation to the development of standardised and consistent business processes, the management of data quality, and the migration of data from one system to another. When issues associated with data quality and standardisation of business processes are not managed effectively they become key contributors to both cost and time overruns. As noted in a submission from one government department, multi-agency projects are inherently complex as each stakeholder agency has its own agenda and level of commitment.³⁰ The complexity associated with such projects makes it difficult to define and measure benefits; to manage process inter-relationships; and to accurately anticipate all the potential issues.

Public Sector Capability

- 2.19 ICT-enabled projects occur at the interface of two specialist areas, ICT and project management. The literature suggests that public sector capability is weak in each of these areas, with this being the case in both Australia and the United Kingdom. As the Victorian Ombudsman notes:

Years of outsourcing ICT and project management expertise have drained the government of the skills and knowledge it needs to deliver large complex ICT projects efficiently and effectively.³¹

Similarly, results from a UK survey on the eight most common causes of project failure found that ‘... “lack of skills and proven approach to project management and risk management” was a cause of concern for 71 per cent of Heads of Centres of Excellence’.³²

- 2.20 Submissions to the Committee indicate that similar issues are present for the Northern Territory Government, with one noting that:

There is no mandated or adopted project or program management methodology to support the execution of project activity across the NT Government.³³

²⁹ Grasso, Information technology acquisition, p.12.

³⁰ Northern Territory Police, Fire and Emergency Services (NTPFES), *Submission to the Public Accounts Committee*, 31 October 2013, p.1.

³¹ Victorian Ombudsman’s Office, Own motion investigation, p.41.

³² National Audit Office UK, *Delivering Successful IT-enabled Business Change*, p.36.

³³ Australian Computer Society, *Submission*, 11 November 2013, p.7.

As a result, multiple projects within the same agency are often managed differently. This does not mean that every project should be managed in exactly the same way, as the approach used should also reflect the size and complexity of the project. However, it is important to adopt a consistent approach sourced from a standard set of methodologies. For example, the NTG Department of Corporate and Information Services (DCIS) note that while they use the full suite of industry standard project management tools when delivering major ICT system projects, ‘... a “lighter” approach is deployed for small scale projects’.³⁴

2.21 Another submission noted that project management maturity was low, with many organisations lacking a structured competency project management framework. In addition, best practice human resource organisational strategies to organically grow and sustain internal competencies were either not in evidence or were marred by a lack of commitment.³⁵

2.22 The consequences of low capability in both project management and ICT are significant. Low capability can result in inexperienced staff managing large complex projects, as well as difficulties in recruiting and retaining project staff. The latter can result in a need to employ contract staff who do not necessarily embrace public service values and are less likely to be aware of business needs, objectives and processes. In addition, where internally appointed project management staff are not sufficiently skilled, or are lacking in ICT project management experience, there is a greater likelihood that responsibility for project outcomes and governance will be shifted to vendors or contracted project managers. One strategy to compensate for lack of capability is to engage third party ICT consultants to provide advice, conduct reviews and assist at key stages. Although this is recognised as good practice³⁶ it can encourage the abrogation of responsibility, particularly where senior level project managers are out of their depth, with one submission to the Committee noting that:

In the instances of low levels of formal internal competencies [there is] a need to revert confidence and responsibility for adequate outcomes and good governance to vendors, contractors, or contracted project managers.³⁷

2.23 A variety of strategies have been developed to improve public sector capability, such as the implementation of major skill development programmes; the inclusion of specialist project management and ICT streams as part of public sector recruitment strategies; mentoring programmes; and ensuring that part of a third party consultancy’s remit is to transfer knowledge to departmental project and programme staff. These strategies will be discussed in more detail in Chapter five.

³⁴ Department of Corporate and Information Services (DCIS), *Submission to the Public Accounts Committee*, 12 November 2013, p3.

³⁵ Australian Institute of Project Management (AIPM), Northern Territory Chapter Council, B Walker, *Submission to the Public Accounts Committee*, 8 November 2011, p.4.

³⁶ National Audit Office UK, *Delivering Successful IT-enabled Business Change*, p.12.

³⁷ AIPM, *Submission*, p.4.

Project Related Themes

Governance

2.24 Clear and decisive governance is considered essential for success in ICT projects.³⁸ A coherent governance structure will clearly define the lines of accountability; the roles and responsibilities of committees and key personnel; and decision making and reporting processes.

2.25 In addition to the development of a coherent governance structure, good governance is characterised by:

- The provision of clear terms of reference for the Steering Committee.
- A steering committee which is: comprised of senior level managers with relevant experience; representative of key stakeholders; and includes independent ICT expertise.³⁹
- A steering committee which challenges the project manager when milestones are not met and asks ‘... the hard questions in order to drive the project to success’.⁴⁰
- Clearly defined accountability for the project with ultimate responsibility being vested in the steering committee chairperson with advice of the committee.⁴¹
- The development of a rigorous oversight framework to monitor budgets, timelines, business processes, and realisation of business benefits.⁴²
- The involvement of senior management at all stages of the project.⁴³
- Regular communication between the relevant Minister and senior project personnel.

2.26 One submission to the Committee noted that:

A governance body has not done its job if the members just turn up to a monthly meeting, get presented with a folder of reports, graphs and diagrams, view presentations from project staff and ask some leading questions.⁴⁴

Rather, those occupying governance roles should be actively involved and be ‘... prepared to closely investigate selected aspects of a project, especially if they start to receive indicators of issues or risks materialising’.⁴⁵

³⁸ National Audit Office UK, Delivering Successful IT-enabled Business Change; Victorian Ombudsman’s Office, Own motion investigation; Grasso, Information technology acquisition; M Tims, ‘Why implementation is important’, *Public Administration Today*, October-December 2006, pp.39-44.

³⁹ Victorian Ombudsman’s Office, Own motion investigation, p.46;

⁴⁰ *ibid.*, p.19, para 69.

⁴¹ *ibid.*, p.18, para 68.

⁴² Tims, Why implementation is important, p.42.

⁴³ *ibid.*, p.41.

⁴⁴ Information and Communications Technology Industry Association of the Northern Territory (ICTIA NT), *Submission to the Public Accounts Committee*, 14 November 2013, p.9.

⁴⁵ *ibid.*, p.9.

- 2.27 A central facet of good governance is ensuring that those primarily responsible for the project are held accountable. As one commentator notes, additional project and risk frameworks will be ineffective unless a culture in which responsibility is abrogated can be resolved by ‘... sheeting home accountability more firmly at department secretary, deputy secretary and agency CEO levels’.⁴⁶ Focusing on accountability will reduce the readiness of executives to launch, or take on responsibility for, ‘... a poorly planned, badly scoped, underfunded, under resourced project expected to be delivered in unrealistic timeframes’.⁴⁷ One mechanism suggested to achieve this includes the use of cabinet sub-committees to hold senior executives to account for being in control of ICT-enabled projects.
- 2.28 Achieving good governance is particularly challenging where an ICT-enabled project involves several agencies as this can result in ambiguities in relation to lines of authority and responsibility. When a project is being undertaken in this environment it is especially important to ensure that all agencies are represented on the steering committee at an appropriately senior level and that structures are in place to minimise the assertion of individual interests and to facilitate collective decisions that benefit the project as a whole.⁴⁸

Senior Level Engagement

- 2.29 Senior level engagement, also known as ‘top management support’, is regarded as one of several factors critical to the success of ICT-enabled projects. It has been defined as:
- ... devoting time to the [Information Systems] program in proportion to its cost and potential, reviewing plans, following up on results and facilitating the management problems involved with integrating ICT with the management process of the business⁴⁹
- 2.30 Recent research suggests that it may actually be the most important factor as it contributes to success both directly and through its mediation of other critical success factors such as project methodologies and management, stakeholder and change management, planning, and project staff.⁵⁰
- 2.31 The UK National Audit Office notes that senior level engagement is crucial for successful delivery in the following ways:⁵¹
- Provides mechanisms to prioritise the programme and project portfolio in line with business objectives;
 - Facilitates a clear decision making structure with agreed lines of accountability; and

⁴⁶ Government Technology Review (GTR), *Victorian Ombudsman Fires an ICT Distress Flare*, February-March 2012, no p.n., available at: <http://www.govtechreview.com.au/victorian-ombudsman-fires-an-ict-distress-flare/>

⁴⁷ *ibid.*, no p.n.

⁴⁸ National Audit Office UK, *Delivering Successful IT-enabled Business Change*, p.16.

⁴⁹ Young & Jordan, *Top management support*, p.715.

⁵⁰ Young & Jordan, *Top management support*, p.720.

⁵¹ National Audit Office UK, *Delivering Successful IT-enabled Business Change*, p.29.

- Demonstrates that senior management is committed to the change.
- 2.32 The better governance that arises from senior level engagement also contributes to more effective risk management because it ensures that Senior Responsible Owners or Project Sponsors are invested with the authority to facilitate the process or organisational changes required to mitigate project risks which are outside the authority of the project team.⁵²
- 2.33 One reason why top management support is so important is because a key aim of top managers is to ensure that the agency's business goals are met. Consequently, top level managers typically focus on the realisation of benefits rather than the management of the project. Strong leadership from the top prompts the creation of mechanisms to provide effective direction and management of the business transformation, as directors of the business unit are '... better placed to understand the impact of the transformation on stakeholders, working practices, financial efficiencies and marketing opportunities'.⁵³ It is thus directly linked to effective project governance.
- 2.34 A key characteristic of ICT-enabled projects is the complexity associated with the design phase which frequently results in unanticipated process changes that have a flow-on effect to various aspects of the project. Top management support is essential in dealing with the risk that this generates as it enables speedy and responsive decision making that is informed by a broad view of the business aims of the agency and the business benefits to be realised. As Young and Jordan note:
- Project methodologies appear to be of value for the detailed consideration of how to implement business process changes, but they are limited because complexity makes it impossible to anticipate all the issues. It seems that it is not the plan itself that is important, but the ability to change the plan to react to issues as they are realised. This is a project governance rather than project management issue.⁵⁴
- 2.35 In addition to the above, top level management support:
- Reduces the risk that the ICT aspect of the business change will be emphasised at the expense of the business aspects;
 - Enables risk to the agency's reputation to be managed effectively by ensuring that publicised goals and timelines are realistic rather than aspirational;
 - Facilitates the nomination of an effective champion, Project Sponsor, or Senior Responsible Owner capable of driving change and ensuring the project stays on track; and
 - Facilitates a supportive environment for the project and the project staff.

⁵² Young & Jordan, *Top management support*, 2008, p.720.

⁵³ National Audit Office, *Delivering Successful IT-enabled Business Change*, p.30.

⁵⁴ Young & Jordan, *Top management support*, pp.720-21.

Planning and the Business Case

2.36 The business case is often primarily thought of as the means by which funding is obtained. However, an essential part of its function is to provide a roadmap which articulates all elements of a project. It should set out.⁵⁵

- How the business change will be achieved;
- What the benefits will be; and
- What machinery will be put in place to drive the achievement of those benefits;

The UK National Audit Office also considers that it should assign responsibility for promoting and securing benefits to named individuals.

2.37 The business case should be subjected to internal scrutiny and undergo regular reviews to ensure that it remains relevant, realistic and realisable in the context of a changing environment. The Victorian Department of Treasury and Finance, which uses a staged approach to the delivery of ICT-enabled projects, notes that the initial business case should describe each stage of the project and how it aligns with key deliverables. Subsequently, the business case '... is refreshed following each project stage, with progressively more refined and detailed cost estimates (including contingency) and benefits analysis'.⁵⁶ This facilitates more informed decisions regarding the next stage as it ensures a continual assurance process, allows cost estimates to be refreshed, and provides up-to-date information on emerging risks.

2.38 It is reasonably common for government agencies to rely on private sector consultants to prepare the business case and this is quite legitimate where there is an absence of internal ICT expertise. However, there is a danger that the use of third party consultants will lead to a lack of commitment and ownership from agency staff, as the Victorian Ombudsman notes:

... the rigor associated with the preparation of the business case is an essential part of developing a greater understanding of the project, its dimensions, the options and particularly the risks. Relying on consultants to undertake this work, with little or no oversight from the agency, can lead to a lack of ownership, commitment and understanding by the agency of critical aspects of the project.⁵⁷

Planning and Procurement

2.39 An effective and carefully thought out procurement process is essential for project success and the choices made at this stage should be based on sound research. Prior to and during the procurement process it is essential to clearly define the project's scope and requirements as this forms the basis for approaches to the market. In addition, the agreed scope of work forms a key

⁵⁵ National Audit Office UK, *Delivering Successful IT-enabled Business Change*, p.19.

⁵⁶ Department of Treasury and Finance, 'ICT Projects Technical Guidance: Procure and Deliver', *Investment Lifecycle and High Value/High Risk Guidelines*, DTF, Melbourne, 2012, p.3.

⁵⁷ Victorian Ombudsman's Office, Own motion investigation, p.24.

component of the Request for Tender document. During the initial procurement stage it is essential to establish and document current business processes so that what is wanted can be clearly communicated to prospective vendors.

- 2.40 Key themes emerging from the literature include the importance of:
- Early engagement with suppliers to test the viability of the proposed ICT-enabled changes;
 - Securing vendor neutral advice during the procurement process, particularly regarding the suitability of the proposed solution;
 - Detailed and robust discussions regarding the merits of off the shelf systems versus bespoke developments; and
 - Giving consideration to modifying business processes.
- 2.41 The literature highlights the increasing use of ‘interactive vendor engagement’ or ‘competitive dialogue’ which involves the agency and short-listed suppliers working together during the tendering period so that both parties gain an understanding of what is required and what the vendor can offer.⁵⁸ Competitive dialogue ‘... is most relevant for complex projects where the agency specifies an outcome-based requirement, but either cannot or does not want to prescribe the solution’.⁵⁹ Examples include projects which are introducing new technology for business transformation, or seeking an alternative service model. The extensive discussions that competitive dialogue entails ensure that on completion of the tender process there is substantial clarity around what is required and what will be provided.
- 2.42 This more interactive style of early engagement can also include the provision of funding to shortlisted vendors so that they can develop prototypes to test the viability of the proposed solution.⁶⁰ Although this increases the cost of the tender process it can pay dividends over the long term, particularly for unusual, or large and complex projects.⁶¹
- 2.43 The decision to go with an off-the-shelf or a bespoke system should take into account a variety of factors including:⁶²
- Fit – how well will the solution match business needs? An accurate assessment of fit must be based on a comprehensive Business Process Review.
 - Cost – considerations of cost should be based on the Total Cost of Ownership.

⁵⁸ *ibid.*, p37.

⁵⁹ Department of Treasury and Finance, ICT Projects Technical Guidance: Procure and Deliver, p.7.

⁶⁰ National Audit Office UK, Delivering Successful IT-enabled Business Change, p.35

⁶¹ Radical Systems, D Chatterton, *Submission to the Public Accounts Committee*, 17 September 2013, Slide 3.

⁶² ICTIA NT, *Submission*, pp.13-15.

- Implementation services – this includes consideration of a variety of factors including, for a COTS system, the extent to which customisation can achieve the forecast business benefits for the estimated cost; availability of services for the life of the project; and the resources required from both client and vendor.
- Supplier support and maintenance throughout the operational life of the system.
- Timing – governance bodies should be involved in determining the optimum option, for example, whether to choose a 50 per cent solution implemented rapidly or a 100 per cent solution that will take three years to implement.
- Training – initial user training requirements, ongoing user training needs, administrative training needs.
- Lessons learned – have similar solutions been implemented in other agencies or complementary organisations; if so, what was their experience?
- Evaluation – essential to ensure that those evaluating the proposed solution are competent to do so and to seek specialist guidance when necessary.

An additional consideration to be taken into account is the feasibility of integrating new and old systems.

- 2.44 One UK report noted that organisations which achieved project success generally relied on their existing IT infrastructure, mature technology and off-the-shelf software, as this was viewed as reducing risks to the reliability of the system.⁶³ However, in Australia, the Victorian Ombudsman noted that agencies appeared to be ‘... reluctant to acquire and make the most of commercial off-the-shelf (COTS) systems’⁶⁴ and that where COTS systems were used they often underwent such a degree of customisation that the benefits were lost to government.⁶⁵
- 2.45 One of the key issues agencies need to consider when introducing a new system is the degree to which business processes can or should be modified; this, in turn, will influence whether a COTS or bespoke system will be chosen. A willingness to modify business processes can minimise the customisation required when implementing a COTS system. This, in turn, maximises the benefits of a COTS system, minimises immediate costs and optimises ongoing development costs. The price to be paid for doing this is the inconvenience to users, who have to apply the new business processes, and the consequent need for training and change management. However, this short-term inconvenience should be compensated for by the ability to capitalise on the

⁶³ National Audit Office UK, Delivering Successful IT-enabled Business Change, p.35

⁶⁴ Victorian Ombudsman’s Office, Own motion investigation, p.36

⁶⁵ *ibid.*, p34.

technology advances that have occurred since the old system was built, with this making business processes more efficient and reducing costs in the long term.

Agency Capability

2.46 The capability to deliver ICT-enabled projects needs to be carefully considered rather than taken for granted. Project work requires quite different capabilities to those utilised in an agency's everyday operations and, when the aim of the project is to deliver an ICT-enabled business transformation, the level and types of capabilities required become even more complex. Prior to embarking on a project, agencies should assess whether they are in a position to resource the project effectively. This means analysing project management needs; assessing competencies required; and considering and identifying resource needs. Key resources associated with successful delivery include:

- An appropriately qualified and experienced project team;
- A Project Sponsor or Senior Responsible Owner appointed at senior management level;
- A Project Manager with relevant experience in delivering government ICT-enabled projects;
- Flexible staff arrangements which allow operational staff to be seconded to the project at key stages;
- Senior management staff with sufficient experience and expertise to provide effective project governance through membership on the primary governance body;
- Access to ICT expertise from within the agency or through a central agency; alternatively the ability to obtain expertise through a third party consultancy
- Sufficient funding.

2.47 The importance of an agency being realistic about their capability to deliver an ICT-enabled project is reflected in data published by the UK National Audit Office which found that inadequate skills and business resources topped the list of 'red' issues raised in Gateway Reviews of ICT-enabled programmes.⁶⁶ Too often, lack of agency capability results in project teams being cobbled together from existing staff who may not have the competencies, skills or knowledge to perform effectively in a pressured project environment. Equally, while senior level engagement is considered critical to success, evidence from the UK National Audit Office suggests that many Senior Responsible Owners lack experience, spend less than 20 per cent of their time on the role and receive insufficient support.⁶⁷

⁶⁶ National Audit Office UK, Delivering Successful IT-enabled Business Change, Fig. 7, p.32.

⁶⁷ *ibid.*, p.15.

- 2.48 Project managers have different skill sets to operational managers and, as one submission noted:

In selecting competent project managers, it is important to differentiate between good operational managers and project managers. Operational managers deal with maintaining the status quo through incremental change. Project managers change the status quo. While the technical issues may be similar, the processes and procedures are very different.⁶⁸

In addition, a review of successful UK projects suggests that the leadership and competence displayed by the project or programme manager is a critical characteristic of successful ICT projects.⁶⁹ Due to the general lack of public sector capability in relation to ICT project management it is not surprising that agencies have difficulty finding suitably experienced project managers. Agencies without this expertise are advised to engage someone specifically for this role and to place them in the business unit to encourage familiarity with business objectives and processes.⁷⁰ A specialist project manager, with expertise in managing systems development projects as well as a good knowledge of the business, is in the best position to facilitate effective liaison between the business unit and the contracted software developers. If a specialist project manager ‘... is not assigned there is a high risk of misunderstanding between the system developers and the business area, an unwillingness to address issues as they arise, and poor quality systems integration and acceptance testing’.⁷¹

- 2.49 Agencies need to have the capacity to be flexible with staff arrangements so that operational staff who are subject matter experts, or who will be users of the end product, can be seconded to project work at key stages, such as the design phase and the user acceptance testing stage.
- 2.50 Lack of ICT expertise in government has been identified as a key factor in the poor outcomes associated with ICT-enabled projects, with one submission noting that it frequently mediates other factors associated with failure such as lack of senior management buy-in, inadequate Gateway Reviews, and inadequate stakeholder engagement.⁷² Consequently, it is of particular importance for agencies to supplement poor capability in this area through engaging ICT expertise either from within government (central agencies) or externally. Third party consultant advice can be used in a variety of ways such as:⁷³
- Assisting the agency to shape their requirements and to test the quality of bidders’ proposals;
 - Providing independent quality assurance; and

⁶⁸ NTPFES, *Submission*, p.2.

⁶⁹ National Audit Office UK, *Delivering Successful IT-enabled Business Change*, p.36.

⁷⁰ Northern Territory Government Department of Education, *Submission to the Public Accounts Committee, 15 November 2013*, p.3.

⁷¹ *ibid.*, pp.3-4.

⁷² ACS, *Submission*, pp.5-7.

⁷³ National Audit Office UK, *Delivering Successful IT-enabled Business Change*, p.33.

- Facilitating the transfer of knowledge and expertise through coaching and mentoring staff, thus building internal capability to manage future changes and therefore secure longer term benefits.
- 2.51 Overall, the evidence suggests that there is a need to place greater emphasis on ensuring agency capability prior to commencement of a project. As noted in the Gershon report, *Review of the Australian Government's Use of Information and Communications Technology*,
- One agency observed that there is no evidence that current investment approval processes include any rigorous and objective methodology for assessing the organisational capability of an agency seeking funding for ICT-enabled projects during the budget process. Equally, there is no assessment of the likelihood of delivering project outcomes.⁷⁴

Project Management

- 2.52 Effective project management plays an important role in facilitating the success of ICT-enabled projects. Some of the key factors which contribute to good project management, such as the governance structure, senior level engagement and experienced project managers, have already been examined. This section considers other factors which exert a significant influence, such as project management methodologies and the use of a project management office. It then looks at specific areas within project management including: risk management; vendor management; and stakeholder and change management.
- 2.53 There is a broad suite of tools to facilitate good quality project management and a number of methodologies to guide project managers in their use.⁷⁵ Despite this, lack of skills, and lack of a proven approach to project management and risk management, has been identified as a common cause of failure in ICT-enabled projects.⁷⁶ Several submissions to the Committee noted that Northern Territory Government agencies lack project maturity, with this partly demonstrated by a lack of consistency in how ICT-enabled projects are managed both within and across agencies.⁷⁷
- 2.54 The literature suggests several alternatives in relation to project methodologies. The UK National Audit Office has identified the PRINCE2 methodology as the government standard for public sector IT project management and this also appears to be the most frequently used methodology in Australian Federal Government agencies.⁷⁸ By contrast, a submission from the Australian Institute of Project Management (AIPM) recommends its own competency based approach asserting that it has been developed for an Australian context and provides better training than PRINCE2 which is 'primarily focused on a

⁷⁴ Gershon, Sir Peter, *Review of the Australian Government's Use of Information and Communications Technology*, Department of Finance and Deregulation, Commonwealth Government, 2008, p.19.

⁷⁵ NTPFES, *Submission*, 31 October 2013, p.1.

⁷⁶ National Audit Office UK, *Delivering Successful IT-enabled Business Change*, p.51.

⁷⁷ NTPFES, *Submission*, 31 October 2013, p.1; ACS, *Submission*, pp.7-8; AIPM, *Submission*, p.4.

⁷⁸ National Audit Office UK, *Delivering Successful IT-enabled Business Change*, p.8; Gershon, *Review of the Australian Government's Use of Information and Communication Technology*, p.16.

compliance basis, a knowledge basis and on conferring qualifications from an employability basis' rather than developing genuine competencies.⁷⁹

2.55 The importance of a flexible approach is also highlighted in findings from the Victorian Ombudsman's Office. Based on a review of a wide range of Victorian ICT-enabled projects, the Ombudsman found that:⁸⁰

- Problems were more likely to arise where agencies and vendors used different project management or software development methods; and
- There is no 'one size fits all' solution, rather, project managers should be familiar with various approaches to project management so that they can choose the methodology which best fits the size, complexity, demands and risks of the proposed project.

2.56 Similarly, the Information and Communications Technology Association of the Northern Territory (ICTIA NT) notes the importance of:⁸¹

- Selecting a project management methodology that is appropriate for the project and the organisation;
- Ensuring stakeholder buy-in to the selected methodology;
- Applying the methodology – which means ensuring that governance bodies know the reporting and management outputs required by the methodology and actively ensure they are maintained;
- Using project reviews to check that the methodology is being applied effectively; and
- Periodically reviewing the methodology through formal reviews and implementing a process of continuous improvement.

2.57 Whichever approach is taken, there is a need for a structured framework which provides consistent guidance in relation to the management of ICT-enabled projects. However, within this, there should be room for flexibility. Although standardising on one methodology is a popular approach, one submission notes that in a context where greater flexibility is required, one alternative is to mandate the minimum standard for tools to be used.⁸²

2.58 Project Management Offices (PMOs) are increasingly being used to facilitate strategic project management within government agencies both in Australia and overseas and are commonly viewed as a useful mechanism for improving project outcomes. The veracity of this approach is supported by a recent AIPM survey which found that '... there was a 41 per cent improvement in overall

⁷⁹ AIPM, *Submission*, p.7.

⁸⁰ Victorian Ombudsman's Office, Own motion investigation, pp.41-42.

⁸¹ ICTIA NT, *Submission*, p.20.

⁸² NTPFES, *Submission*, p.3.

project success rates and 80 per cent of this contribution was attributable to the PMO'.⁸³

- 2.59 The range of functions performed by a PMO is likely to vary according to the importance attributed to it and its level of funding. Ideally, it provides both strategic oversight of an agency's portfolio of projects as well as support and guidance for individual projects. Contextualising a project within an agency's overall portfolio of projects and aligning it with the agency's strategic objectives helps to ensure that projects are initiated at an appropriate time, are supported by senior management and are allocated an appropriate budget. A useful summary of PMO functions is provided below:

... to provide strategic oversight, scrutiny and challenge across a department's portfolio of programmes and projects, to act as a focal point for supporting individual programmes and projects, and to drive the implementation of improvements to increase the department's capability and capacity in programme and project delivery.⁸⁴

More specifically, a PMO can:⁸⁵

- Ensure that individual projects are aligned with the agency's strategic objectives;
- Provide guidance on the application of the project management methodology used by the agency and contribute to its development
- Help to facilitate senior level engagement with projects;
- Develop a peer relationship with contractors in relation to technical aspects of the project and project management issues;
- Set up a framework of policies, procedures and processes to guide a project from conception through to delivery;
- Advise on methods and processes;
- Enable project management to make informed cost and capability tradeoffs and prioritize requirements; and
- Support critical decision-making processes such as selection of a prime contractor.

Vendor Relations

- 2.60 Management of vendor relations is an important factor in project success, particularly in ICT projects where an inability to understand technical requirements can lead to misunderstandings and delays. In research undertaken by the UK National Audit Office, constructive relationships with

⁸³ Public Accounts Committee, *Procurement and Management of ICT services in the NSW Public Sector*, Legislative Assembly of New South Wales, Report No. 7/55, May 2013.

⁸⁴ National Audit Office UK, *Delivering Successful IT-enabled Business Change*, p.6.

⁸⁵ Public Accounts Committee, *Procurement and Management of ICT services in the NSW Public Sector*, pp.42-43; Grasso, *Information Technology Acquisition*, p.13.

suppliers emerged as one of the strongest drivers for success, with the report noting that:

Our case studies indicate repeatedly the importance of establishing from the outset strong, constructive relationships between clients and suppliers, typified by shared governance arrangements, joint teams and establishing an environment in which each side is comfortable challenging the other.⁸⁶

- 2.61 Constructive relationships between clients and suppliers are characterised by openness and trust. These characteristics are more likely to be developed where vendors have representation on the steering committee and where the vendor relationship is treated like a partnership ‘... where both parties are willing to work together to address issues, problems and changes as they arise in a cooperative environment’.⁸⁷ Openness also encourages suppliers to constructively challenge clients’ proposals, to point out when proposals are not feasible and when requirement changes are likely to increase risks and delay delivery.⁸⁸ Trust can also be enhanced where suppliers are willing to provide open access to designs and specifications so that the client can obtain a second opinion from an independent consultancy specialising in quality assurance.⁸⁹
- 2.62 A key component of effective vendor management is recognition of the mutual impact each party has on the other. The client needs to have a sound understanding of the issues facing the supplier if they are to accurately determine whether problems are due to poor performance on the supplier’s part or genuine difficulties that all parties need to resolve. Equally, suppliers need to ensure they have a clear understanding of their client’s needs and ‘to challenge where this is not the case’.⁹⁰
- 2.63 Good communication is central to an effective vendor relationship. Where problems do arise they are often more readily resolved when the executive is willing to intervene by engaging directly with the vendor, with this being particularly important when the vendor is based overseas.⁹¹ Equally, as vendors and project management staff are likely to view issues from a different perspective it is important to ensure that the vendor has a direct line of communication to the agency executive responsible for the project as this will help to ensure that the executive has a rounded view of project issues and progress.⁹²

Stakeholder and Change Management

- 2.64 Effective stakeholder and change management is a crucial factor in the success of ICT-enabled projects with one source suggesting that, ‘... as a rule of thumb, for every dollar you spend on the technology, you should spend two dollars on

⁸⁶ National Audit Office UK, Delivering Successful IT-enabled Business Change, p.17.

⁸⁷ Victorian Ombudsman’s Office, Own motion investigation, p.38.

⁸⁸ National Audit Office UK, Delivering Successful IT-enabled Business Change, p.36.

⁸⁹ *ibid.*, p34.

⁹⁰ National Audit Office UK, Delivering Successful IT-enabled Business Change, p.34.

⁹¹ Victorian Ombudsman’s Office, Own motion investigation, p.42

⁹² *ibid.*, p.18.

change management'.⁹³ Strategies for stakeholder and change management will vary according to the size and nature of the project, however, certain principles are relevant across all projects.

- 2.65 Direct consultation with users can identify '... the informal ways in which people get around the system in order to do their jobs well' and therefore bring to light issues that may not be readily discernible to policy makers and consultants.⁹⁴ As an interviewee in one study noted:

People tend to deliver by working around the problems in the existing system. When there are too many "work-arounds", the system falls over. And because the work-around isn't written down, it's not compatible with the work-around elsewhere, so consultants don't know about [it]. When things are changed these little things get lost and everything falls apart.⁹⁵

Genuine engagement will ensure the buy-in of front line end users of the system from design and development through to acceptance testing thereby contributing to the delivery of a practical solution that provides benefits to users and is, therefore, also supported and utilised.⁹⁶

- 2.66 An essential part of the change management process is understanding the scope and implications of proposed changes, identifying who will be affected, consulting with the users on changes and, once proposed changes have been determined, developing and implementing strategies to assist users to adopt the new system. Change management is facilitated by appointing a specific individual to drive the process and should be included in the formal governance processes to ensure that it is adequately oversighted by the primary governance body.
- 2.67 An important component of change management is identifying the type and extent of training required and implementing appropriate programmes to ensure users adapt successfully to the new system. Despite this, the evidence suggests that this is rarely done well. In addition, the full cost of training is often under-estimated and training costs are not always fully calculated or recorded against the project.⁹⁷

Contract Management

- 2.68 The literature suggests that the complexity associated with ICT-enabled projects has resulted in contract management emerging as a significant issue for government agencies.⁹⁸ This is exacerbated by the relative inexperience of agency staff who are at a disadvantage when negotiating with large ICT vendors

⁹³ Victorian Ombudsman's Office, Own motion investigation, p.43.

⁹⁴ A Jones & L Williams, *Public Services & ICT: Where next for Transformational Government?*, the Work Foundation, supported by Adobe Europe, available from: <http://www.theworkfoundation.com/assets/docs/adobe5b.pdf>, p.36

⁹⁵ Ibid., p.36.

⁹⁶ NTG Department of Education, *Submission*, p.4; NTG Department of Corporate and Information Services, *Submission*, p.5.

⁹⁷ Victorian Ombudsman's Office, Own motion investigation, pp.43 and 93.

⁹⁸ NSW PAC, Procurement and Management of ICT services in the NSW Public Sector, p.78.

who are well-versed in contract negotiations and management.⁹⁹ Evidence from the Victorian Ombudsman's report suggests that agencies generally seek to: transfer risks to the vendor; have adequate abatement and penalty clauses; establish fixed costs for the product and services; and to have a single prime contractor responsible for project achievement. However, this does not happen in all cases and significant problems can arise from poor contract management in which abatement clauses are not included, penalty clauses are limited and contracts are made with multiple vendors.

- 2.69 The ability to successfully transfer risk to the contractor has been identified as a key challenge because:

Nothing is clear cut and delivery delays become a dispute about specification changes, communication delays, poor advice and misunderstandings, making it difficult to exercise penalty clauses without a significant risk of litigation and associated problems.¹⁰⁰

The Victorian experience suggests that agencies tend to concede ground to the vendor rather than have the vendor walk away from a disputed contract, as this would require a fresh start. The evidence also suggests that agencies are reluctant to exercise the penalty option, '... preferring to negotiate through difficulties with the vendor'.¹⁰¹

- 2.70 Due to the potential for contractual problems or failure it is essential to take an active approach to contract management. Essentially this means ensuring that any project related discussions or activity are conducted within the parameters of the contract. The Victorian Department of Treasury and Finance recommends that the procurement strategy include tools which enable active contract management to be negotiated into the vendor contract during the procurement process'.¹⁰² In a staged delivery approach, this means that contracts would have built in tools to support re-scoping, re-baselining or even cancellation of projects, in a way that provides clarity and certainty to all parties.
- 2.71 Additional strategies for effective contract management include:¹⁰³
- Ensure both parties have a good understanding of scope at the start of the project and that any information about the project that is provided to contractors matches the contractual obligations.
 - Carefully document changes to scope even when they can be dealt with within existing contractual mechanisms.
 - Avoid situations where contractors who deliver a substandard end product can blame this on client requested changes of scope, by discussing

⁹⁹ Victorian Ombudsman, Own motion investigation into ICT-enabled projects, p.7.

¹⁰⁰ *ibid.*, p.38.

¹⁰¹ *ibid.*, p.38.

¹⁰² Department of Treasury and Finance, 'ICT Projects Technical Guidance: Business Case Development', *Investment Lifecycle and High Value/High Risk Guidelines*, DTF, Melbourne, 2012, p.22.

¹⁰³ A Gill, 'Steps to keep your big buy on track', *Canberra Times*, 5 July 2011, p.26.

changes in terms of the effect on the overall project and clearly recording outcomes with the other party.

- Establish clear written channels of communication between contractor and project team and adhere to these specified processes. This helps to avoid contract changes being implied by the conduct of either party, for example, through the variations to the contract and obligations that occur over time as a result of everyday interactions and contract management decisions.
- Include a dispute resolution clause in the contract and do not hesitate to use it. There is a tendency to not utilise these clauses for fear of jeopardising the contract, however, the ‘... short, sharp involvement of independent third parties ... can quickly reduce tension, get the project back on track and actually improve relationships’.
- Deal carefully with delays, clearly set out future expectations for delivery, and ensure there is no confusion over the effect of changes or extra work on milestones.
- Understand the consequences of delay or non-performance to your circumstances, particularly in terms of the effect on the viability of the project as a whole.
- Consider termination where appropriate but this should be an avenue of last resort. If termination is desirable negotiate this with the contractor rather than unilaterally terminating the project – sometimes discussion with the contractor about possible termination may result in the contractor putting the project back on track.

Risk Management

2.72 ICT-enabled projects are frequently regarded as high risk due to their complexity and a comparatively high failure rate in terms of being delivered on time, to budget and to specification. In addition, because they are often large projects with a strong public profile the potential for failure poses a significant risk to the government’s reputation. In part, the increased risks associated with these projects relates to the relative recency of ICT as an everyday technology and the concomitant lack of experience and expertise in the implementation of ICT-enabled projects.¹⁰⁴ However, it also highlights the need for organisations to develop a higher level of risk management maturity and to pay more attention to managing and mitigating risks throughout a project’s life.¹⁰⁵

2.73 Factors which contribute to, or increase, risk in ICT-enabled projects include:¹⁰⁶

¹⁰⁴ ACS, *Submission*, 11 November 2, p.2.

¹⁰⁵ Victorian Ombudsman’s Office, Own motion investigation, p.6; AIPM, *Submission*, p.4.

¹⁰⁶ Victorian Ombudsman’s Office, Own motion investigation; National Audit Office UK, *Delivering Successful IT-enabled Business Change*.

- Lack of skills and a proven approach to project management and risk management;
 - Lack of staff knowledge about ICT systems in relation to how they work and what is required from project staff when upgrading or implementing new systems;
 - Multi-agency involvement in ICT system upgrades or replacements;
 - Failure to use effective external and internal quality assurance processes;
 - Failure to update the business case on a regular basis, with this contributing to the failure to identify new and emerging risks;
 - Failure of governance processes with a subsequent lack of timely intervention when problems arise;
 - Over-reliance on contract staff who have little knowledge of the business needs and objectives;
 - Over-reliance on private sector staff to develop the business case, with lack of involvement at this stage impeding their ability to adequately understand the risks;
 - Poor communication and poor documentation of the respective responsibilities of vendor and client;
 - Over-customisation of off-the-shelf software due to an unwillingness to transform business processes;
 - Competition for funding may encourage the creation of big vision projects which are inherently more complex and risky; and
 - Reluctance to cancel projects which are clearly not working.
- 2.74 Findings from the Victorian Ombudsman's report suggest that agencies sometimes take a 'tick the box' approach to risk management. A risk register is put in place and risks are listed on the agenda but are not regularly reviewed, updated, analysed or managed. Project planning documentation is also sometimes inadequate, with triggers and escalation strategies for risk management not always clearly defined.¹⁰⁷
- 2.75 Risk can be reduced through a number of strategies, such as following good practice in risk management as set out in the PRINCE2 project methodology; engaging a Chief Information Officer to oversight risks associated with ICT-enabled projects; using, where possible, proven technology and off-the-shelf software; and transforming business processes rather than implementing excessive customisation.¹⁰⁸ In addition, risk will be more effectively managed if governance structures and processes are robust and facilitate timely intervention.¹⁰⁹

¹⁰⁷ Victorian Ombudsman's Office, *Own motion investigation*, pp.27 and 40.

¹⁰⁸ National Audit Office UK, *Delivering Successful IT-enabled Business Change*, pp.8, 25, 35.

¹⁰⁹ *ibid.*, p.15.

- 2.76 An increasingly popular and effective mechanism for managing risk is the use of a staged implementation process coupled with a Gateway Review system. This breaks a large project into more manageable components and ensures that risks are addressed at appropriate intervals.

Business Processes and Implementation

- 2.77 A key purpose of ICT-enabled projects is to improve an organisation's business outcomes and to increase benefits, while at the same time becoming more cost effective and efficient. To meet these goals it is necessary to undertake business process reengineering (BPR) which involves rethinking and redesigning how the organisation works. ICT-enabled projects which do not rethink and redesign their business processes, but simply use the new technology to automate or increase the throughput of current processes, miss a valuable opportunity to maximise the effectiveness and efficiency of their organisation.
- 2.78 The literature would suggest that the latter practice is more prevalent, not only in the Northern Territory but more generally, as a common theme is the need for agencies to improve how they manage the business process and requirements gathering phase of ICT-enabled projects. One submission to the Committee noted that while detailed functional requirements should be defined at the start of the project, there is a tendency to commence projects with high level business requirements only, with detailed functional requirements only emerging when systems development is underway and understanding of needs increases. This approach often results in a need for extensive reworking and leads to blowouts in schedules and costs. A range of other issues have also been identified, including:¹¹⁰
- Poor requirements specification and a misunderstanding of the difference between requirements management and scope management;
 - Inadequate time and effort given to determining requirements and failure to work logically and systematically through a requirements development phase and subsequent phases of a project;
 - Failure to carry out a rigorous analysis of trade-offs in the initial requirements definition phase which means that the value of proposed changes cannot be adequately assessed; and
 - The determination of requirements in the absence of cost, schedule, and technology risk considerations.
- 2.79 The potential for increased costs and delays is greater when agencies do not understand their existing business processes, how their old system works or what they want to achieve with a new system. If insufficient attention is given to identifying what is required of the new system, and if mandatory requirements are not clearly documented for prospective suppliers, there are more likely to be

¹¹⁰ AIPM, Submission, p.3; Grasso, Information technology acquisition, p.12.

misunderstandings with the vendor and increases to the scope of the project. For example, the Victorian Ombudsman noted that the failure of the Housing Integrated Information Program (HIIP) to include a significant number of mandatory requirements in the request for tender, including 312 reports which were identified over the course of the project, resulted in scope increases that contributed to extra costs of over \$3.2 million.¹¹¹

Project Reviews and Evaluation

2.80 Regular project reviews are a key mechanism for identifying and managing risk and for assisting projects to stay on track. This type of 'Gateway Review' has become increasingly popular over the last decade, with a number of central agencies, in both Australia and overseas, incorporating this methodology into frameworks used to guide the implementation of ICT-enabled projects.

2.81 In their submission to the Committee, the NT Police, Fire and Emergency Services Department noted that Gateway Reviews require a project to be investigated by a team of independent experts at key milestones. Implementation of this process means that:

Projects cannot progress through the gate until they have demonstrated that their business case remains sound, appropriate support tools and procedures are being employed, and they have the resources and expertise to have a reasonable chance for success.¹¹²

In addition to minimising risk, most Gateway systems require a post-implementation review which identifies the extent to which benefits have been realised as well as lessons learned from the project.

2.82 There is substantial evidence to suggest that staged implementation of ICT-enabled projects, coupled with an independent review of the project at each stage, reduces project risk because it enables informed decisions to be made at key points, including whether the project should continue or be terminated. In this respect, the Victorian Ombudsman noted a number of concerns with the Gateway System implemented by the Victorian Department of Treasury and Finance and which was current at the time of the Ombudsman's report. These included:¹¹³

- Participation in Gateway was not mandatory, with this undermining the effectiveness of the program because agencies could opt in or out of specific gates.
- Addressing recommendations from a Gateway was not mandatory, with this lack of accountability undermining the Gateway as a mechanism for external oversight.
- There was no reporting to the agency executive – Gateway reports were only provided to the Senior Responsible Officer of the project, who was

¹¹¹ Victorian Ombudsman's Office, Own motion investigation, p.26.

¹¹² NTPFES Department, *Submission*, pp3-4.

¹¹³ Victorian Ombudsman's Office, Own motion investigation, pp.20-21.

not then required to report concerns to more senior agency staff or to the steering committee.

- There were concerns about the qualifications and appropriateness of reviewers.
- There was insufficient focus on Gate Six, Benefits Realisation, with Department of Treasury and Finance officials placing little emphasis on this Gateway as the opportunity for influencing the project had passed by this stage. This meant that the opportunity to identify learnings for the agency and the government was often lost.

Similar concerns have been identified in a report by the UK National Audit Office.¹¹⁴

- 2.83 These findings suggest that, in principle, the Gateway Review system has significant value but that full utilisation of this value is largely dependent on the strength of the commitment to this process and the political will to make the system mandatory.

Private/Public Sector Differences

- 2.84 Although both the public and the private sector face significant issues in the delivery of ICT-enabled projects, the evidence suggests that it is the public sector which faces the greatest challenges. Although many of the issues confronting both sectors are similar, there are also some differences. For example, political imperatives are clearly a greater issue for the public sector, as project failures have a direct impact on the government's reputation and can foster adverse community perceptions. Contract procurement processes may also be more onerous for the public sector due to accountability obligations and the impact of mechanisms such as the Free Trade Agreement on government procurement guidelines.¹¹⁵ In addition, the benefits sought by the private sector are primarily financial while those sought by the government are also measured in terms of the quality of the outcomes.¹¹⁶ From a more technical perspective, the public sector may face greater challenges when seeking to implement better practice options for business processes, due to the complex statutory and regulatory environment in which government business is conducted.¹¹⁷
- 2.85 A global survey by KPMG found that public sector planning and associated practices exceeded that undertaken in the private sector. Despite this, KPMG found the failure rate to be significantly higher (20 per cent) and suggested that this was due to: greater complexity in measuring benefits; resourcing issues; and undue focus on initial project approval without extending this to activities

¹¹⁴ National Audit Office UK, *Delivering Successful IT-enabled Business Change*.

¹¹⁵ Tims, *Why implementation is important*, p.40.

¹¹⁶ *ibid.*, p.40.

¹¹⁷ Power and Water Corporation, Submission to the Public Accounts Committee, 12 November 2013, p1; AIPM, *Submission*, p.3.

around project execution and closure.¹¹⁸ Specific areas in public sector practices that lagged behind the private sector included:¹¹⁹

- 6% less with a portfolio prioritisation process;
- 13% fewer linking project performance to executive performance measures;
- 25% less use performance/milestone based funding, with 28% higher using lump-sum; and
- 15% higher occurrence of project managers who are inexperienced and/or without formal qualifications.

Issues also emerged with the business case, both the veracity of the analysis that informs the initial business case and the fact that it is ‘... often regarded as a “one time document which is not referred to after approval” ’.¹²⁰

2.86 Information garnered from supplier workshops held in the UK further confirm a public sector lag, with suppliers noting that:

- Public sector programme and project management skills lag behind those of the private sector;
- It is easier to create constructive relationships with private sector clients than with those from the public sector;
- The level of commitment to IT-enabled business change of senior managers in public sector organisations was considered less than in the private sector;
- Public sector clients were less likely to position the IT-enabled changes as an integral part of the wider business change; and
- Public sector clients were less clear about how to define the benefits.

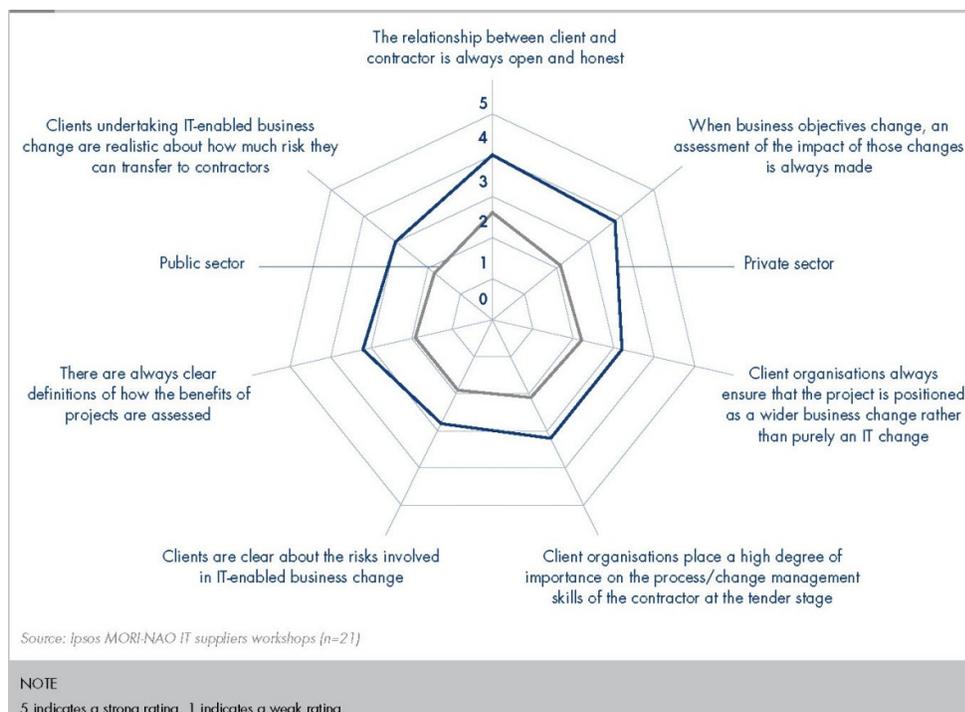
Figure 1 shows key findings regarding public and private sector differences from the perspective of UK suppliers.

¹¹⁸ Tims, Why implementation is important, p.40.

¹¹⁹ *ibid.*, pp.40-41

¹²⁰ *ibid.*, pp.40.

Figure 1:



Source: UK National Audit Office, *Delivering Successful IT-Enabled Business Change*, Figure 8, p.37.

Characteristics of successful ICT projects

2.87 The literature suggests that successful ICT-enabled projects share a number of characteristics in common. This section identifies characteristics of successful ICT-enabled projects based on three studies, all of which used a case study approach. Two of these (Fernandez; Young and Jordan) take a broad approach and focus on one or several characteristics which mediate a range of other characteristics.¹²¹ The third (UK National Audit Office) focuses more narrowly on a range of specific characteristics.¹²²

2.88 Fernandez found that companies which defined and measured success effectively, and acted on the results, were more likely to deliver a successful project. Companies which defined and measured success effectively:

- Used a balance of success criteria which clearly distinguished between project management success and business (project) success and focused on the delivery of benefits to the company;
- Agreed on the definition of success prior to initiating the project;

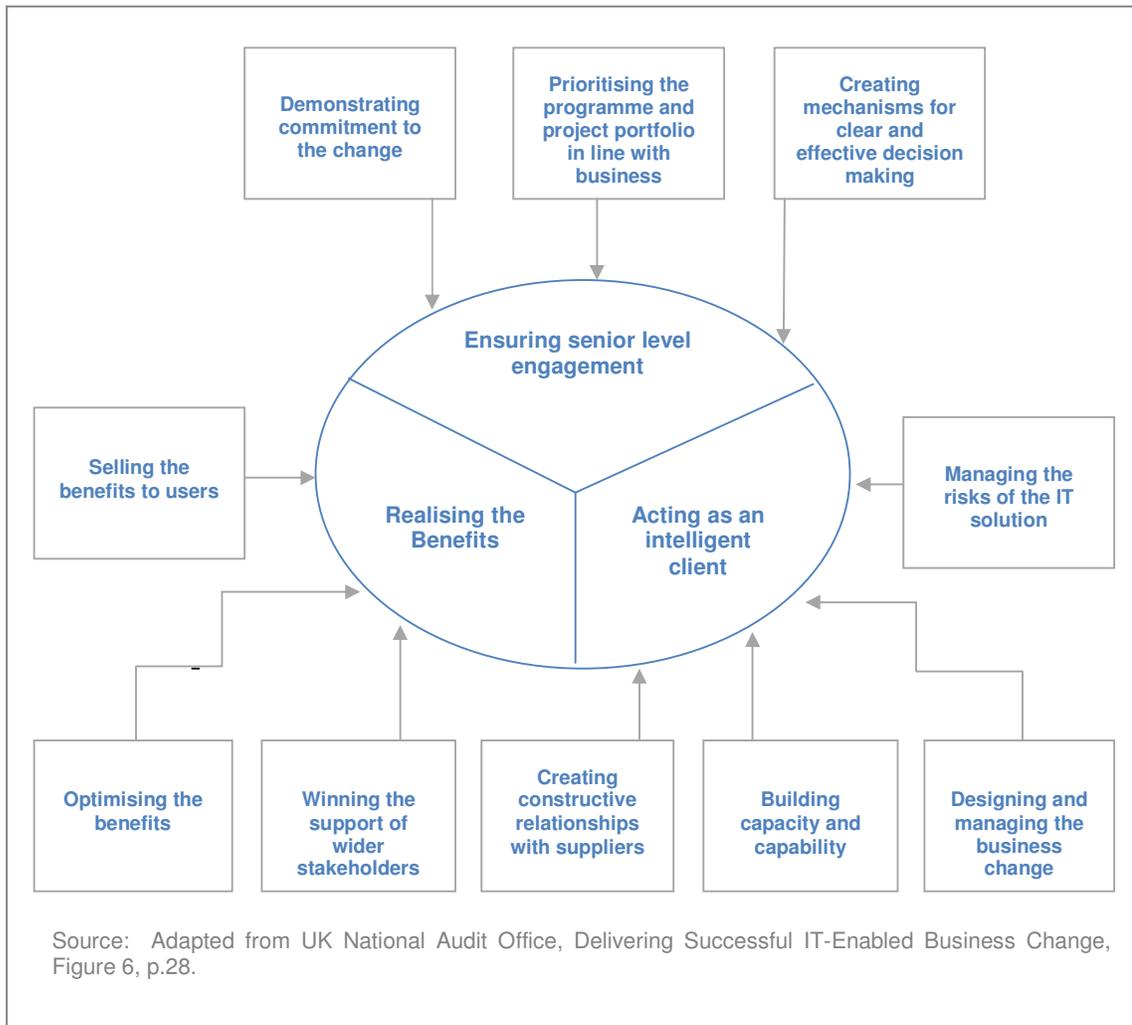
¹²¹ Thomas & Fernandez, *Success in IT projects*, pp.733-742.; Young & Jordan, *Top management support*, pp.713-725.

¹²² National Audit Office UK, *Delivering Successful IT-enabled Business Change*.

- Undertook formal evaluations during the project, at project closure and following implementation – benefits were generally measured up to 6-12 months after implementation; and
 - Supported the post-implementation review process through a Program Management Office and linked evaluation to corporate learning and continuous process improvement.
- 2.89 Companies which acted on the results of the evaluations ‘... were willing to re-direct project resources based on the *a priori* understanding of the relative importance of project success criteria and were willing to stop projects’.¹²³ In addition, these companies placed a strong emphasis on accountability. Holding business managers accountable for results contributed to more effective evaluation practices, drove positive behaviours and improved ‘... both the consistency of measurement and the willingness of managers to act’.¹²⁴ In addition, accountability addressed some of the significant challenges identified by companies, such as business engagement and the accurate estimation of costs and benefits.
- 2.90 Young and Jordan focused on top management support as the critical factor in project success both directly and through the way in which it mediated the effectiveness of other critical success factors such as competent project staff, high level planning, user involvement, and project methodologies. In this sense they propose top management support as a ‘meta-factor’ that encompasses other critical success factors. One of the key reasons for the importance of top management support is because senior management is focused on project success (the realisation of business benefits) in contrast to project managers who are focused on project management success (delivering a project on time, on budget and to specifications).
- 2.91 The UK National Audit Office study identified three key principles and nine related activities which underpinned successful ICT-enabled projects. These have largely been covered in the preceding literature review and are set out in the figure below.

¹²³ Thomas & Fernandez, Success in IT projects; Young & Jordan, Top management support, pp.738-739.

¹²⁴ Thomas & Fernandez, Success in IT projects; Young & Jordan, Top management support, p.739.

Figure 2: **Core principles and activities that contributed to success**

3 ICT-enabled Projects in the Northern Territory

*Picture yourself in a boat on a river,
With tangerine trees and marmalade skies...
(Lennon-McCartney, 1967)*

While I would not go as far as saying that this is how executives perceive their involvement in IT projects, many executives do seem to perceive the realm of information technology (IT) as a strange and foreign landscape. In fact, executive involvement in IT projects can be seen as a case of a classic problem in organizational control theory: Managing sensibly what you do not quite understand (Perrow, 1986/1972).¹²⁵

Background – NT Context

- 3.1 Management of ICT projects in the Northern Territory Government has come under increasing scrutiny from the Auditor-General due to the significant problems that have been encountered in the procurement, management and implementation of this type of project.
- 3.2 Responsibility for ICT policy and strategy rests with the Department of Corporate and Information Services (DCIS). The ICT governance framework in place at the time of this Inquiry was initiated by DCIS in 2002 and had not kept pace with an increasingly sophisticated ICT environment in which projects are both more numerous and more complex. It did not encompass oversight of major ICT projects or investments, and the lines of authority in this framework were not clearly established.¹²⁶ Although DCIS is currently developing a new ICT governance framework, the projects examined in this Inquiry have all taken place under the old model.

Projects under Review

- 3.3 This chapter looks in detail at three Northern Territory Government ICT projects which are either currently in process or recently completed. These include the Asset Management System (AMS) by the Department of Infrastructure, the Grants Management System (GMS) by the Department of Health, and the Asset Management Capability Project by the Power and Water Corporation. As shown in Table 1, each of these projects experienced significant cost over-runs and time delays.
- 3.4 The review of each of each project is structured around:
 - The purpose of the project and its status to date;
 - Project management success and project success; and
 - The factors contributing to success or failure.

¹²⁵ M Mähring, 'It Project Governance: A Process-Oriented Study Of Organizational Control And Executive Involvement', SSE/EFI Working Paper Series in Business Administration, No 2002:15, July 2002, p.1.

¹²⁶ NT Public Accounts Committee Public Hearing, 9 December 2013, Ms K Robinson, p.6.

Table 1: Summary of Timelines and Budgets for Selected ICT Projects in the Northern Territory

Project	Date Project Started	Date Contract Signed	Proposed Finish Date	Actual or Expected Finish Date	Original Budget	Actual or Expected Cost
Asset Management System ¹	2006: Business Case Options developed. Mid 2009: AMS Project established	March 2009	April 2010	Phase 1 - SAP finished April 2012 Project Terminated March 2014	\$14 million	\$70 million
Grants Management System ²	2010	June 2011	Dec 2011	30/6/14	\$684,070	Expected final cost \$979,220
Power & Water Corporation ³	Project initiated 2006; revised 2008	Sept 2009	March 2011 (go live)	August 2012	2006: \$15m	Final approved budget \$57.81 million

¹ Source: NT Auditor-General's Report to Legislative Assembly, March 2013; NT PAC Public Hearing, 28 April 2014, K Robinson, p.5.

² Source: Auditor-General of the Northern Territory, 'Department of Health Performance Management System Audit, Grants by the Department to NGOs for the delivery of primary health services', 1 August 20; GMS Project Update to Chief Executive Officer by Tanzil Rahman, Project Manager, 19/12/12; GMS Project Status Report, 5/9/13; NT Department of Health, GMS Deed of Variation, 2013.

³ Source: Auditor-General's Report to Legislative Assembly, August 2013; Auditor-General of the Northern Territory, Power and Water Corporation, Asset Management System Post-Implementation Review, 26 March 2013.

Asset Management System (AMS) – Department of Corporate and Information Services

Summary of Project to Date

3.5 Prior to this project, the Government's asset management information systems and business processes were managed through nine legacy systems. The

purpose of the AMS project was to replace these nine systems with an integrated commercial off the shelf product.¹²⁷

- 3.6 Business case options for replacing the legacy systems were developed in 2005-06 by the Department of Planning and Infrastructure. The tender was issued in December 2007¹²⁸ and the subsequent evaluation of tender responses in 2008¹²⁹ resulted in a contract being signed with Fujitsu on the 31 March 2009.¹³⁰
- 3.7 Fujitsu was contracted as the Systems Integrator (SI) and proposed a solution based on the SAP Enterprise Resource Planning (ERP) product. The AMS project was established in mid-2009 to undertake the system implementation. This included overseeing Fujitsu and coordinating the change management of business processes. Following agency re-structures, the principal responsibilities for the management of the project were transferred to the Department of Infrastructure.
- 3.8 Table 2 sets out the original timetable which shows an anticipated go-live date of April 2010.¹³¹

Table 2: Table 2: Original AMS Timetable

Phase of project	Date of Phase Completion
Project preparation and commencement	May 2009
Business blueprint phase	June 2009
Realisation phase	August 2009
Final preparation phase	February 2010
Go live and support phase	April 2010
Completion	April 2010

Source: Adapted from NT Auditor-General's Report to the Legislative Assembly, February 2011, p.36.

- 3.9 The AMS experienced significant delays from the very beginning when the initial SAP review identified major issues with the quality of Fujitsu's blueprint documentation. Delivery of the blueprint design blew out from three to twelve months and initiated a domino effect in terms of time delays. Subsequently, a range of factors contributed to ongoing delays, and costs blew out significantly

¹²⁷ Auditor-General for the Northern Territory, Report to the Legislative Assembly, March 2013, p.15.

¹²⁸ Auditor-General for the Northern Territory, Report to the Legislative Assembly, February 2011, p35.

¹²⁹ Auditor-General's Report, March 2013, p16.

¹³⁰ Auditor-General's Report, February 2011, p.35.

¹³¹ Ibid. p.36

from the initial budget of \$14 million.¹³² By August 2011 the project was 18 months behind schedule and \$6.4 million over budget¹³³ and by the end of August 2012 actual costs were \$28.2 million while the expected total cost on completion of the project had increased to \$70 million.¹³⁴

3.10 Specific factors related to the delays include:

- Significant quality issues with the blue print documentation prepared by Fujitsu;
- Insufficient resources provided by agencies for testing and training;
- Continuing issues with SI vendor (high turnover of SI consultants – 11 Fujitsu Project Managers from start of project until Phase 1 go-live in April 2012); and
- Issues related to user acceptance testing, performance testing, uploading of Geographical Information System (GIS) data and data migration and data cleansing.

3.11 As a result of problems with the GIS component of the project it was decided to adopt a two phase implementation programme, with the SAP software being implemented in Phase 1 and the GIS component in Phase 2.

3.12 The SAP software went live in April 2012, however, there were ongoing problems with implementation, particularly in relation to the interface of SAP with the Government Accounting System (GAS) and with the Housing Portal. Implementation of Phase 2 (GIS) had an anticipated go-live date of December 2012 but a decision was made to delay implementation until problems with Phase one were resolved.

3.13 Due to the ongoing nature of the issues encountered in the AMS project, an independent review was commissioned in order to identify future options in relation to the continuance or cancellation of the project.¹³⁵ A decision was made to continue with the current project and approval was granted by Cabinet for additional capital funding of \$22.2 million and recurrent funding of \$17.3 million over the forward estimates period.¹³⁶

3.14 Following on from this decision, Ms Anne Bradford was appointed as Custodian of the AMS Project in December 2012.¹³⁷ Ms Bradford's appointment was accompanied by a new governance structure, a revised project plan and the appointment of a specialist SAP IT project recovery team from Deloitte. The recovery team included representatives from key agencies and commenced a three week scope of work to: identify outstanding issues from the Phase 1 implementation; resolve outstanding issues with end of financial year reporting

¹³² Auditor-General's Report, March 2013, p16.

¹³³ NT Public Accounts Committee, Report on Examination of Auditor-General's Reports, October 2011.

¹³⁴ NT Public Accounts Committee, Public Hearing, 27 November 2012, Mr A Wagner, p.3.

¹³⁵ AMS Project Health Check Final Report, 29 October 2012.

¹³⁶ PAC Public Hearing, 27 November 2012, p.3.

¹³⁷ NT Public Accounts Committee, Public Hearing, 27 August 2013, Mr A Wagner, p.3.

requirements; and to develop a framework for the medium to longer term AMS recovery, remediation and 'Business As Usual' (BAU).¹³⁸ Seventy outstanding issues were identified, 10 of these required urgent resolution and were developed into end of financial year remediation projects. As at the end of August 2013, five of these projects had been completed and the remaining five were to be completed by November 2013.¹³⁹

3.15 Although the recovery and remediation process resulted in significant improvements to project governance and management, the AMS continued to experience problems. In October 2013, responsibility for the AMS was transferred from the Department of Infrastructure to the Department of Corporate and Information Services (DCIS). Apart from some refinements, DCIS continued with the custodian arrangements and milestones previously established under Ms Bradford, including a major stage gate review to be held early in 2014. The stage gate review was undertaken by KPMG and its primary aims were to:¹⁴⁰

- Assess the gap between what AMS had delivered and the functionality and information needs of government; and to
- Assess the options available to government to address the gaps and to deliver a functional and cost-effective solution.

3.16 KPMG's report on the AMS stage gate review was completed in early 2014, and found that the SAP AMS solution was not fit for its intended purpose and did not meet the business requirements of agencies.¹⁴¹

3.17 Based on the findings of the KPMG report, and on an independent expert opinion on KPMG's findings and proposed solution, the government made a decision to terminate the SAP AMS solution and to adopt the ASNET solution.¹⁴² This solution will incorporate three former systems, the Asset Information System (AIS), the Roads Information Management System (RIMS) and the Building Asset Management System (BAMS). These systems are owned by government and will provide robust, reliable and contemporary versions of operating software, although some updating will be required. Updates will include a wide range of benefits such as expanded business functionality; a modern user interface with a web-based portal to link the networked systems; and support for mobile applications and spatial data capability. ASNET will be underpinned by middleware technology, '... a contemporary tool used by major enterprises such as the banking and financial services sector to integrate systems ...'.¹⁴³ Middleware technology will:

¹³⁸ Custodian – AMS Program, Memo to Auditor-General of the Northern Territory re Progress Report, Asset Management System End of Financial Year Urgent Remediation Program, 19 March 2013, p.1.

¹³⁹ PAC, Public Hearing, 27 August 2013, Ms A Bradford, p.4.

¹⁴⁰ PAC *Public Hearing*, 9 December 2014, K, Robinson, p.5.

¹⁴¹ PAC *Public Hearing*, 28 April 2014, K, Robinson, p.3.

¹⁴² Tollner, Ministerial Statement, Hansard, 25 March 2014.

¹⁴³ NT Public Accounts Committee, Public Hearing, 28 April 2014, Ms K Robinson, pp.2-3.

... allow real time data sharing and integration between agencies and enable new systems to be introduced in a modular way to expand the network of asset related functions, such as a lease property management model.¹⁴⁴

Government officers and contractors will be able to access systems online and ASNET will be linked to the Government Accounting System (GAS), allowing the government's annual infrastructure programs to be properly managed.

- 3.18 Implementation of ASNET will be undertaken by DCIS. The project is expected to take three years and funding of around \$40 million has been approved for its delivery.¹⁴⁵ Although work is to begin on ASNET immediately, it will take some time to decommission the AMS which will remain as the asset system for managing the government's 2013-14 infrastructure program.¹⁴⁶

Project Management Success and Project Success

- 3.19 Project management outcomes for the AMS are undeniably poor. Costs blew out from an initial estimate of \$14 million¹⁴⁷ to a total of \$50.9 million at the end of the 2012-13 financial year, with the project still incomplete.¹⁴⁸
- 3.20 Equally, the original timeline for the project was 12 months, from May 2009 to April 2010. From the date of initiation (2009) to the time of termination (2014), the project had been running for around four and a half years, with only one phase of the project completed and implementation of that phase accompanied by major problems.
- 3.21 The AMS project was terminated in March 2014 because it was not fit for purpose and did not meet the business requirements of agencies. Far from delivering business benefits the project actually had a negative impact on the NTG's capacity to manage its assets. As such, the AMS achieved neither project management success nor project success.

Factors Contributing to Success or Failure of the Project

- 3.22 In the AMS project, numerous factors have been identified as contributing to poor outcomes in relation to cost, time, user needs and project objectives. These include, but are not limited to: a shortfall in staff resources; inadequate documentation and reporting; poor vendor management; poor monitoring, analysis and reporting of risks; ineffective training and testing strategies; inadequate resourcing of the change management strategy; and a lack of engagement by client agencies.
- 3.23 Some of these factors are symptomatic of failure at a broader level and in the interest of retaining clarity will be classified and addressed accordingly. At this

¹⁴⁴ PAC Public Hearing, 28 April 2014, Ms K Robinson, p.3.

¹⁴⁵ PAC Public Hearing, 28 April 2014, Ms K Robinson, p.5.

¹⁴⁶ Tollner D, Treasurer, Ministerial Statement, Hansard, Northern Territory Department of Legislative Assembly, 25 March 2014.

¹⁴⁷ Auditor-General's Report, March 2013, p.16.

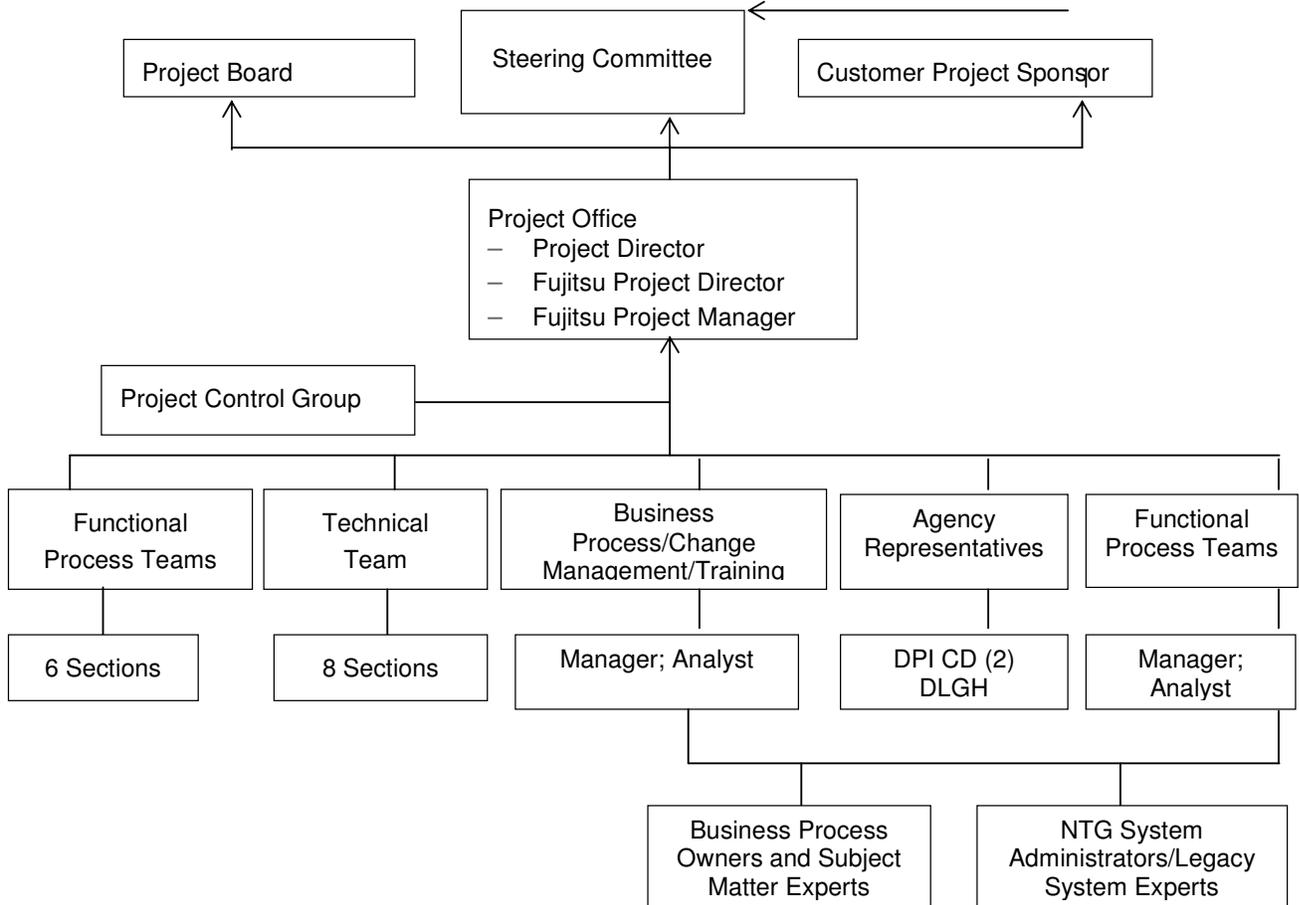
¹⁴⁸ PAC Public Hearing, 27 August 2013, Ms A Bradford, p.12.

broad level, the factors contributing to poor outcomes come under the provenance of one or more of the following: governance; agency engagement; project management; staff resources; change management; and risk management. The impact that each of these key factors has had on project outcomes will be discussed in turn.

Governance

3.24 The initial governance and project structure for the AMS is shown in Figure 3. The governance structure consisted of the Steering Committee, Project Board, Customer Project Sponsor, Project Office and Project Control Group. The project structure included: Functional Process Teams; Technical Teams; Business Process/Change Management/Training; Agency Representatives; and Data Migration/Business warehouse/Testing.

Figure 3: **AMS Project Governance Model and Project Structure**



*Roles and Responsibilities*¹⁴⁹

- 3.25 The role of the original Steering Committee was to advise and guide decision making in partnership with the Project Board, to give direction and to steer the overall project. Within this brief the primary emphasis was to provide stakeholders with a voice and to ensure that the strategic direction of the project met the objectives of each Steering Committee member's organisation. Steering Committee membership was initially comprised of five executive level staff from DPI, including the CEO and three General Managers; the Fujitsu General Manager for NT and Queensland; the Fujitsu Group Executive Director, Enterprise Solutions; and executive level representatives from the Department of Business and Employment (DBE), NT Treasury, Department of Health and Families (DHF), Department of Education and Training (DET), Department of Local Government and Housing (DLGH), and Department of NT Police Fire and Emergency Services (NTPFES).
- 3.26 The Project Board formed a consultancy group to advise and guide decision making in partnership with the Project Control Group and was to report to the Steering Committee on a regular basis. However, accountability and decision making with respect to the progress and delivery of the Project rested with the Project Board. The Board had wide-ranging responsibilities including, but not limited to: resolution of issues raised by the Project Director; scope changes; conflict resolution; approval of project plans and other documentation; and identification and management of risks. Membership of the initial Project Board included: six DPI staff at Director, Senior Director and Manager levels; a Director from DLGH; Chief Financial Officer from the Office of Business Services (OBS); and the Fujitsu Project Manager.
- 3.27 The Project Control Group was responsible for the day to day management of the project and included: the AMS Project Director, the Fujitsu Project Director and Project Manager, a representative from the Department of Local Government and Housing and several AMS staff from DPI.
- 3.28 The Project Director reported to the Project Board and the role included primary ownership of the project deliverables; day-to-day direction of the project team; overall project management for the Customer side of the implementation; and an active role in the integration between the Contractor and Customer project teams. This role covered a wide range of activities relating to day-to-day management, strategic direction, resources, escalation issues, reviews of project scope and plan, and identifying and managing risks.

Decision Making Processes

- 3.29 Based on the evidence to date, the primary decision maker appears to have been the Project Board. The Project Director's role was to facilitate decision making by the Board, and to implement their decisions, but there is nothing in the role description to indicate that the Project Director had any independent

¹⁴⁹ AMS Information Booklet, Appendix 8 – Attachment 1, nd; AMS Project Charter, V.0,2, 10 July 2009.

decision making authority. The Steering Committee Terms of Reference were amended at the first meeting to specify that decision making for this Committee would be consensus based.

Key Issues re Governance of the AMS Project

3.30 There are several potential issues in relation to the governance structure. First, accountability was not assigned to the Steering Committee, which included the CEO of DPI and is typically the highest level of governance, but to a second level committee (Project Board) which appears to have been chaired at Director level. Second, while technical expertise was available to the Steering Committee through the membership of Fujitsu staff, there appeared to be no government or independent ICT expert to provide neutral advice to the Committee. Third, while agencies were welcome to sit on the Project Board, in contrast with Steering Committee membership, this was not mandated. Consequently, agency representation on the Project Board was minimal. This makes little sense given that accountability and decision making powers were assigned to the Board rather than the Steering Committee and it fails to take account of the fact that while the AMS was managed out of one department it was, in fact, a whole of government project which would have impacts across a range of government agencies. Fourth, although the governance structure specified a Project Sponsor none of the evidence describes the role, responsibilities or decision making capacity attached to this role. As all other key roles are defined this suggests that there may have been a lack of clarity around this role.

3.31 Fifth, it could reasonably be expected that such a large and complex project would include both a Project Director and a Project Manager. Instead, these two roles appear to have been combined into the one role of Project Director. Comments made by SAP in their Technical Integration Check Report suggest that they perceived this as affecting the smooth running of the project:

NTG do not have a Project Manager to manage day to day project activities – This observation is made because in the team’s experience most projects do have a SAP Project Manager on the customer side keeping detailed track of the project plan’.¹⁵⁰

Issues associated with the effectiveness of this role are also identified by the Auditor-General who notes that:

The role of the Project Director is to provide oversight, address issues as they arise and ensure the project remains on track. This requires that the Project Director have an appropriate level of resources at his or her disposal to enable the role to be discharged effectively.¹⁵¹

3.32 The Auditor-General comments that the ability of the Project Director to undertake the higher level management tasks that sit clearly within this role was compromised by inadequate resources, resulting in much of the Director’s time being taken up with operational and administrative tasks. However, the ability to

¹⁵⁰ SAP, ‘Technical Integration Check’, Draft, 7 December 2010, p.15.

¹⁵¹ Auditor-General’s Report, February 2011, p.39.

discharge the Project Director role effectively is also likely to have been influenced by the classification level for this position (SAO 2)¹⁵² which is lower than would normally be associated with the direction of such a large, complex multi-agency project. The question must be asked as to whether it was appropriate to assign primary ownership of the project deliverables to a staff member appointed at this level.

- 3.33 The issues identified above suggest that there were serious flaws in the fundamental conceptualisation of the governance structure which, in turn, is likely to have had adverse effects on both decision-making capacity and agency engagement.
- 3.34 The Auditor-General noted that the quality of governance processes was adversely affected by:
- Inadequate recognition, reporting and documentation of risks, issues and their potential effects;
 - Insufficient action taken on the independent quality assurance advice received through various project reviews; and
 - A lack of continuity in Steering Committee membership.

Analysis of the evidence supports these views, and poor governance processes are particularly evident in the Government's failure to respond adequately to the Technical Feasibility Check undertaken by SAP in November 2009.

- 3.35 This report assessed issues related to the blueprint which was the first major phase of the project. It identified 43 high and very high risk issues which resulted in the project's status being rated as 'RED' - a very high risk. Critical high risk issues identified by SAP included:
- Project schedule not updated;
 - Open blueprint design issues;
 - Business units not participating in design of business processes; and
 - Business processes need to be documented in more detail.
- 3.36 The Board minutes of 30 November 2009 (p.3) tend to emphasise Fujitsu as primarily responsible for resolving blueprint related issues despite the fact that SAP allocated responsibility to both NTG and Fujitsu for the first two issues, to NTG for the third issue and to Fujitsu for the fourth issue. In addition, there is no evidence in the November 2009 Board minutes to suggest that the Technical Feasibility Check was flagged with the Steering Committee or that they received this report. This is further suggested by the fact that the Steering Committee's last meeting for 2009 occurred prior to the release of the SAP report and their first meeting for 2010 did not occur until April. Given the critical issues raised in the SAP report this suggests that they either didn't know about these issues or weren't concerned. This lack of involvement on the part of the Steering

¹⁵² Department of Infrastructure, Deputy CE Structure, 24 July 2013.

Committee is of general concern, but has particular implications in relation to the lack of business participation in the design process, as the governance structure highlights the Steering Committee as having primary responsibility for stakeholder engagement. Lack of business participation means that:

Design may not include specific solutions required by those business units [or agencies]. This can cause impacts on the project through late design changes and impact the business because not all requirements were included in the initial design'.¹⁵³

This clearly had a major impact on project timelines and hence cost.

- 3.37 In general, the evidence points to a lack of recognition regarding the critical nature of the issues that were arising. It is, for instance, noteworthy that in the second Board meeting the project status was rated red because they were 4 weeks behind schedule; however, by October, when they were 6 weeks behind schedule it was only rated as amber while in the November meeting, subsequent to receiving the SAP report, no rating was given at all. An examination of scheduled Steering Committee meetings and meeting attendance also suggests that commitment to, and engagement in, the project flagged fairly early on. In the first meeting a decision was made to meet monthly for the first four months and to then review the meeting schedule. The Committee met monthly from July 2009 through to November 2009 but there is no evidence from any of the 2009 or 2010 minutes that the meeting schedule was reviewed. A meeting was scheduled for December but this was cancelled and the next meeting did not take place until late April 2010. Only two more meetings occurred in 2010, one in June and another in November.
- 3.38 Other evidence regarding the ineffectiveness of the governance structure and processes comes from a Fujitsu paper on Project Timelines which was presented to the NTG in November 2010. Fujitsu comments that:¹⁵⁴
- The Project Board does not operate as a decision making body. [The Project Director] reports status to business representatives fortnightly, but issues are rarely discussed with the objective of decision making;
 - The Steering Committee has not been convened for many months so effectively the project has been progressing without an escalation path to solve issues; and
 - Issues such as lack of business buy-in, lack of business resources, no change management approach etc have been reported to the Board for many months without a path for resolution.

Senior Level Engagement

- 3.39 The literature review identified senior level engagement as being critical to the success of ICT-enabled projects partly because of the direct relationship it has

¹⁵³ SAP Service Team, 'Service Report: SAP Technical Feasibility Check, NTG', 9/11/09-12/11/09, p.5.

¹⁵⁴ Fujitsu, DCI AMS Project, Project Timeline Options, November 2010.

to effective corporate governance.¹⁵⁵ Based on meeting frequency, meeting attendance, and stakeholder representation and participation, the degree of senior level engagement from stakeholder agencies appears to have been quite low. Commonly associated with senior level engagement is the presence on the project of a Senior Responsible Owner, Sponsor or Champion who takes overall responsibility for ensuring that the project meets objectives and delivers projected benefits by developing and revising the business case and monitoring and liaising with senior management on progress and risks to delivery.

- 3.40 As alluded to above, the AMS governance structure includes a Project Sponsor but the role of this position is not defined. The Project Director role most closely equates to that of a Senior Responsible Owner because this role has primary ownership of project deliverables, however, this role is not at a senior level. In this respect it is worth noting that senior level engagement or top management support:

... is most dependent on the ability of the project sponsor to work with other top managers to authorise business process changes and make decisions to mitigate or bear risk. Success also appears to be dependent on the willingness of the CEO to actively intervene when the sponsor lacks the authority or influence to resolve any impasses in decision-making.¹⁵⁶

A Project Director classified as SAO2 may well find it difficult to liaise effectively with more senior managers. The evidence suggests that a lack of top management support, coupled with a failure to intervene in situations where lack of authority hindered effective action, may have adversely affected the project, particularly in relation to adequate resourcing and stakeholder engagement.

Agency Engagement

- 3.41 In a complex ICT-enabled project which involves agencies across government it is essential to obtain and maintain strong agency commitment and engagement throughout the life of the project. This did not happen in the AMS. Lack of agency engagement is demonstrated through:
- Declining attendance at Steering Committee Meetings, with attendance of representatives from other agencies declining from 5, 6 and 6 in the first 3 months to 2, 3, 0, 3, 3, in subsequent months to the end of 2010.
 - Lack of agency representation on the Project Board; despite membership being open to other agencies only two other agencies were represented on the Board.
 - Failure to participate adequately in the design of business processes or to provide sufficient staff to assist with the project, for instance, for user testing.
- 3.42 The evidence suggests that apart from the Department of Local Government and Housing, few agencies assigned a specific person to manage their interests

¹⁵⁵ National Audit Office UK, Delivering Successful IT-enabled Business Change, p.29.

¹⁵⁶ Young & Jordan, Top Management Support, p.720.

in the AMS. This contrasts sharply with the very detailed planning and clear governance structures that were set up within DPI to manage their own interests in relation to the AMS and to facilitate effective liaison with the AMS Project Team.¹⁵⁷

Project Management

3.43 Project management is primarily concerned with planning, developing and implementing the business process changes in an efficient and accountable manner through appropriate monitoring, reporting, resource allocation, documentation and quality assurance. In addition to the day-to-day management of the project there are also quite distinct sub areas relating to the vendor relations, resourcing, change management and risk management. The effectiveness of project management is inextricably linked with the quality of governance, with each of these project areas influencing the effectiveness of governance and vice versa. Good plans and coherent scope development are important (project management) but the ability to change the plan to respond to issues as they arise is equally, if not more, important (project governance).¹⁵⁸ Similarly, effective governance is dependent on the ability of the project team to identify and document the key risks and issues confronting the project and to report these at the appropriate level.

General Project Management

3.44 The Auditor-General noted that the AMS project team had limited experience in managing large complex IT projects, with this being further exacerbated by the failure of agencies to allocate sufficient, suitably qualified staff.¹⁵⁹ In addition, the project suffered from inadequate documentation of risks and their potential effects, and a failure to report risks at the most appropriate level.¹⁶⁰ These observations are made in more detail in the project review undertaken by Price Waterhouse Coopers in March 2011, which identifies serious flaws in the project management including:¹⁶¹

- No formal Project Management Office.
- Understaffing, particularly in relation to training and data migration.
- Document management – TRIM does not meet all business and technical requirements and a replacement solution has not yet been chosen. This has the potential to significantly impact on the time horizon and consequently the costs for this project.

¹⁵⁷ S Williams, Project Plan: Government Business Divisions AMS Replacement Project, V1, 4/8/09.

¹⁵⁸ Young & Jordan, Top Management Support, p.720-721.

¹⁵⁹ Auditor-General's Report, March 2013, p.18.

¹⁶⁰ *ibid.*, p.18.

¹⁶¹ K Douglas, 'Northern Territory Government Department for Construction and Infrastructure, Asset Management Project Review', prepared on behalf of Price Waterhouse Coopers for the Department of Infrastructure, March 2011.

- The project scope has been set out in the contract and not in separate detailed scoping documents. This leaves significant potential for scope creep throughout the course of the implementation.
- No end-to-end program plan could be located and, as a result, not all aspects of the program have been considered in sufficient detail which makes it difficult for the team to understand the progression of the program and the logical steps required to achieve their individual and team milestones.

Vendor Relations

- 3.45 The governance arrangements reflect a strong intention to create constructive relationships between the client and the vendor. The Steering Committee included two senior level Fujitsu representatives, the Project Board included middle to senior representation from Fujitsu and, according to the Project Control Handbook, the Project Control Committee included a combination of NTG personnel and Fujitsu/ESRI personnel. Despite this, the vendor interface was fraught with misunderstandings, and relations between NTG and Fujitsu were strained until quite late in the project.¹⁶²
- 3.46 There is no evidence of an effective vendor management plan and the Agency's monitoring of the contractual requirements with respect to vendor performance and quality assurance for deliverables was not managed well. In addition, penalty clauses which could have been enacted when the consultant did not meet its obligations were not applied.¹⁶³
- 3.47 Minutes of 2010 Steering Committee meetings show a strong decline in the relationship:
- In November 2009, Fujitsu removed all resources off site, except Project Director and Manager. This placed all consultants "on the bench" which meant they could be reallocated to other projects.
 - At the April 2010 and June 2010 meetings, the following options were discussed for the progression of the AMS:
 - a) Option 1 - retain Fujitsu;
 - b) Option 2 - DCI to take on end to end responsibility for all aspects of the implementation including the role of system integrator and to implement the realisation phase itself; and
 - c) Option 3 - to go back to the market for a new system integrator.

Option 1 was chosen but included the proviso that Fujitsu meet a range of criteria in relation to the number and quality of the staff resources they allocated to the project.

¹⁶² Auditor-General's Report, March 2013, p.20.

¹⁶³ Auditor-General's Report, February 2011, p.37-39.

- 3.48 Although NTG was clearly dissatisfied with Fujitsu performance this appears to have been reciprocal. Fujitsu's *Project Timeline Options* paper draws attention to a number of issues from Fujitsu's perspective. These include:¹⁶⁴
- Significant under-resourcing from a business perspective i.e. NTG staff (this was reported to Board by NTG Project Director);
 - Feedback to the Project Board by business groups that their people do not understand the status of the project or what is going on; and
 - The absence of a Change Manager to formally engage with business and increase hands on participation in the project.
- 3.49 Fujitsu comment that the absence of a Change Manager has resulted in a number of contractual activities being omitted, notably, that this absence and the consequent lack of structured change activities with Agencies, means that during the Business Process Definition phases, Blueprint review phases, and the ARIS review process, DCI has not been able to undertake the pre-requisite preparation to enter the upcoming project phases.

Staff Resources

- 3.50 Sufficient staff resources are clearly essential for effective project management and delivery. Adequate resourcing entails employing staff with relevant knowledge and experience, at the right level and in sufficient numbers to carry out the required tasks. In addition, multi-agency projects require a commitment of resources from the respective agencies. In the initial discussions between Fujitsu and the NTG, Fujitsu identified a requirement for 15 NTG FTEs. However, the NTG stated that only 5 FTEs could be made available and that Fujitsu would have to fill the gap. Subsequently, NTG made a further 2.6 FTEs available bringing the total NTG resources up to 7.6 FTEs.
- 3.51 Staff resources have been an ongoing issue in the AMS. In his February 2011 Report, the Auditor-General noted that: 'The resources available to the DCI project team were considered inadequate to ensure that the project will be completed by the "go live" date'.¹⁶⁵ In addition, the DCI Project Committee identified lack of agency resources devoted to the project as being the most significant risk to project success.
- 3.52 The resource issue was recognised early on and was escalated in February 2010. The Auditor-General notes that in June 2010 a project business case was submitted to the then Chief Executive of DCI, requesting an increase in project resources, however, this was not ratified.¹⁶⁶ Subsequently, a draft ministerial briefing was prepared and submitted in September 2010, requesting additional resources for the realisation phase. The September 2010 Board minutes note that Treasury advised DCI that the request for additional FTEs

¹⁶⁴ Fujitsu, DCI AMS Project, Project Timeline Options, November 2010.

¹⁶⁵ Auditor-General's Report, February 2011, p.36.

¹⁶⁶ McGuinness, F., Auditor General, Letter to Mr Wagner, CEO, Department of Construction and Infrastructure and attached Compliance Audit – AIS Replacement Program, 22 November 2010, Schedule 1.

was not required and that Treasury recommended that DCI manage the additional 5 FTEs as short term contracted resources for the duration of the project. The Auditor-General's November 2010 Compliance Audit recommended that the Ministerial Briefing for obtaining additional resources for a successful go-live be immediately resolved.¹⁶⁷ The Agency's response to this recommendation was to submit a detailed resourcing plan to the Chief Executive of DCI in November 2010 to support the September 2010 Ministerial and to review the Ministerial in light of the resourcing deliberation and then progress matters accordingly.

3.53 Inadequate NTG resources were clearly a source of frustration for Fujitsu who commented on the effects of under-resourcing and identified key appointments that, in their view, needed to be made:¹⁶⁸

- The project is significantly under-resourced from the business perspective, with this being documented in Board status reports.
- This scarcity of resources has contributed to slow progression of blueprint finalisation, validation of business process flows in ARIS, and validation of functional specifications to deliver development work.
- DCI will not be able to deliver on project deliverables with current resourcing levels and the introduction of part time resources will not resolve the issue.
- Business resource scarcity needs to be addressed asap and each NTG agency needs to provide one full-time hands-on resource to assist with a wide variety of activities relevant to the interests of their agency.
- The following full-time resources also need to be appointed: dedicated resource to learn AMS technical architecture to facilitate integration with the wider NTG landscape; Change Management Professional; User Acceptance Testing coordinator; and a Training Manager.

As noted under *General Project Management* above, Price Waterhouse Coopers made similar comments in their 2011 Project Review.

3.54 At the time of the Auditor-General's 2011 report the resource issue had still not been resolved.¹⁶⁹ A review of the minutes suggests that staff were being sourced in a fairly ad hoc manner, depending on what the business units and other agencies could make available at any given time.

3.55 Evidence from Steering Committee and Board minutes suggests that Fujitsu also found it difficult to provide adequate resources, with the NTG commenting on under performance of Fujitsu staff and uncertainty regarding their availability.

Change Management

¹⁶⁷ Auditor-General, *Compliance Audit – AIS Replacement Program*, 22 November 2010, Schedule 1.

¹⁶⁸ Fujitsu, 'DCI AMS Project: Project Timeline Options', 5 November 2010.

¹⁶⁹ Auditor-General, February 2011, p.36.

- 3.56 It was generally agreed that organisational change management undertaken for the AMS was not sufficient for the size and complexity of project. A change manager is generally appointed from the outset of a project and would engage with the business and project team from initiation but this did not happen early enough in the AMS. In their 2011 review of the AMS, Price Waterhouse Coopers noted that change management initiatives would typically include:¹⁷⁰
- Communication and engagement plans;
 - Change impacts assessments and strategies;
 - Stakeholder management strategies;
 - Performance support structures;
 - Business readiness plans;
 - Job and work redesign; and
 - Business continuity plans and manual backups.
- 3.57 This list of change related activities demonstrates the scope of the Change Manager's position and its importance in facilitating positive outcomes. Appointment of a Change Manager at the appropriate time, together with the development of a change management strategy, would have facilitated stronger engagement from agencies and hence reduced problems associated with the blueprints, data migration and user testing.

Risk Management

- 3.58 Although a detailed strategy for identifying and managing risks is set out in the Project Control Book, risks have not been well managed. Significant risks to the project were either not recorded on the risk register or were not being actively monitored. In particular:¹⁷¹
- Risk mitigation strategies were not routinely revised as part of the revision of the risk register;
 - Risk mitigation strategies were not reported as part of the risk log summary which is reported to the Board; and
 - Although risks were assigned a priority score based on probability and impact of occurrence, and were discussed at Board and Steering Committee meetings, the priority score was not updated to reflect the current risk rating.
- 3.59 In relation to issues management, there were multiple issue registers being maintained by both Fujitsu and DCI, with the Fujitsu register not being formally presented at the Project Board level.¹⁷²

¹⁷⁰ Price Waterhouse Coopers, Asset Management Project Review, March 2011.

¹⁷¹ Auditor-General, Compliance Audit – AIS Replacement Program, 22 November 2010, Schedule 4.

¹⁷² Auditor-General, Compliance Audit – AIS Replacement Program, 22 November 2010, Schedule 4.

Asset Management Capability (AMC) Project – Power and Water Corporation

Summary of Project to Date

- 3.60 The Power and Water Corporation's (PWC) asset management project was initiated in 2006 to replace a suite of old systems which were poorly integrated, and no longer supported by vendors. In the original business case the cost estimate to achieve this was quoted as \$14.5 million.¹⁷³ The initial objective was to implement off-the-shelf software to be integrated with a new Geographical Information System (GIS) and an existing upgraded finance system. However, in 2008, an independent review of the project suggested that an off-the-shelf product would be unable to deliver the intended business benefits due to the increased complexity of the Corporation's requirements and its obligations as a multi-utility operating within a complex statutory framework which required it to conform to government timelines and requirements.¹⁷⁴
- 3.61 In December 2008 a tender process was undertaken and in early 2009 IBM was selected as the implementation partner. KPMG was appointed to assist with project planning, process design and quality assurance services. Based on the costing estimates and other information that became available during the procurement process, a revised business case, based on a cost of \$27.4 million, was approved by the Board in July 2009. In September 2009, the Corporation entered into a contract with IBM. As prime contractor for the systems implementation, IBM provided oversight of other firms that were involved in providing software and services for the integrated solution. This point marked the end of Stage 1.¹⁷⁵
- 3.62 Over the course of the project, the delivery strategy and business case were revised several times in response to the emergence of new information, changes to the scope, requests for additional functionality, project delays and increased costs. Key elements of these revisions included the use of experienced business consultants, process improvements, data quality improvements, enhanced asset management capability and greater systems integration.¹⁷⁶
- 3.63 In Stage 2, IBM developed the solution design and the blueprints for the final stage of implementation (Stage 3). This was a collaborative effort undertaken in conjunction with the Corporation's stakeholders as represented by the Asset Management Capability (AMC) Project Reference Group. Stage 2 commenced in September 2009 and ended in June 2010, three months later than planned. KPMG provided quality assurance in respect of the solution design on behalf of the Corporation. At this point the scope and costs were reviewed and, based on the refined solution, a revised business case with a budget of \$32.4 million was

¹⁷³ PAC Public Hearing, 9 December 2013, Mr Baskerville, p101.

¹⁷⁴ Power and Water Corporation, Submission, p.1.

¹⁷⁵ Auditor-General's Report, August 2013, p.48.

¹⁷⁶ *ibid.*, p.48.

approved by the Board in August 2010. As a consequence, the planned go-live date was revised from March 2011 to August 2011.¹⁷⁷

- 3.64 Stage 3, project implementation, was progressed into 2011 but did not go smoothly due to a range of factors, including issues with data cleansing and migration. By August 2011 many elements of the project were behind schedule and it was clear that the new December 2011 go-live date would not be met, with this confirmed by a project audit performed by KPMG in September 2011.
- 3.65 Subsequently, independent consultants were engaged to develop a new consolidated integrated project plan and to stress test the plan based on possible delay scenarios. The project was found to be around 5 months behind schedule largely due to delays and extensions in relation to data cleansing, cutover planning, business readiness, testing and training.¹⁷⁸ A revised business case was approved by the Board in December 2011 with a budget of \$43.7 million and a revised go-live date of March 2012. The increased cost primarily related to additional resources for data, reporting and business readiness activities, and overhead costs associated with extending the project.¹⁷⁹ At around this time, a new Project Manager and a new Executive Sponsor were also appointed to the project.
- 3.66 Over the next few months User Acceptance Testing was undertaken, with this demonstrating that there were significant differences between user expectations and what had been designed and built. Due to the extent of these gaps an additional round of end-to-end testing, based on actual business processes, was conducted. This marked the beginning of an extensive process to re-evaluate, enhance and rework the system to more closely align with user expectations. Subsequently, significant changes were implemented to expedite completion of the project and to deliver a system capable of meeting key business needs. These included:¹⁸⁰
- Revisions to the governance structure;
 - A shift in focus to place greater emphasis on business engagement and outcomes;
 - Engagement of full-time business subject matter experts;
 - Review and updating of business requirements and related aspects, and identification and prioritisation of gaps between business requirements and the system design;
 - Engagement of the prime contractor on a time and materials basis to assist with rectifying the gaps;

¹⁷⁷ McGuinness F, Auditor-General for the Northern Territory, Asset Management System Post Implementation Review, Letter from Mr F McGuinness to Chairman and Members of the Board of Directors, Power and Water (PWC), 26 March 2013, p3.

¹⁷⁸ *ibid*, p.3.

¹⁷⁹ *ibid*, p.3.

¹⁸⁰ *ibid*, p.4.

- Significant increase in number of staff allocated to the project;
 - Additional rounds of business user testing and end-to-end process testing.
- 3.67 In addition, once the extent of requirements and change were determined, Board approval was obtained for an initial budget increase to \$53.58 million (March 2012) and a second and final increase to \$57.81 million in July 2012.¹⁸¹
- 3.68 It should also be noted that between 2008 and 2010, the Corporation was conducting a major capital program to upgrade, replace or relocate a number of major assets in response to major service outages. This involved a cultural change program and training and development programs, with these priorities impacting ‘... on the Corporation’s capacity to provide internal business resources to the AMC project.’¹⁸²
- 3.69 The AMC software went live in August 2012, approximately six years after the initial business case was approved and four years after the revised project approach was approved. End-to-end reviews were conducted across key areas of the business throughout 2013, with a view to improving processes, user understanding, data quality and system functionality.¹⁸³

Project Management Success and Project Success

- 3.70 From a project management perspective, the Corporation’s project was a distinct failure in terms of being delivered on time and to budget. However, it successfully delivered to specification, as all key functional requirements were regarded as being achieved, with core functionality being ‘... delivered in accordance with the outcomes specified in the Am [asset management] system procurement process, ...’.¹⁸⁴ Although the final cost was more than three times the initial budget, the scope of the project had expanded substantially since 2006 when approval was given to proceed with the implementation of an “off the shelf” solution.¹⁸⁵
- 3.71 The system went live with 570 defects (29 major), including 164 items that were fixed and awaiting testing. As of 11 February 2013, there were still 533 open items within the issues register for Maximo. Despite these outstanding issues, the project could be considered successful overall, as the final system has been deemed ‘... capable of meeting PWC’s key AM [asset management] needs given the criticality of assets it must manage to provide essential services’.¹⁸⁶ However, this assessment does not go unqualified, with KPMG noting that:

The system may not suit PWC’s needs however if changes to key AM [asset management] processes and data integrity issues are not executed in the 6-9 months to follow.

¹⁸¹ Auditor-General Post-Implementation Review Letter to PWC, 26 March 2013, p.4.

¹⁸² *ibid.*, p.4.

¹⁸³ *ibid.*, p6.

¹⁸⁴ *ibid.*, p1.

¹⁸⁵ Auditor-General’s Report, August 2013, p.50.

¹⁸⁶ KPMG, Asset Management Capability (AMC) Systems Analysis and Roadmap, January 2014, p.5.

3.72 This highlights the need to ensure efficient implementation of the scheduled program developed to fix the problems, and to improve processes, user understanding and system functionality. The recent KPMG review of the AMC indicates that for this to happen it will be necessary to:¹⁸⁷

- Assess current IT support roles against those required to support the asset management systems and the technology landscape and to do this early to inform future IT recruitment activities and associated IT investment.
- To make a significant investment in asset management capability by putting resources into governance and change management issues, 'specifically **process ownership and accountability**, as well as strong IT architectural guiding principles and associated governance,...'.
- Redesign and align asset hierarchies as a priority as this is critical to enabling PWC to benefit from the investment made in asset management systems.
- Implement adequate data validation and business rules as this will improve the quality and integrity of data and reduce the operational burden on resources using the system.
- Ensure senior level engagement through requiring executive-level sponsorship and leadership as well as clear accountability and responsibility for decision making to deliver on the process outcomes.

Factors Contributing to Success or Failure of the Project

Project Governance and Reporting

3.73 The initial governance structure included a Steering Committee, Reference Group and Executive Management Team. The Steering Committee consisted of up to 18 people and included the Managing Director, Chief Financial Officer, Chief Information Officer, Legal Counsel and all General Managers. All three groups met regularly and operated against defined terms of references.

3.74 Subsequent to the revisions made to the Project Schedule and Business Case in late 2011, the governance structure was rationalised. The Executive Management Team was retained but the Steering Committee and Reference Group were replaced with a much smaller General Management Team.

3.75 The effectiveness of the initial governance structure, in operation from 2008 until January 2012, was constrained by the inclusion of too many people on the Steering Committee, with this limiting the Committee's ability to debate issues effectively and to make sound decisions. This also contributed to inadequate

¹⁸⁷ *ibid.*, p.5.

scrutiny of the project in relation to project progress, feasibility of planning and the level of resourcing.¹⁸⁸

- 3.76 Program status reporting for the Steering Committee and Reference Group did not provide adequate information – information about actual progress was not clearly defined against planned progress, with this making it difficult to identify project slippage. Status reports often only included a list of tasks completed, items planned for the following month, and issues arising. Consequently, the ability of these groups to effectively oversight the project was compromised.¹⁸⁹
- 3.77 Despite the fact that the Steering Committee included strong representation from business the project still faced significant challenges in achieving the necessary level of input into the business requirements analysis, data requirements and provision of subject matter expertise throughout the life of the project.¹⁹⁰
- 3.78 In addition, it is noteworthy that the revised governance structure included the appointment of a new Project Manager and a new *dedicated* General Manager, with a view to refocusing the project to ensure a stronger emphasis on business engagement and outcomes. This reflects the recognition, common in the literature on ICT project management, of the importance of focusing on business outcomes and benefits and of ensuring sufficient ownership of the project at a senior level.

Scope Creep or a Justified Change to the Scope?

- 3.79 Change to a project's scope occurs either incrementally or as a result of a project review. The term 'scope creep' is generally used pejoratively to describe the incremental change which frequently occurs at the discussion and design phase of the project. However, incremental change is not always a bad thing and is often a natural part of business growth and development, with Pather et al noting that: 'It is imperative to accommodate changes to any of the important variables that underpin the way IS [information systems] are used or can be used in the business, ...'.¹⁹¹ Managed well, it will improve project outcomes, managed badly, it can result in time and cost blowouts and final deliverables that are not aligned with original business goals. Well managed incremental change is implemented through a formal change control process that mitigates risk by ensuring all the appropriate approvals, budget adjustments, and timeline adjustments are made, and by communicating with stakeholders before changes are integrated.¹⁹² When incremental change simply adds cost and time

¹⁸⁸ Auditor-General Post-Implementation Review Letter to PWC, 26 March 2013, pp.6 & 9.

¹⁸⁹ *ibid.*, p.6.

¹⁹⁰ *ibid.*, p.6

¹⁹¹ S Pather, B Remenyi, D Remenyi, *Managing Risks of IT Projects*, Academic Publishing Limited:UK Ridgeway Press, 2011, p.106.

¹⁹² Department of Treasury and Finance, 'ICT Projects Technical Guidance: Business Case Development', Investment Lifecycle and High Value/High Risk Guidelines, DTF, Melbourne, 2012, p.11; Techopedia, Definition of Scope Creep, accessed 12 February 2014, available from: <http://www.techopedia.com/definition/24779/scope-creep>; Pather et al, , *Managing Risks of IT Projects*.

without adding value it is usually because it has been poorly managed. This type of incremental change is more likely to arise as a result of users lobbying for additional functions without considering the risks or giving thought to the cost benefit ratio, than from a realisation that certain functions need to be added in order to achieve the project's business objectives.¹⁹³

- 3.80 Significant and defined changes to a project's scope are most likely to arise after a project review and may be triggered by a variety of factors. New circumstances may influence the ability of the original project scope to adequately meet business objectives. Equally, a better understanding of the interface between the software and the business processes may suggest more effective means of delivering business benefits. In such situations, a change to the scope could be warranted, provided a review of the associated risks, costs, and timeline extensions demonstrated that business benefits would be sufficiently enhanced.
- 3.81 Broadly, the decision to change the scope of the AMC Project from the original 2006 concept to that adopted in 2008, resulted from an increased understanding of the asset management process and the consequent realisation that an off the shelf package would only result in minimal improvements and would not deliver the business benefits required for an effective asset management capability. More specifically, Power and Water noted that the decision to expand the scope was linked to a changing operating environment which included significant changes to the regulatory environment and substantial increases in the Corporation's asset management program.¹⁹⁴ These changes were linked to the failure of the Casuarina Zone Substation and the subsequent Mervyn Davies report, which identified a range of asset condition issues including the need to update data quality and to significantly increase the capital program. In addition, this report resulted in a large increase in the capital program and, therefore, a need for a more sophisticated system to effectively manage the increased assets.
- 3.82 As noted by the General Manager of Power and Water in his opening address to the Committee, this new approach, which considerably altered the scope of the project:¹⁹⁵

... provided for a renewed asset management capability which was focused on improvements to the whole asset management process not just given IT systems, including areas such as data quality improvements, process improvements, and greater system integration.

This significant change in scope was reflected in the development of a new strategy and business case and the changing of the project name from 'Asset Management System' to 'Asset Management Capability'.

¹⁹³ T Paye, 'How to implement a successful IT transformation', Interview with Stephen Phillips, head of Bain & Company's Europe, Middle East and Africa IT practice, *Computer News Middle East*, 16 July 2013.

¹⁹⁴ Power and Water Corporation, *Submission*, pp.1,3.

¹⁹⁵ PAC Public Hearing, 9 December 2013, Mr Baskerville, p100.

Project Planning

3.83 A comprehensive suite of project documents was prepared for the project and, in early 2009, when the project planning process was independently reviewed by Ernst & Young, no improvements were identified.¹⁹⁶ However, there were a number of instances where project plans did not reflect realistic elapsed timeframes, effort required and appropriate alignment of dependencies.¹⁹⁷ Overall, it appears that detailed analysis of required activities was not performed. In addition, the project plan was not consistently maintained and, prior to a revision of the project plan late in 2011, did not provide adequate integrated details of the various factors related to the detailed tasks on the project.¹⁹⁸ Even after the revised plan, the approaches used for estimating the time required to complete activities were not adequate, with the Auditor-General noting that:¹⁹⁹

Project plans from early 2011 ... did not appear to realistically consider timeframes and dependencies associated with data migration, user acceptance testing, business readiness and cutover.

Risk Management

3.84 A risk register was maintained which included defined control strategies for anticipated risks, however, limited periodic analysis was undertaken to assess the extent to which the risks were actually eventuating and impacting on project outcomes.²⁰⁰

Quality Management

3.85 Quality management processes were largely outsourced to KPMG and included quality reviews of key milestone deliverables and two project health quality reviews. However, due to KPMG's involvement in both project delivery and quality assurance there was a potential conflict of interest. In addition, quality audits were undertaken on an ad hoc and relatively infrequent basis by either KPMG or internal audit.²⁰¹

Vendor Management

3.86 The primary contractors included IBM (\$25 million) and KPMG (\$6 million). Contractor management appears to have been undertaken effectively. In addition to establishing formal contracts and statements of work, weekly meetings were held with IBM and contract payments were linked to achievement of agreed milestones, deliverables and performance.²⁰²

¹⁹⁶ Power and Water Corporation, Submission, p.2.

¹⁹⁷ Auditor-General Post-Implementation Review Letter to PWC, 26 March 2013, p.3.

¹⁹⁸ *ibid.*, p5.

¹⁹⁹ *ibid.*, p5.

²⁰⁰ *ibid.*, p.7.

²⁰¹ *ibid.*, p.7.

²⁰² Auditor-General Post-Implementation Review Letter to PWC, 26 March 2013, p.7.

Organisational Change Management

3.87 A Change Management Strategy was developed in 2008 and a Change Manager appointed. This suggests that there was a clear recognition of the importance of managing change effectively. Change management included a range of activities such as formal communication, training and capability development, and other business engagement activities. The change management process was independently reviewed by Ernst & Young in early 2009 and at that point no improvements were identified.²⁰³ However, it is notable that once concerns were raised about the gap between user expectations and the designed solution (early 2012), business readiness activities were significantly expanded from those which had originally been planned.²⁰⁴ The need for effective change management has been identified by Power and Water as one of the lessons learned from this project, with one staff member noting the 'absolute criticality of ensuring that change management, including training, is properly addressed within the project as part of the delivery of the system ...'.²⁰⁵

Grants Management System – Department of Health

Summary of Project to Date

- 3.88 In 2004, 2010 and 2012, the Auditor-General raised concerns regarding the Department of Health's (DoH) management of grants to NGOs. These concerns were two-fold: first, the Auditor-General identified a need to improve the overall governance framework for NGO management; and second, the need to develop and implement an effective ICT system to support the management of service agreements with NGOs. The Auditor-General's 2012 Report acknowledged that DoH had made progress in both areas but noted that a really robust performance management system was still some way off. The project can be divided into Period A and Period B. Period A extends from 10 March 2011 to 10 September 2012 and relates to the development of GrantsTracker, with Fujitsu as prime contractor and ICS as sub-contractor. Period B extends from 10 September 2012 to the present and refers to the period covered by the Contract Variation in which Fujitsu became the sole contractor charged with developing a bespoke system.²⁰⁶
- 3.89 The Grants Management System project was initiated in July 2010 with DoH awarding SRA Information Technology a consultancy to develop: a Business Case to secure funding for a GMS; a Functional Requirement specification document suitable for inclusion in a request for tenders and with sufficient information to facilitate high quality responses; and Evaluation Criteria for assessment of tender responses. In September 2010, two options were put

²⁰³ Power and Water Corporation, *Submission*, p3.

²⁰⁴ Auditor-General Post-Implementation Review Letter to PWC, 26 March 2013, p.8.

²⁰⁵ PAC Public Hearing, 9 December 2013, Mr O'Hara, p105.

²⁰⁶ Department of Health, GMS Project Update, December 2012.

forward, the first to procure and implement the GMS solution used by the Department of Natural Resources, Environment, The Arts and Sports (NRETAS) (underpinned by the ICS GrantsTracker™ product) and the second, to hold an open tender for supply and integration of a GMS. As unquantified savings were believed to be available through procuring the same system as that used by NRETAS, it was decided to adopt option one.²⁰⁷ Subsequently, Fujitsu was engaged as the main contractor, with ICS sub-contracted to Fujitsu. A formal contract was signed in June 2011 with a budget of \$684,070²⁰⁸ and an anticipated completion date of December 2011.²⁰⁹

- 3.90 Due to a range of issues, the GMS project experienced continuous delays. It was also characterised by a breakdown of communication between all three parties. This contributed to timelines not being met, deliverables provided by ICS containing insufficient detail, two letters of breach being presented to Fujitsu, and significant differences in the prototyping approach used by Fujitsu and that used by ICS.²¹⁰
- 3.91 In January 2012, the Project Manager visited ICS and subsequently reported that they were ‘... critically under resourced’ and that their ‘... response to timeframes to date has been to meet timeframe with substandard quality’.²¹¹ By the time the Steering Committee met on 19 January 2012, DoH had received a revised Project Plan from Fujitsu which indicated an implementation date of August 2012 but was subsequently negotiated down to July 2012. In April 2012 Fujitsu agreed to pay \$79,000 to DoH for additional expenses incurred in retaining a Project Manager beyond the original completion date of December 2011. A new DoH Project Manager commenced on 16 April 2012 and, in early May, gave a briefing to the Project Sponsor and Project Director, setting out three options for getting the project back on track, including: (1) continue with Fujitsu and ICS; (2) continue with Fujitsu as contractor and request alternate sub-contractor; or (3) terminate the whole contract.²¹² Following this, the new Project Manager, together with the Fujitsu Business Analyst, travelled to Hobart to work directly with ICS and to evaluate whether they had the capacity to produce the required software or whether contract severance should be pursued instead. Subsequent to this evaluation, the Steering Committee resolved to ‘... continue development of the GMS with ICS, under the auspices of Fujitsu, according to the revised methodology and completion strategy recommended by the GMS Project manager’.²¹³ This required DoH and Fujitsu to recast their functional requirements in a form more in-line with ICS’s agile methodology. Revised functional requirements were to be completed by 8 June 2012 and ICS

²⁰⁷ Auditor-General of the Northern Territory, ‘Department of Health Performance Management System Audit, Grants by the Department to NGOs for the delivery of primary health services’, 1 August 2012.

²⁰⁸ NT Public Accounts Committee, Public Hearing, 17 December 2012, p.10.

²⁰⁹ Auditor-General, DoH Performance Management System Audit, p.3.

²¹⁰ Ibid, p.4.

²¹¹ Ibid, p.4.

²¹² Email from Lesley Kemmis, DoH Project Director to Jan Currie, DoH Project Sponsor, 16/2/12.

²¹³ Grants Management System (GMS) Steering Committee Minutes, 25 May 2012, p3.

was expected to develop and redesign the Service Agreement workflow in time for the release of a successful interface with NTG systems on 2 July 2012.²¹⁴

- 3.92 According to DoH, ICS was unable to deliver by the required date and, despite being offered extra time, was unwilling to commit to a date for full completion.²¹⁵ However, in its submission to the Committee, ICS noted that it put in an heroic effort to meet what was considered to be an impossible deadline and that when their contract was cancelled they were, in fact, only three weeks away from completion of the agreed stage. Never-the-less, the Department made a decision to drop ICS and, instead of adopting one of the options previously put forward, decided to develop a bespoke system, with Fujitsu as the sole contractor. A new scope of work and Project Proposal was prepared and a Deed of Variation drawn up.²¹⁶ The Project Proposal was approved by Fujitsu on 3 September 2012²¹⁷ and signed by DoH on 10 September 2012,²¹⁸ however, the Deed of Variation was not signed until May 2013.
- 3.93 The variation to the contract provided for Fujitsu to develop an end-to-end Grants Management System which would result in a final estimated cost of \$979,000 made up of \$319,220 (incl GST) paid by NTG to Fujitsu for services already provided as at commencement of the Contract variation (31 August 2013) and a further \$660,000 (incl GST) on satisfactory completion of the project.²¹⁹ This is an increase of approximately \$325,000 from the original contract price of \$684,070, with Fujitsu agreeing to wear the brunt of the loss associated with the switch from GrantsTracker to a bespoke development. According to the Department of Health, while the reworked proposal is more expensive, it includes an increase to the scope of the project and should result in a more effective and functional software solution than that available through a customisation of ICS's GrantsTracker. The new completion date for the project was initially set at February 2013 but has since blown out to the 28 February 2014. The system, now known as the Fujitsu Grants Management System (FGMS) will be an enterprise package, custom built to meet DoH requirements for grants management. The solution will be co-developed by Fujitsu and DoH, with Fujitsu retaining the intellectual property and future commercialisation rights to the GMS, and DoH retaining a gratis perpetual licence.

Project Management Success and Project Success

- 3.94 From a project management perspective, the GMS has been a failure in terms of being delivered on time and to budget. An original timeline of six months to complete the project (June 2011 to December 2011) has blown out by more

²¹⁴ *ibid.*

²¹⁵ GMS Project Update to Jan Currie (Senior Director, Office of DoH CEO), Victoria Walker (Director, Government Relations & Strategic Policy), Lesley Kemmis (Director, Non-Government Strategic Policy), and Stephen Moo (DoH Chief Information Officer), 20 July 2012.

²¹⁶ Solicitor for the Northern Territory, GMS 'Deed of Variation between: Northern Territory of Australia and: Fujitsu Australia Limited', 24/5/2013 (date signed by Fujitsu – last to sign).

²¹⁷ GMS Project Status Report, week ending 7 September 2012.

²¹⁸ GMS Project Status Report, week ending 21 September 2012.

²¹⁹ GMS Deed of Variation, 2013, p.23.

than 2½ years with the current anticipated completion date being end of June 2014. However, while the cost has increased, the bespoke development should provide an end product that is tailored exactly to DoH's requirements.

- 3.95 Ultimately, the project should be delivered to specifications, however, it took around a year to develop adequate specifications and these should have been developed at the beginning of the project. In addition, it is now around 20 months since detailed specifications have been developed and, while nearly there, the project is still not completed.
- 3.96 Project success cannot be properly assessed until after completion of the project. However, after a rocky start, DoH appears confident that the new GMS will deliver both benefits and user satisfaction. Fujitsu are keen to on-sell the final product which suggests that they have confidence in its efficacy.

Factors Contributing to Success or Failure of the Project

Procurement Process

- 3.97 It is at the point of procurement that some core issues can be identified. The recommended procurement approach was to undertake a select tender process to implement the same commercial off the shelf system purchased by NRETAS, the GrantsTracker software developed by a Fujitsu/ICS multimedia consortium.²²⁰ At the time, the NRETAS solution was seen as a potential whole of government solution for grants management, and a number of agencies were awaiting the outcome of the initial implementation prior to assessing its suitability.²²¹ Adoption of this solution was seen to provide DoH with cost savings and reduced risk due to a perceived ability to piggyback on the NRETAS project which, at the time, was expected to be completed in February/March 2011.²²² The strong conviction that GrantsTracker would be a suitable product may well explain why the market research presented in the Procurement Plan was confined to *identifying* software systems currently being used or implemented in the NT and other jurisdictions, rather than also including an *evaluation* of these systems.²²³ However, information which came to light after the Procurement Plan had been completed demonstrates the importance of thorough market research. Subsequent to the completion of the Procurement Plan, DoH held discussions with staff from NRETAS²²⁴ and the Tasmanian Department of Health and Human Services (DHHS),²²⁵ and both organisations revealed that they had experienced issues with the development and implementation of the GrantsTracker system.

²²⁰ Grants Management System, Procurement Plan, v0.2, 11 February 2011.

²²¹ GMS Procurement Plan, p23.

²²² GMS Procurement Plan, p25.

²²³ GMS Procurement Plan, pp23-24.

²²⁴ GMS, Record of conversation between Lesley Kemmis, DoH and Narelle Gosstray, NRETAS, 24/2/11.

²²⁵ GMS, Discussion between Lesley Kemmis, DoH and Ulo Raabus, Tasmanian DHHS, File Note, 22/3/11.

- 3.98 DoH persisted with the select tender despite the red flags raised by the experience of these two organisations. Red flags also emerged in relation to Fujitsu's response to the tender requirements, which lacked rigour and the required detail. In particular, Fujitsu failed to provide an adequate response to the DoH-specific functional requirements set out in the tender documents, information which was crucial to the Department's ability to adequately assess whether Fujitsu would be able to meet their needs. Instead, Fujitsu simply stated that they would 'comply' with these requirements.²²⁶ Questions about past performance also lacked detail, with answers being confined to confirmation that they had experience in these areas.²²⁷ DoH responded by highlighting these issues at the Tenderer Presentation meeting and requesting that a revised response be submitted to address these gaps.²²⁸ Although Fujitsu's revised submission included additional detail, in the Committee's view, certain sections, such as S1.4.5 functional fit, S1.4.6 customisation, S1.4.7 configuration, S1.4.7 testing and S1.4.9 data migration, were still not sufficiently comprehensive.²²⁹ In part, the problem with Fujitsu's response may be related to the way in which the question was structured. More useful information might have been yielded through a more probing question, rather than simply asking the tenderer to 'Detail their experience' in each area.
- 3.99 A key problem with the project was the length of time it took DoH to act on their perception that the ICS solution wouldn't meet Health's needs - 18 months after the project had commenced. The question that needs to be answered is why this wasn't identified at the tender evaluation stage. The development of functional requirements and system design is a significant part of any ICT project and clarity around these issues is necessary for determining whether a tenderer can provide an adequate solution. However, the development of the details regarding the functional requirements and system design are also part of the project delivery, consequently, an organisation purchasing an ICT solution needs to have confidence that they sufficiently understand both their needs and the tenderer's solution if they are to feel assured that the tenderer can in fact provide a solution. This is most likely to occur when discussions around these issues are led by a client with both expertise in ICT projects and a sound understanding of the business processes to be incorporated into the software.
- 3.100 Although Fujitsu and DoH discussed these issues during the tender process, the evidence suggests that clarity could have been greater.²³⁰ It is notable that none of the DoH staff present at the Tender Presentation meeting had extensive experience in ICT projects, with the DoH side of the discussion being primarily led by a staff member whose primary expertise was in contract management.

²²⁶ Department of Health (DoH), Request for Tender, Grants Management System, Part B Scope of Requirements, Fujitsu Response, Closing date 30 March 2011, pp60-71.

²²⁷ DoH, Request for Tender, GMS, Part B Scope of Requirements, pp39-40 (Sections 1.44, 1.45, 1.46).

²²⁸ DoH GMS, Tenderer Presentation (D11-0031) Meeting Minutes, 4 April 2011, p1-2 and p8.

²²⁹ Department of Health, Request for Tender, GMS, Part B Scope of Requirements, Fujitsu **Revised** Response, n.d., pp.43-44.

²³⁰ DoH GMS, Tenderer Presentation (D11-0031) Meeting Minutes, 4 April 2011.

Governance

- 3.101 Governance in the GMS Project varied between Period A and Period B. From the Project Statement prepared by Fujitsu it would appear that little thought had been given to the governance model set up at the beginning of Period A.²³¹ Governance was briefly outlined under the heading 'Project Organisation' and consisted of a very basic organisational chart, followed by a list of the project titles, names, and organisational positions of the Steering Group members. The role of each Steering Group member was described with a single phrase and there was no mention of the Steering Group's terms of reference or of its accountabilities. The description of reporting arrangements is similarly brief and, while the Project Status Report appears to form the key reporting mechanism, there is no clear indication of the forum in which the report would be delivered. By August 2011, an NGO Technical Reference Group and a User Reference Group had also been set up but these were not mentioned in the Project Statement.
- 3.102 Despite the apparent lack of weight accorded to governance, several characteristics of the model appear to comply with best practice as reported in the literature.²³² Although the role of the Steering Group was not defined, a review of the minutes clearly demonstrates that it was regarded as the primary decision making body and as having accountability for the project. In addition, the Steering Group had highly committed members who appeared to function well as a committee and included representatives from the vendor, partner agency, and DoH's ICT unit.
- 3.103 In Period B a more substantial governance model was put in place.²³³ The most notable alteration was the addition of a Project Board, situated in DoH's ICT division, to oversee the functional and technical development of the Project. The Steering Group retained primary accountability but, with the technical and functional development now shifted to the Project Board, had a stronger emphasis on relationship management and general oversight functions.
- 3.104 A key factor impacting on effective governance of the project was its initial placement in a policy division with little oversight from DoH's IT division. Lack of experience in ICT projects made it difficult for Project staff to:
- Adequately understand the nature of the technical issues and the implications of these issues for the project;
 - Effectively manage the vendor and the vendor's relations with their sub-contractor; and
 - Develop realistic time-lines.

²³¹ GMS Project Statement, Draft, June 2011.

²³² Victorian Ombudsman's Office, Own motion investigation; National Audit Office UK, Delivering Successful IT-Enabled Business Change.

²³³ DoH and Fujitsu, DoH Grants Management System Project Proposal, v1.1, 10 September 2012, p17.

- 3.105 Although the importance of having the DoH ICT division play a significant role in management of the project was identified by the Project Sponsor early on (August 2011),²³⁴ it was not until crisis point was reached that technical oversight of the project was shifted to the ICT division through the convening of a Project Board. This occurred after the termination of ICS's contract and the appointment of Fujitsu as the sole contractor. A critical factor in the facilitation of this shift was the appointment of a new Project Manager who had substantial experience working on government ICT projects.
- 3.106 Comments from the Auditor-General's report suggest that good governance processes have not always been followed. For example, at one point the new DoH Project Manager took direct control of the Project and worked directly with ICS, bypassing Fujitsu, thus removing the risk from the prime contractor and taking on the risk directly. If a dispute had arisen, Fujitsu could have asserted they were effectively removed from the process.

Project Management

Capacity – the Importance of Knowledge and Expertise

- 3.107 As noted above, a core issue for the management of the GMS project in Period A was the fairly minimal involvement of the DoH's ICT division. Although both the original Project Manager and the Project Director were experienced in grants management policy they had no experience in implementing ICT projects. This made it difficult to identify and influence the technical issues that were constraining the progress of the project and therefore made it difficult to effectively manage emerging risks. Technical factors which were not properly understood, and which impacted on the project, include:
- The use of different methodologies by Fujitsu and its sub-contractor ICS, with Fujitsu using a more traditional systems lifecycle approach to development and ICS favouring an Agile methodology.
 - Neither DoH nor Fujitsu understood the GrantsTracker™ architecture, particularly what would require customisation versus configuration in this environment.²³⁵
- 3.108 Basically, a systems lifecycle approach is more plan driven and uses a formalised and standardised management style with limited customer interaction. Agile methods are adaptive rather than plan driven, iterative in nature, and require '...constant collaboration with customers, using their input and feedback at various checkpoints during each iterative cycle'.²³⁶ The use of different methodologies led to misunderstandings between the three parties and

²³⁴ GMS Steering Committee Minutes, 5 August 2011.

²³⁵ Auditor-General, DoH Performance Management System Audit, 1 August 2012, p5.

²³⁶ Devi, V, 'Traditional and Agile Methods: An Interpretation', 23 January 2013, available from *Scrum Alliance*: <http://www.scrumalliance.org/community/articles/2013/january/traditional-and-agile-methods-an-interpretation>

the imposition of time frames on ICS which may have been unrealistic given the methodological context in which they worked.

- 3.109 Problems arising from lack of experience in ICT project management, and consequent misunderstandings with ICS, are well summarised in a briefing provided to the Steering Committee by the second Project Manager who had substantial experience in ICT projects. The briefing presents findings from an onsite visit with ICS and included the following comments:²³⁷
- DoH's lack of understanding of GrantsTracker capabilities and limitations has been a fundamental problem; awareness of macro level process of GrantsTracker alone (or any grants management system) was insufficient for appreciating the scope of its configurable parameters.
 - ICS's preferred method is agile and iterative development which makes their work fast and responsive – provided they have appropriate brief which recognises their expertise.
 - DoH failed to provide clearly defined business processes in diagrammatic form, or procure information to determine the ICS specific definition of 'configuration vs customisation'.

Optimism Bias

- 3.110 The failure of the project staff to identify and manage the fundamental risks posed by the technical issues noted above are largely due to the absence of a strong ICT presence in the management of the project. However, other factors also need to be considered, as Period B of this project continued to be subject to lengthy delays even after an ICT presence had been established. Two key factors associated with continued delays include:
- Fujitsu's lack of experience with an Agile methodology and their adoption of this methodology to develop the bespoke system;
 - Optimism bias.
- 3.111 A UK study has shown that ICT projects are at greater risk of optimism bias and associated cost overruns than other types of infrastructure investments.²³⁸ Typically, public investors have a tendency to be overly optimistic about timeframes and to underestimate the costs and complexity of implementation. In their publication *Investing Smarter in Public Sector IT*, the Victorian Auditor-General's Office (VAGO) noted that investors succumbing to optimism bias often failed to fully assess the:²³⁹
- Capability of their agency or partner agencies to deliver complex projects;

²³⁷ DoH, GMS Steering Committee Minutes, 25 May 2012.

²³⁸ HM Treasury, *Review of Large Public Procurement*, paper prepared for UK Treasury by Mott MacDonald, July 2002, United Kingdom, p24. Available from: http://www.parliament.vic.gov.au/images/stories/committees/paec/2010-11_Budget_Estimates/Extra_bits/Mott_McDonald_Flyvberg_Blake_Dawson_Waldron_studies.pdf

²³⁹ Victorian Auditor-General's Office, *Investing Smarter in Public Sector IT*, Stage 1 Understand and Explore, 2008, p10.

- Technology or innovation risks which often arise from a solution that has neither been proven nor accepted elsewhere; and
- Readiness and capability of the market to participate in delivering the investment.

All three factors apply to both Periods A and B of the GMS project.

Managing the Interface between the Business Requirements/Processes and the Technical Solution

3.112 Prior to initiating an ICT project it is critical to have a complete understanding of current business processes as this makes it possible to provide a clear specification to potential suppliers which, in turn, enables the supplier to determine the most appropriate and cost-effective system for achieving the department's goals, and to design proposals to implement the business change.²⁴⁰ This was an ongoing issue in the GMS Project. The Department's failure to gather detailed functional specifications at an early stage of the project was a major contributor to project delays and a significant factor in the length of time it took for Project Management to decide that ICS would be unable to provide the required solution. In their submission to the Committee, ICS noted that the stage one inputs provided by DoH were very rudimentary and, as a consequence, ICS and Fujitsu agreed that Fujitsu would perform this stage to ensure success of the project. This comment contradicts information from the 2011 Project Statement in which Fujitsu notes that ICS involvement in the requirements gathering process was outlined in the tender process but that ICS had since advised they would not be involved in this stage.²⁴¹ Whatever, the truth of the matter, it is likely that due to the methodological differences between the two contractors, the absence of ICS involvement may well have contributed to misunderstandings about what ICS required and what was actually provided.

3.113 More significantly, the Integrated Grants Management Framework (IGMF) had still not been completed and signed off as of May 2012 – four months after the original completion date for the GMS. The risks of not implementing the IGMF had been identified in the Procurement Plan which noted that:²⁴²

Research suggests that the costs of this system [GrantsTracker] (and most likely any other option) are likely to be greater if the Integrated Grants management Framework is not implemented to create standard business processes and workflows within DCF and DoH.

Failure to implement the IGMF in a timely fashion impacted on the ability to complete the gathering of detailed business requirements and was a major factor in project slippage. In addition, the lack of clear guidance from the IGMF made it more difficult to obtain buy-in from departmental users, with the first Project Manager noting that risks associated with building a system across two

²⁴⁰ National Audit Office UK, Delivering Successful IT-Enabled Business Change, p18.

²⁴¹ DoH and Fujitsu, GMS Project Statement, NTG DoH Grants Tracker, prepared by J McDermott, v 1.0, June 2011, p10.

²⁴² GMS Procurement Plan, February 2011, p24.

agencies were escalating during user acceptance testing, with some participants stating that grants policies and processes were not yet finalised and were not ready to inform the development of the GMS.²⁴³

Change Management

There is no evidence in the GMS documentation that a coherent Change Management Plan was developed or implemented. There is only one reference to cultural change management in the original Project Statement (2011) and this simply attributes responsibility for change management to the DoH. Although there is a heading 'Change Management' in the Project Plan (section 4.12., p19) this refers to the procedure for submitting a request to alter requirements and does not refer to cultural change within the departments. A review of Steering Committee Minutes and Project Updates suggests that user engagement was poor and no mention was made of strategies to increase buy-in at the agency level.

Quality Management Assurance

The GMS Project did not engage an independent external provider to undertake regular quality assurance reviews. Instead, quality management appears to have been undertaken solely by Fujitsu as part of their delivery methodology, with section 4.14 (Quality Management) of the Project Statement specifying that 'Deliverables will be subject to review throughout the development lifecycle'. Internal review using the provider as the sole source of quality management is not recommended, as involvement in both project delivery and quality assurance creates a potential conflict of interest. At the very least it would have been advisable for the DoH's ICT division to review the project at regular intervals.

Contract Management

3.114 Despite the significant challenges posed by a major contract variation, the Department successfully held the vendor to account, minimised cost blowouts, and acted in a way to ensure that the end product would effectively meet their needs and, potentially, those of other government departments requiring a similar software package. However, there was also a lack of timeliness in relation to the signing of contracts, proposals and project statements which, potentially, could have had legal repercussions. The Auditor-General noted that:²⁴⁴

- Proposals and contracts were not signed promptly – the Contract Variation which covered the period 10 September 2012 to the present was not signed until 15 May 2013.
- Revisions and updates to project plans and contractual arrangements were not undertaken in a timely manner, leading to disparities between

²⁴³ DoH GMS Steering Committee Minutes, 19 April 2012, p1.

²⁴⁴ Auditor-General, DoH Performance Management System Audit, 1 August 2012.

the project and the contract that could have resulted in the contract becoming unenforceable.

Vendor management

3.115 Two of the principles essential for effective vendor relations²⁴⁵ appeared to be lacking in the GMS project. DoH appeared to have little understanding of the issues facing the contractors, particularly those facing ICS and, equally, Fujitsu did not appear to offer DoH constructive challenge about their expectations. The failure to achieve mutual understanding proved to be a major contributor to the continued delays. Effective vendor management was constrained by lack of ICT experience on the part of DoH staff, with this exacerbated by the different methodological approaches adopted by Fujitsu and ICS. In addition, communication between the three parties was poor, with the Auditor-General noting that:

Differences in culture, scale, approach and personalities resulted in a mismatch in governance and quality expectations, and a breakdown in communication between all parties.²⁴⁶

Project Documentation

3.116 Management of documentation and document controls was poor, with this having the potential to result in: loss of project knowledge; mis-communication between organisations; and reduced ability to enforce contractual disputes. Key steps were not adequately documented and version control was poor, with multiple versions of documents in circulation at any one time and authorship or status indeterminate.²⁴⁷

²⁴⁵ National Audit Office UK, Delivering successful IT-enabled business change, p34.

²⁴⁶ Auditor-General, DoH Performance Management System Audit, p.5.

²⁴⁷ *ibid.*, p.37.

4 Lessons Learned - Implications of Findings

- 4.1 The projects the committee has examined demonstrate that delivering ICT projects, or more precisely, ICT enabled business improvement, is complex. It entails business analysis, organisational change management, project management and ICT expertise, including systems design and data management. This complexity is increased as more stakeholders and needs are involved, such as with multi-agency projects.
- 4.2 Successfully delivering such projects requires effectively managing all these areas. This requires both capacity to manage these different aspects of the project and robust governance arrangements to keep the project on track, manage the risk of failure, and guide the project to achieve business benefits.
- 4.3 As is common with complex systems, there was not one single factor that could be isolated as the sole cause of the problems that arose with these projects, but rather the compounding of a range of factors, or the compounding effect of failure to adequately deal with a problem. For example, in both the Asset Management System and Grants Management System, significant issues were encountered in the design specification stage. However, such inadequacies are far easier to identify in retrospect. Analysing existing business processes, defining desired outcomes and then determining whether it is better to adapt business processes to the new system or to customise the system to existing business processes, are issues for both project development and project delivery. As agencies have limited resources and time, there is always pressure to move on from planning and put resources into delivery. In such an environment, success cannot be assured by perfect execution, but through systems that can identify and address the problems that will inevitably emerge along the way.
- 4.4 This Inquiry has shown us that major ICT-enabled projects entail significant risks, and that both active management and active governance is required to keep these risks under control. Further, while it may be possible to contract out responsibility for delivering an ICT-enabled project, stakeholder agencies cannot contract out the risk of project failure. Agencies remain responsible for their level of service despite any reliance on a contractor or another agency that has failed to deliver on a project.

Issues Identified and Lessons Learned

- 4.5 This Inquiry has identified a number of lessons which can be learned from the wide range of issues associated with the delivery of ICT-enabled projects in the Northern Territory Government. These are summarised below. First, the issue is stated and then the lessons learned in connection with that issue are set out in italics.

Issue 1 – Governance

- 4.6 The AMS project commenced without adequate recognition of its complexity, the implications for all of Government, and the need for engagement with stakeholder agencies.

Proposals for large complex projects, particularly multi-agency projects, should be vetted at a strategic level to ensure that potential issues with these projects are properly understood before making a decision to implement.

Issue 2 - Governance

- 4.7 Problems that were identified early within the life of projects were not adequately dealt with and risks were not managed effectively.

Inadequate governance structures and processes inhibit communication between project management and governance bodies and contribute to ineffective reporting. This results in a failure to adequately mitigate risks and respond to issues as they arise. Project success is dependent on an 'active governance' model in which the members of governance bodies are aware of the importance of their role; are qualified for that role; and are committed to the success of the project. This translates to: regular meetings; regular attendance; asking project managers the 'hard questions'; vigilance with regard to emerging issues; timely and informed decision-making; and taking action when issues are escalated to the committee.

The governance structure should be tailored to the scale and complexity of the project and clearly define: lines of accountability; roles and responsibilities of committees and key personnel; and decision making and reporting processes. In addition, agencies should take ownership of the governance framework used in the project. Ownership should not be devolved to the vendor even in cases where the vendor is assigned responsibility for writing up the project plan in which governance arrangements are documented.

Issue 3 - Governance

- 4.8 Some agencies do not appear to have an effective ICT governance framework to underpin the development and delivery of ICT-enabled projects.

Agencies need to develop and adopt an ICT governance approach that is suited to the agency's organisational requirements and culture while at the same time being aligned with the AoG ICT Governance Framework.

Issue 4 – Governance

- 4.9 The level of support, involvement and commitment from senior management was not always sufficient. Project Sponsors did not always have time to devote to the project and, in some instances, did not appear to have the competency to carry out their role effectively.

- 4.10 The role of Project Sponsor needs to be clearly defined. The time required to undertake this role effectively should be assessed and the position formalised accordingly. The Project Sponsor plays a critical role in driving change, facilitating senior level engagement, supporting the project team and ensuring appropriate and timely responses to emerging issues. Consequently, it is essential that the person chosen for this role has the right mix of knowledge, experience and skills and is thoroughly committed to the project.

Issue 5 – Accountability

- 4.11 Although the CEO of an agency is officially accountable for the delivery of a project owned by their agency, there are no clear mechanisms to ensure accountability at this level.
- 4.12 There need to be built-in mechanisms to ensure accountability at the highest level. Governance issues which occur at this level need to be acknowledged and remedied.
- 4.13 Business units and, in the AMS, agency stakeholders, did not always take responsibility for business benefits specific to their area or agency.
- 4.14 Failure to take ownership results in lack of input at key stages of the project such as during the business reengineering and design specification stages. This contributes to delays in the project and can have significant consequences during the implementation phase and for project outcomes.
- 4.15 Agencies cannot contract out responsibility for their service delivery even where they rely on other agencies or contractors to deliver key projects. Therefore, it is essential that agencies make an active contribution to the management of risk in multi-agency projects to which they are a party.

Issue 6 – Accountability

- 4.16 Lack of expertise in the delivery of ICT-enabled projects sometimes resulted in a lack of ownership, with agencies placing too much unquestioning reliance on the vendor which is perceived as the party with the expertise. This tends to lead to a 'do nothing' or 'it will all work out' approach and results in the agency losing control of the project.
- 4.17 Agencies need to be vigilant in their oversight and scrutiny of the vendor. If there is a lack of ICT expertise available within the agency external assistance should be sought to assist those who are managing the project to understand the issues that are arising and how they can best be managed.

Issue 7 – Project Management

- 4.18 Key components of projects, from initiation through to completion, were not sufficiently understood. This is reflected in poorly conceived business cases; inadequate business analysis and design specifications; the absence, or ineffectiveness, of change management and stakeholder engagement

- strategies; inadequate documentation of project scope; and failure to identify gaps between existing data quality and data requirements of the proposed system.
- 4.19 A lack of understanding of ICT impeded the ability to choose appropriately between a bespoke and an off-the-shelf system, or to make effective decisions regarding the extent to which business processes should be changed to fit the chosen solution versus customisation of an off-the-shelf system to fit existing business processes. Similarly, lack of understanding of ICT methodologies, for instance the difference between a waterfall and an agile methodology, compromised the ability to manage vendors effectively and to respond to issues as they arose.
- 4.20 A recurrent problem was a lack of engagement by stakeholders, particularly at senior levels, with this compounded by poor communication between project teams and governance bodies.
- 4.21 An ICT project is primarily a business improvement project, requiring a statement of expected business benefits, clear analysis of business processes, input from stakeholders, and a plan to manage the business change which includes training users and gaining their acceptance of the changes.
- 4.22 In all processes related to an ICT-enabled project it is essential to achieve the right balance between a business perspective and an ICT perspective, both are essential for success.
- 4.23 Defining business needs, undertaking business process reengineering, and planning organisational change can be projects within themselves and require skilled personnel, whether on staff or contracted.
- 4.24 An inadequate understanding of what the project aims to achieve or of the technical solutions available to deliver project objectives can result in the wrong solution being chosen.
- 4.25 Procurement processes need to be robust enough to prevent poorly conceived or inadequately defined projects from proceeding, and flexible enough to allow early vendor engagement on solutions development. It is essential to ensure that the tender evaluation panel has the necessary expertise to develop appropriate evaluation criteria, to ask pertinent questions of vendors and to adequately assess tender proposals.
- 4.26 Agencies would benefit from having an ICT section and/or committee to provide assistance and advice on ICT-enabled projects and to ensure these projects are managed in a consistent manner.

Issue 8 – Project Management

- 4.27 Project management did not always consistently follow a clear project methodology, with this contributing to poor reporting mechanisms, inconsistencies, inadequate documentation, ineffective governance and poor communication between governance bodies, and project staff.

- 4.28 Consistent application of an appropriate project methodology would provide a clear pathway through the project from initiation to completion. It would assist in forming an effective governance structure and in the planning of the project. It would also provide a consistent mechanism for collecting and analysing performance data and lessons learned.

Issue 9 – Staff Capability

- 4.29 The ability of staff to effectively develop and manage ICT projects was hampered by a lack of experience and expertise in both project management and ICT. In addition, the capacity of agencies to access sufficient staff is also in question, with a lack of resources sometimes resulting in staff being brought in from other areas for short periods, with choice of staff based on availability rather than relevant skills.
- 4.30 Operational managers with business knowledge do not necessarily have the skills required to manage an ICT-enabled project. These projects require specific skill sets and it is essential to appoint a qualified and accredited project manager, preferably with experience in ICT-enabled project delivery. If qualified staff are not available in-house they should be sourced externally.
- 4.31 Projects benefit from being able to source a dedicated project team with qualified team leaders for the various components of the project, as this ensures continuity, commitment and an understanding of the methods and practices required to deliver the project successfully. Most projects will benefit from having both a dedicated Project Manager and a dedicated Project Director, with the latter overseeing the project and making key recommendations and the former undertaking management of the daily project activities.

Issue 10 – Vendors

- 4.32 Contracting to large multi-national vendors has not worked well. This is due to a range of factors including:
- Fly in fly out mentality;
 - High turnover of vendor staff;
 - Lack of local knowledge and of how the NTG works; and
 - Lack of commitment arising from a lack of dependency on NTG for future projects.
- 4.33 The capacity of the vendor to deliver and support the project, having full regard to the circumstances of the project and working in the Territory, needs to be carefully considered before entering a contract; and the contract needs to be managed effectively to ensure delivery.

Issue 11 – Vendors

- 4.34 Relationships with vendors were often poorly managed with this having a significant impact on project delivery.
- 4.35 Good vendor relationships and sound contract management are vital to the success of a project. Adoption of a partnership approach characterised by clear communication, identification of mutual goals and a collaborative approach to problem solving, will achieve better outcomes than apportioning blame.
- 4.36 Variations in scope must be clearly documented and managed within the contract to avoid misunderstandings and enable enforcement and redress if the relationship breaks down.
- 4.37 If in-house expertise is not available agencies must be supported by independent expertise when reviewing the performance of contractors.

Issue 12 – Staged Implementation and Gateway Reviews

- 4.38 Large and complex projects have generally been funded through a lump sum rather than through a staged implementation process. In the Territory, there is no provision for a formal Gateway Review process which means that these projects have either received no external oversight or the oversight has been flawed in some way. Although in some cases external reviews were undertaken, projects were not subject to scrutiny by an AoG high level oversight body, which would be better situated to make an objective decision about whether to terminate or continue a project that was clearly in trouble. The absence of a Gateway Review process subject to high level oversight has contributed to a failure to identify problems with projects in a timely manner, leading to cost over-runs, delays and, in some cases, project failure.
- 4.39 Staged implementation in which large projects are delivered as a series of smaller stages would reduce wastage and result in more effective management. A Gateway Review process would facilitate the timely identification of problems and provide an expert and objective view of project status, of actions needed to ensure project health and of whether the project should proceed or be terminated.

Issue 13 – Budget

- 4.40 The cost of projects was consistently underestimated, with factors such as training and contingency either not included in the budget or not reflecting real costs.
- 4.41 ICT-enabled projects are difficult to cost and capacity in this area needs to be increased.

The Importance of an Effective AoG ICT Governance Framework

- 4.42 One of the most important lessons to be learned from these projects is the absolute necessity of having a coherent framework to govern and oversight ICT-enabled projects and to provide mechanisms for guidance, support and improvement. This is essential for large complex multi-agency projects such as the AMS but is also important for smaller projects such as the GMS. A coherent framework provides a mechanism for developing agencies' capacity to deliver these highly complex projects and for ensuring adequate oversight and scrutiny at a high level. The Northern Territory ICT Governance model in place at the time these projects were undertaken had not been developed with a view to supporting, guiding or scrutinising ICT-enabled business transformation projects. Consequently there has been little support for agencies undertaking ICT-enabled projects, with this evident through a lack of guidance and high level oversight.
- 4.43 The ICT Governance model in place at the time, was used to deliver a broad range of ICT services to all NTG agencies through the following business lines:²⁴⁸
- ICT Services – management of end-user computing services and central management of hardware purchasing and provision;
 - Data Centre Services – computing environment for the hosting of ICT systems and online data management and storage; and
 - ICT Policy and Strategy – development and implementation of policy and strategy at an All of Government level.
- 4.44 With the exception of the ICT Policy and Strategy stream, the primary focus of this model has been on technology projects, with little apparent emphasis on providing a suitable framework for agencies implementing ICT-enabled business transformation projects. This view is largely confirmed by the submission DCIS made to the Committee, in which it identified a number of problems with the model including:²⁴⁹
- A weak and ineffective committee structure;
 - No central technology oversight of critical ICT investment decisions;
 - Lack of oversight of ICT projects and initiatives that are high-cost, high-risk and critical to government; and
 - Insufficient participation by agencies in governance committees and associated processes.

²⁴⁸ DCIS Submission, p.2.

²⁴⁹ *ibid.*, p.7.

- 4.45 In addition, there was no legislative basis for decision-making and controls other than the standard *Financial Management Act* requirements of Chief Executives as Accountable Officers.
- 4.46 Problems associated with ICT-enabled projects are not unique to the Territory but are also prevalent both overseas and in other Australian jurisdictions. As a result, many jurisdictions have made a concerted effort to improve public sector management of ICT both in relation to ICT-enabled business transformation projects and ICT investment more generally. This is evident through the implementation of a raft of strategic frameworks, policies and standards aimed at improving ICT governance and increasing public sector capability in this area.
- 4.47 This Inquiry has examined ICT related policy trends and frameworks from the United Kingdom; Victoria; New South Wales; and the Australian Government. ICT policy frameworks generally address the full range of ICT issues, however, given the parameters of the Inquiry, this report primarily draws on policies that have specific relevance to ICT-enabled projects. Each of these jurisdictions has recently developed an ICT Strategy together with a range of implementation initiatives. The commonalities between these strategies and initiatives are extensive, suggesting that lessons learned from ICT-enabled projects have been similar but also reflecting a strong degree of policy transfer.
- 4.48 There are substantial similarities in how each jurisdiction's ICT Governance Framework is structured. All Frameworks have Ministerial oversight and generally include several committees or boards, each with specific functions. Typically, there is a:
- Peak body which reports directly to the Minister and develops and sets ICT strategy as well as oversees high value and high risk ICT investments;
 - Committee responsible for providing strategic ICT advice to the Minister, with this informed by industry expertise and based on emerging technology trends; and
 - A committee responsible for developing ICT related standards and policies.
- 4.49 Membership of committees and advisory boards varies; some jurisdictions lean heavily toward the inclusion of Chief Information Officers, others emphasise senior government business executives, and some have a more even distribution of both. In the United Kingdom and Victoria, overall responsibility for the ICT governance framework is assigned to a senior ICT executive. Most jurisdictions also seek to have some private sector representation, primarily in relation to providing strategic advice.
- 4.50 Common themes in ICT Strategies across the jurisdictions include:
- **Theme 1:** Improving ICT governance at both whole of government and agency level and adopting a strategic approach to ICT investment;
 - **Theme 2:** Enhancing public sector ICT capability;

- **Theme 3:** Developing stronger relations with industry;
- **Theme 4:** Procurement Reform; and
- **Theme 5:** Management of ICT-enabled project delivery.

4.51 The ICT Governance Frameworks developed by these jurisdictions offer a wealth of well researched ideas on how the Territory can improve its own ICT Governance Framework and have made a significant contribution to the options for improvement identified in Chapter 5. Weblinks to strategies and frameworks developed by these jurisdictions are included at Appendix 3.

4.52 As noted earlier in this chapter, there is no one single factor that can be isolated as the cause of the problems associated with these projects. However, it is equally true that the way to begin solving these problems is by replacing the ineffective ICT governance model with one that is capable of developing coherent AoG strategies, guidance and support, and which provides a high level scrutiny and oversight function.

5 Options for improving ICT procurement and Management across Government

- 5.1 The issues encountered by projects reviewed in this Inquiry can, to a large extent, be traced to the absence of suitable frameworks at the AoG level. In particular, the lessons learned highlight the need for:
- An AoG ICT Governance Framework that operates effectively for major ICT projects monitored at AoG level and for smaller projects monitored only at agency level;
 - An AoG ICT Capability Strategy to facilitate the development and maintenance of a cohort of employees with ICT and project management expertise; and
 - The development of an AoG project management framework to facilitate a consistent approach to project management across government.
- 5.2 ICT governance, staff capability and project management methodologies influence how an ICT-enabled project is conceived, planned, procured, managed and implemented. If the inputs from these systems are not of high quality then it is unlikely that the outcomes for ICT-enabled projects will be of high quality. Although each of these areas needs to be addressed at the AoG level, maximum benefits will only be assured if the core principles, policies and practices of these frameworks and strategies are also put in place at the agency level. Bearing this in mind, the next three sub-sections look at how the AoG ICT Governance Framework can be improved; strategies for improving ICT and project management capability; and implementation of an effective AoG project management framework.

All-of-Government ICT Governance Framework

- 5.3 In 2013, DCIS commenced the development of a new AoG ICT Governance Framework, and the key Framework document, *Northern Territory Government Information and Communications Technology (ICT) Governance Framework*, has been approved by Cabinet. However, the total Framework package will also include supplementary components which have yet to be developed. This provides a window of opportunity for findings from this Inquiry to be incorporated into the Framework's guidelines, policies and strategies.
- 5.4 This section sets out seven core objectives that the Committee considers an ICT Governance Framework should aim to fulfil. These objectives are listed in Table 3 and have been drawn from lessons learned, the literature, and practices in other jurisdictions. The basic structure of the NTG ICT Governance Framework is then summarised and relevant sections of the Framework document are assessed. This assessment examines the extent to which the new Framework is likely to fulfil objectives one to five and identifies any areas for improvement in relation to these objectives. Objectives six and seven refer

to standards and guidelines which are supplementary components of the Framework package. As these have not yet been developed they cannot be evaluated and are discussed separately.

Table 3: Objectives for an AoG ICT Governance Framework

No.	Objective
1	A strategic and portfolio based approach to ICT investment in which ICT-enabled projects are aligned with long term government strategy.
2	High level oversight of ICT investment through incorporating a ministerial committee into the governance structure.
3	Governance bodies operating under the Framework should ensure that at least one member on each Committee has technical expertise in ICT at a senior level.
4	The implementation of clear ICT governance arrangements at agency level.
5	Adequate and ongoing scrutiny of ICT investments, with the level of scrutiny varying according to the size and complexity of the project.
6	Development of standards appropriate to ICT-enabled projects.
7	The provision of a useful set of guidelines to enable agencies to develop and manage their ICT portfolio and ICT-enabled projects effectively.

The New Northern Territory ICT Governance Framework

- 5.5 The *Northern Territory Government Information and Communications Technology (ICT) Governance Framework*, will form part of an integrated package designed to assist agencies and facilitate more effective management of ICT across government. The package will include a Treasurer's Direction series under the *Financial Management Act* and the development of a set of ICT policies, standards and guidelines. It is anticipated that the Framework will resolve a range of problems associated with the previous ICT governance model under which the AMS, AMC and GMS were implemented.²⁵⁰
- 5.6 The key aim of the new ICT Governance Framework is comparable with that of other jurisdictions in its intention to provide a more coherent AoG ICT strategy that '... will improve alignment of ICT investments with government direction,

²⁵⁰ DCIS Submission, p.7.

strengthen oversight of high risk and high value ICT investments and put in place a framework to improve the management of ICT'.²⁵¹

5.7 The Framework is structured around the following governance bodies:²⁵²

- An ICT Governance Board chaired by the DCIS Chief Executive with membership comprising senior representatives from DCIS, Department of Treasury and Finance (DTF), Department of the Chief Minister (DCM), and at least three line agencies. This is the peak ICT Governance body and has a wide range of functions including setting the strategic direction for NTG ICT; managing implementation of the ICT Strategy; overseeing all-of-government ICT investment at a strategic level; and monitoring ICT projects deemed major/critical at the all-of-government level.
- A Ministerial ICT Advisory Council, with membership comprised of senior business executives external to the NT Government who have ICT governance skills and knowledge. The purpose of the Advisory Council is to provide external expertise, drive innovation and new ideas, and '... to bring in broader views and industry perspectives to ensure that expertise and advice from beyond NT Government boundaries are considered'.²⁵³
- An ICT Leadership Group comprising senior business and/or ICT executives. The Leadership Group has an operational role focused on developing the NT Government ICT Strategy; establishing a cohesive suite of technical ICT policies and standards; engaging with agencies and sharing information on ICT policy and governance matters; and ensuring that agency views are represented at the AoG level.
- Reference groups comprised of members who have subject matter expertise which will be convened as required to address specific ICT policy, strategy and technical issues.

How does the New Northern Territory ICT Governance Framework Measure up?

5.8 **Objectives 1 and 2:** The Committee notes that the new ICT Governance Framework brings a much needed strategic approach to ICT in government; demonstrates recognition of the central role that ICT plays in government operations and the delivery of government services; and has the potential to significantly improve the management and delivery of the Territory Government's ICT-enabled projects. In addition, consistent with other jurisdictions, it incorporates ministerial oversight as an integral part of the Framework.

²⁵¹ DCIS *Submission*, p.8.

²⁵² Department of Corporate and Information Services (DCIS), *Northern Territory Government Information and Communications Technology (ICT) Governance Framework*, DCIS, Northern Territory Government, n.d., pp.5-8.

²⁵³ DCIS, NTG ICT Governance Framework, p.5.

- 5.9 **Objective 3:** Governance bodies operating under the Framework should ensure that at least one member on each Committee has technical expertise in ICT at a senior level. Apart from the Leadership Group, governance bodies appear to have little representation from individuals trained in ICT. The proposed membership profile of the ICT Governance Board does not provide for the inclusion of a member with expertise in ICT and, while membership arrangements for the Ministerial Advisory Committee specify that members should have ‘... a business background and an understanding of governance requirements and the value of ICT to a business’, this still leaves a gap, as ‘understanding’ is not the same as expertise.²⁵⁴
- 5.10 This is a significant gap given the nature and purpose of the Framework. Although realisation of business benefits is the primary objective of ICT-enabled projects, if this is to be achieved it is essential to use the right tool and to apply it in an intelligent way. Both the literature, and this Inquiry’s review of NTG ICT projects, indicate the importance of having someone with ICT expertise to negotiate the interface between business and ICT perspectives and to ensure that ICT issues are adequately understood. In this respect, the Territory’s new ICT Governance Framework could be strengthened by placing a stronger emphasis on ICT expertise in its membership profiles. This could be achieved by appointing at least one senior ICT executive, who is experienced in ICT-enabled project delivery, to each committee, particularly the ICT Governance Board, which is responsible for monitoring ICT projects deemed major/critical at the AoG level. In addition, consideration should be given to the appointment of a government chief information officer and their inclusion as a key player in the new ICT Governance Framework.
- 5.11 A notable feature of the jurisdictional governance frameworks reviewed for this Inquiry is the key role played by government chief information officers (CIOs) or their equivalent, and the inclusion of ICT expertise on most governance committees. In NSW the government CIO, who also occupies the role of Director-General, Department of Finance and Services, chairs the peak ICT Governance Board. In Victoria, the Chief Technology Advocate has overall oversight of ICT Governance, is accountable for delivering the Victorian Government ICT Strategy and chairs both the peak ICT governance body (Victorian Information and Communications Technology Advisory Committee) and the secondary governance body, the CIO Executive Council. In the United Kingdom, the government CIO leads both the CIO Delivery Board and, with the support of a ministerial committee, the CIO council. In the Australian Government, the government CIO chairs the Chief Information Officer Committee and attends meetings of the peak governance body (Secretaries ICT Governance Board) but is not a member of this Board.
- 5.12 The role of chief information officer (CIO) is assuming increasing importance in a society where ICT has become an integral part of individual lives and business

²⁵⁴ DCIS, NTG ICT Governance Framework, p6.

operations. Traditionally, this role has primarily focused on the ‘... delivery of essential services—managing digital infrastructure and enforcing security, data integrity and system availability ...’.²⁵⁵ However, the increased profile of ICT has also been accompanied by an increase in the complexity and range of functions associated with ICT. The traditional CIO role now sits alongside other quite distinct ICT roles that make their own unique contribution to how businesses operate. Recent research by IBM has identified four CIO ‘mandates’ or groups.²⁵⁶

- Leverage – traditional orientation, fundamental technology services;
- Expand – a broad mandate in which CIOs manage a balanced set of responsibilities that range from fundamental to visionary. They lead IT operations that help expand organizational capabilities by refining business processes and enhancing enterprise wide collaboration;
- Transform - IT primarily seen as a provider of industry specific solutions to change the business. CIOs are called upon to help transform the industry value chain by enhancing relationships with customers, citizens, partners and internal clients; and
- Pioneer - IT predominantly seen as a critical enabler of the business/organizational vision. CIOs invited to help pioneer or radically re-engineer products, markets and business models.

5.13 The Committee considers that the position of government CIO should reflect a broad range of skills and, ideally, would most closely match the ‘Expand’ model. In IBM’s survey and analysis of CIO trends it found that the ‘Expand’ group of CIOs was double the size of any other group. This group had the most balanced mix of responsibilities and, on average, spent 32 percent of their time facilitating organisational process efficiency, 27 percent providing industry specific solutions, 27 percent providing fundamental IT services and 15 percent as a critical enabler of the organisation’s vision.²⁵⁷

5.14 Given the increasingly integral and significant role of ICT in government operations, there is a strong rationale for appointing a government CIO. This position would support and strengthen the ICT Governance Framework, coordinate Framework activities and provide a central resource and reference point.

5.15 **Objective 4:** *The development of clear ICT governance arrangements at agency level.* The new Framework states that agencies are expected to:

... implement internal ICT governance controls within their existing corporate governance model that are consistent with the *NT Government ICT Governance Framework*.²⁵⁸

²⁵⁵ IBM Corporation, ‘The Essential CIO: Insights from the Global Chief Information Officer Study’, *CIO C-Suite Studies*, 2011, p.7.

²⁵⁶ *ibid.*, p.8.

²⁵⁷ *ibid.*, pp.31-32.

²⁵⁸ DCIS, NTG ICT Governance Framework, p.8.

- 5.16 This statement is very broad and leaves much to the interpretation of individual agencies. In addition, while the governance requirements outlined in Section 8 of the Framework provide a reasonable amount of detail they are generally specified in relation to major systems, services or projects. As a consequence, there is a lack of clarity around what is required for smaller projects and how this might vary from the requirements for major/critical projects. More clarity is also needed on the procedures used to determine the classification of projects as major/critical. For instance, is this first determined by the agency and then referred to the ICT Governance Board for confirmation or will all project proposals be assessed by the Board to determine whether they meet the criteria for a major/critical project? In addition, as it stands, the Framework does not provide a mechanism for the Board to check whether agencies have effectively incorporated ICT governance controls into their corporate governance models.
- 5.17 Similarly, the current Framework does not propose mechanisms for (a) collecting lessons learned from smaller projects and (b) disseminating lessons learned from all projects. Lessons learned from major/critical projects should be collated as part of the required post-implementation review, however, for projects not classified in this way there is no requirement to do this.
- 5.18 The Committee considers that ensuring effective ICT governance arrangements at agency level is critical to improving public sector delivery of ICT-enabled projects in the Northern Territory. Building agency capacity for the effective governance of small to medium projects will, over time, enhance the likelihood that when big projects come along agencies have the project maturity and capacity to manage them effectively. The Committee considers that the governance body responsible for developing additional components of the ICT Governance Framework should consider the following options to maximise agency compliance with the principles and controls set out in the NT ICT Governance Framework:
- Require each agency's CIO to develop ICT governance arrangements in accordance with the ICT Governance Framework. If the agency does not have a chief information officer, responsibility for this task should be allocated to an appropriate officer.
 - Agencies' ICT governance arrangements should be reviewed by the ICT Leadership Group (or other governance body as appropriate).
 - Require agencies to develop an annual ICT plan to be independently assessed by the ICT Leadership Group (or other governance body as appropriate).
 - For very small agencies with a negligible ICT footprint it may be appropriate to waive the above requirements.
 - Revise the *NT Government ICT Governance Framework* document so that in addition to setting out the roles and responsibilities of the governance bodies it also sets out the roles and responsibilities of agencies at a similar level of detail, as has been done in the Victorian Governance

Framework. Alternatively, these could be set out in the ICT Strategy that is currently under development.

- Develop an ICT Governance website that houses information about the Framework and associated outputs, and that provides a central reference point for information and resources pertaining to ICT-enabled projects. The website could:
 - a) Include relevant strategies, policies, standards and guidelines;
 - b) Provide general support resources for agencies such as information about professional associations, training courses, professional development opportunities, latest research;
 - c) Key contacts, for example a designated person who can facilitate advice and mentoring in relation to ICT-enabled projects;
 - d) Be used to disseminate lessons learned from ICT-enabled projects; and
 - e) Contain a register of past and current ICT-enabled projects with key information about status, costs, and outcomes.

5.19 The Committee notes that the UK and Victoria appear to have the strongest mechanisms in place for ensuring that agency ICT governance and planning is coordinated in line with the AoG Framework. In the UK, members of the CIO council are responsible for implementing strategy in their organisation and for managing their ICT portfolio. In Victoria, CEOs are accountable for ICT planning, execution and service delivery in their agencies while agency CIOs are responsible for delivering ICT planning and governance, and ensuring that Victorian Government ICT policies, standards and guidelines are applied. The Victorian ICT Strategy also requires each agency to submit an annual ICT plan for independent assessment by the Victorian Information and Communications Technology Advisory Committee (VICTAC), a key committee in the AoG Governance Framework.

5.20 **Objective 5:** *Adequate scrutiny of ICT investments, with the level of scrutiny varying according to the size and complexity of the project.* The NT ICT Governance Framework provides a reasonably clear description of how projects assessed as major/critical are to be scrutinised but provides little insight into the scrutiny of projects not classified in this way. Projects classified as major/critical are determined by the following criteria:

- Substantial value (over \$5 million)
- High complexity and/or sensitivity
- Impacts across multiple agencies
- High risk of implementation failure

5.21 The scrutiny arrangements for these projects appears to be rigorous and largely in line with the findings of this Inquiry. Scrutiny is primarily the responsibility of the ICT Governance Board which is required to 'Monitor and provide a point of

escalation for ICT Projects deemed major/critical at the all-of-government level'.²⁵⁹ Scrutiny arrangements require the Board to:

- Review and endorse proposals.
- Endorse key components of the project including the: technology delivery model; project management methodology and approach; implementation project plan; independent stage gate reviews to be directed by the Board; project budget; and specific plans on key project requirements, including risk mitigation plan, communications plan, change management plan and training plan.
- Actively monitor project implementation through regular project status reports and stage gate reviews at defined project milestones;
- Initiate independent reviews, including stage gate reviews;
- Require CEOs and officers to explain progress or issues; and
- Determine remediation action if deemed to be required.

5.22 The Framework would be strengthened considerably by the inclusion of guidance in relation to appropriate scrutiny requirements for projects not classed as major/critical. In this respect, the NT Police, Fire and Emergency Services appear to have developed a very effective set of procedures for ensuring that small to medium sized ICT-enabled projects are adequately scrutinised. The Committee considers that developing appropriate guidelines or policy in this area should be a priority for the ICT Leadership Group in conjunction with the Project Board.

General Comments on the NT ICT Governance Framework

5.23 Accountability for project outcomes is a significant issue and, based on the projects reviewed in this Inquiry, has not been managed in a way that contributes to successful project outcomes. Although the Framework document identifies accountability as one of the core principles used to guide ICT governance, its interpretation and delineation is too narrow to be effective or meaningful. In Section 3, Principles, the concept of accountability is set out as follows:

Accountability – agency Chief Executives are responsible for the delivery and management of ICT in their agencies.²⁶⁰

Although accountability for delivery of a project overall should rest with the CEO of the agency which 'owns' the project, Chief Executives of agencies that are stakeholders of that project remain accountable for the delivery of their services. This means that stakeholder agencies need to manage the risks and opportunities emerging from the project. The Committee considers that

²⁵⁹ DCIS, NTG ICT Governance Framework, p.6.

²⁶⁰ DCIS, NTG ICT Governance Framework, p.3.

attribution of accountability should be expanded and the principle modified to reflect this:

Accountability – agency Chief Executives are responsible for the delivery and management of ICT in their agencies. The reliance of an agency on other agencies or third parties for the provision of ICT services does not dilute a Chief Executive's accountability for the services provided by his or her agency.

- 5.24 It is also important to ensure clarity in the wording of the document. The term major/critical is carefully defined in Section 6.4.1 but there are subsequent references, particularly in Section 8: Governance Requirements, where the term 'major' is used and it is unclear as to whether this should be used interchangeably with the term 'major/critical'. Similarly, in Section 6.4 which defines the role of the ICT Governance Board, it is noted that the Board *can* 'initiate independent reviews, including stage gate reviews, of major/critical ICT projects and initiatives ...'. The use of the term *can* introduces some doubt as to whether Gateway Reviews are a mandatory requirement for major/critical projects or a requirement that is at the discretion of the Board.
- 5.25 The core Framework document is a major improvement on the previous ICT Governance Framework, however, there are significant gaps that need to be filled if the Northern Territory is to have an efficient and effective governance system that maximises the benefits from all ICT-enabled projects including those which are not classified as major/critical. The Committee is concerned that the purpose of the Framework has primarily been construed in terms of the oversight of major/critical projects, with little emphasis placed on improving project management, governance, and capability across the board.
- 5.26 During the Hearings, two separate industry representatives noted that most projects are of small to medium size, and that projects such as the AMS are, in fact, quite rare. As there is currently no information available on ICT-enabled projects across NTG agencies the extent of investment in projects not classed as major/critical cannot be verified. However, there are extremely good reasons for ensuring that the Framework works effectively for all agencies and all classes of ICT-enabled projects. An effective Framework, which facilitates best practice through guidelines, support, appropriate project methodologies and good governance, will ensure that the project environment is one which builds capability and enables agencies to develop project management maturity. This, in turn, will mean that when big projects such as the AMS come along, there is the capacity to manage them effectively. As one witness commented:

The size of AMS comes around once every 10 or so years. We do a lot of projects every day that are small to medium size. That is where you build capability from. Capability comes from following or building a discipline, and then doing it repetitively, and educating your people, feeding your lessons learnt back in, so you can develop that capability further.²⁶¹

²⁶¹ NT Public Accounts Committee, Public Hearing, 7 March 2014, Mr Koulakis, p.17.

5.27 The costs associated with the failure of small to medium projects clearly has less impact on the Budget than projects such as the AMS. However, the cumulative impacts from poor management of numerous small to medium agency led projects are likely to be significant. These impacts are not confined to the financial arena but include negative effects on staff morale, lost opportunities to build capacity and a general failure to meet standards of excellence. Ensuring that the new ICT Governance Framework is effectively embedded at agency level is the primary means through which genuine and permanent change will be achieved. As one industry representative noted:

The real success in trying to make changes, if any changes can come out of this inquiry, would be to address the vast bulk of small projects that do go offline. They fail but, because they are small, no one notices. We should be looking to improve the small- to medium-sized project success rate and value.²⁶²

5.28 Ensuring that the new ICT Governance Framework is effectively embedded at agency level should not be left to chance. Capacity in relation to ICT varies across agencies and it will be important to develop clear mechanisms to ensure that the devolution of responsibility for implementing internal ICT governance controls at agency level is managed effectively.

5.29 This means clearly defining which agency position has responsibility for ICT governance and clearly defining the expectations for this role in terms of implementing the Framework and acting as a resource for agency level ICT-enabled projects. Early in the Framework's operation it would be useful for the Leadership Group, or other appropriate governance body, to review the arrangements agencies have made to ensure alignment with the Framework and to identify where agencies might require assistance.

5.30 The strategic approach to government ICT investment inherent in the Framework implies that the peak ICT governance body will be aware of the plans agencies have made in relation to ICT projects. This will clearly require agencies to submit an annual ICT plan for review by the ICT Governance Board. This information will provide advance notice of the number of projects likely to be classed as major/critical and will also facilitate the identification of opportunities for the reuse and sharing of solutions across government.

5.31 In the April 2014 Hearing, DCIS noted that: 'We are available to advise, assist and help anyone who needs help in establishing ICT governance ...'.²⁶³ DCIS's availability as a resource needs to be formalised through clearly defined communication pathways and mechanisms so that agencies can easily identify the appropriate person to contact and the type of assistance and resources that are available. In the first instance, this could be facilitated through a dedicated ICT webpage located on the new government Intranet.

5.32 The effectiveness of the new Framework will, to a significant extent, be influenced by the quality of the information available to its key decision makers.

²⁶² PAC Public Hearing, 7 March 2014, Mr D Chatterton, Radical Systems, p.9.

²⁶³ Public Accounts Committee, Public Hearing, 28 April 2014, Ms K Robinson, p.14.

Currently, there is no systematic collection of data on NTG ICT-enabled projects. This will be partially remedied under the new ICT Governance Framework, as there are plans to collect data on major/critical projects, however, there is, at this point, no intention to collect data on projects which are not classed as major/critical.²⁶⁴

- 5.33 The Committee considers that information on the number, value, and key characteristics of ICT-enabled projects, as well as basic information on key agency ICT policies and personnel, is essential to the formulation of effective strategies and actions to improve ICT governance and increase agency capability. Collecting this information should be a priority for the Board. Without this information, the ICT Governance Board's decisions about future directions, capability requirements, processes for incorporating governance controls at agency level, and the need for a project management framework, will be based on conjecture rather than evidence.
- 5.34 For the future, it will be important to collect annual data on all ICT-enabled projects not just those classified as major/critical. This could be collected through the annual plan which could include one section on projects undertaken over the previous year and another on projects planned for the next year. Collection of data on all projects will enable the detection of trends and patterns in project delivery and hence feed into strategic planning. In addition, it has the potential to alert the Board to the emergence of ICT related issues in individual agencies.
- 5.35 The Committee acknowledges that the total Framework package is still a work in progress and that there may well be an intention to address some of these issues through the development of the supplementary components of the total Framework package.

Objective 6 Standards

- 5.36 **Objective 6:** *Development of standards appropriate to ICT-enabled projects.* An ICT standard is a technical specification that supports the development of open and competitive markets. The jurisdictions reviewed as part of this Inquiry all demonstrate a strong commitment to the adoption of open standards, as these are perceived as making interoperability between ICT solutions possible, and as facilitating the reuse and sharing of ICT systems. This reduces the need to purchase new or bespoke systems and hence results in cost savings which can then be redirected to more innovative approaches. In addition, open ICT standards '... provide a level playing field on which companies can compete, by using common platforms that ensure freedom of user choice'.²⁶⁵ One of the benefits of open standards is that the government is not locked in to one vendor

²⁶⁴ PAC Public Hearing, 28 April 2014, Ms K Robinson, p.18.

²⁶⁵ ICT Standards Board, *ICT Standardisation*, Europe, available at: http://www.ictsb.org/about/ICT_standardization.htm.

but can transfer to another supplier ‘... without facing excessive transition costs, loss of data or significant functionality’.²⁶⁶

- 5.37 Currently, the Framework does not clearly specify whether the development and adoption of open standards will be included as part of the whole Framework package. The first principle in the Framework document states that ‘ICT solutions must be compatible and able to operate in harmony with existing NT Government business systems and within the NT Government’s existing ICT architecture’,²⁶⁷ with this being supported through the role of the ICT Leadership Group which is to establish ‘... a cohesive suite of technical ICT policies and standards that are appropriate to agency needs and compatible with all-of-government ICT architecture’.²⁶⁸ Ensuring compatibility of ICT solutions with existing NT business systems and with the government’s existing ICT architecture is clearly important, however, the Committee considers that there is a strong argument for developing open standards.
- 5.38 **Objective 7 - Guidelines:** The provision of a comprehensive set of guidelines to enable agencies to develop and manage their ICT portfolio and their individual ICT-enabled projects effectively.
- 5.39 Section 8 of the Framework identifies core governance requirements for ICT-enabled projects, from the planning stage through to post-implementation. These are not guidelines but they do provide some information about the type of content the proposed Guidelines are likely to cover. The core governance requirements focus primarily on major/critical projects and there is no clear indication of the extent to which projects which are not major/critical are expected to comply with these requirements; this needs to be clearly identified. As many ICT-enabled projects will not be classed as major/critical, it will be equally important for the Guidelines to clearly indicate what is required for major/critical projects and what is required for projects which are not major/critical.
- 5.40 Guidelines should provide useful information and advice on all stages of a project, from conceptualisation to post-implementation and they should specify the steps that need to be completed for each stage. It is particularly important that the Guidelines included as part of the ICT Governance Framework are developed specifically with regard to ICT-enabled project delivery.
- 5.41 The absence of an effective ICT framework has meant that agencies delivering ICT-enabled projects have had to rely on whatever guidelines are in place for the development of physical infrastructure projects. Although there are similarities between the steps required for a physical infrastructure project and those required for an ICT-enabled project there are also significant differences.

²⁶⁶ Cabinet Office and Efficiency and Reform Group, *Government ICT Strategy*, London, United Kingdom, 30 March 2011, p.15, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/85968/uk-government-government-ict-strategy_0.pdf

²⁶⁷ DCIS, NTG ICT Governance Framework, p.3.

²⁶⁸ DCIS, NTG ICT Governance Framework, p.7.

The virtual environment in which these projects are developed poses unique challenges and problems that are not generally encountered in the development of physical infrastructure projects. These range from a comparative lack of public sector capability in this specialist area to the need to develop contractual mechanisms appropriate to ICT-enabled projects, such as assigning intellectual property rights to the vendor.

- 5.42 The Committee recommends that the Governance Committee responsible for developing the NTG ICT Guidelines review the ICT Guidelines recently developed by the Victorian Department of Treasury and Finance. These have been included as a two-part supplement in the Investment Lifecycle and High Value/High Risk Guidelines, a suite of materials designed to provide guidance for general project delivery including ICT projects. Although this Framework applies to all types of projects, the technical supplements recognise, and assist with, the particular challenges inherent in ICT-enabled projects.²⁶⁹ These guidelines are a good example of best practice and provide useful, clear and detailed information without being unwieldy.
- 5.43 The development of Guidelines is one of the major options the Territory has for improving ICT-enabled project delivery. Although it is not within the purview of this Inquiry to determine the content of the Guidelines, the findings of the Inquiry should be utilised to inform their development. Based on public hearings, submissions, the literature and the practices of other jurisdictions, the Committee has identified key findings that should be considered for inclusion in the Guidelines. These are set out below under three key areas: project governance; planning and procurement; and vendor relations.
- 5.44 Project Governance
- Ensure the adoption of an active approach to project governance.
 - Project governance structures should clearly define: lines of accountability; roles and responsibilities of committees and key personnel; and decision making and reporting.
 - Membership of peak governance committee should include key stakeholders, vendors, appropriate expertise and experience, and an independent perspective.
 - Agencies must take ownership of the governance framework used in the project and not devolve this to the vendor even when the vendor is assigned responsibility for documenting the governance arrangements in the project plan.
 - Mandate the adoption of an appropriate project methodology in line with government recommendations (project methodologies include guidance on effective governance arrangements).

²⁶⁹ DTF Victoria, ICT Projects Technical Guidance: Business Case Development; DTF Victoria, ICT Projects Technical Guidance: Procure and Deliver.

- Recommend that an induction process be held for members of governance boards (a) in relation to their responsibilities and role; and (b) in relation to the project.
- Include information and advice on best practice in governance processes and procedures and provide links to further information, for example, the Victorian Government's Lifecycle Guidance Series which includes a paper on governance.
- Accountability should be clearly defined and allocated at appropriate management levels.

5.45 Planning and Procurement

- Thoroughly assess agency capability prior to commencing a project. If capability is not sufficient a decision can then be made as to whether it can be increased by upskilling staff, contracting from outside government, or a mixture of upskilling staff and contracting. If capability is still in question then it may be more appropriate to not commence the project.
- Agencies should ensure they have the capability required for effective procurement, including contract and supplier management skills.
- Business cases should be based on:
 - a) Thorough analysis of market capability and available options;
 - b) Clearly defined scope that matches available funding;
 - c) Clearly articulated business benefits and outcomes.
- Business processes should be comprehensively analysed and, where appropriate and possible, business processes should be adapted so that customisation can be minimised and best use made of existing market offerings.
- Staged implementation and Gateway Reviews should be a standard requirement for large or complex projects and used where appropriate for smaller less complex projects.
- A mechanism should be developed to ensure that the ICT implications of a proposal are considered early in the policy development process, and have the same status as risk, legal, and financial implications.
- Agencies should implement six monthly performance reviews of vendors and project managers.
- Where possible, use local suppliers as they have better ability to deliver under Northern Territory conditions. Developing local skills and expertise will:
 - a) Result in cost savings both in implementation and ongoing maintenance;
 - b) Help to build long term relationships between vendors and client agencies;

- c) Facilitate ability of vendors to provide skills transfer to agencies;
 - d) Contribute to a consistent approach to ICT-enabled projects across agencies.
- Evaluate local capability of the vendor not just international capability.
 - Insist that vendors on ICT projects provide an accredited project manager and follow formal project management methodologies.
 - Early engagement with industry and, where appropriate, the use of concept viability programs such as the 'invitation to respond', 'interactive vendor engagement' and 'competitive dialogue' models. This enables detailed consultation and engagement with several suppliers prior to the development of a detailed specification for the formal tender and thus facilitates a more focused request for tender. The costs associated with design finalisation and proof of concept can be incorporated into the tender.
 - Ensure that the design specifications are robust and comprehensive and are included in the Request for Tender so that vendors can determine if their proposed solution will meet the client's requirements.
 - Streamline procurement processes and combine this with the use of common technology standards that enable the delivery of an open platform to support smaller, interoperable solutions. Opening up access to this platform can provide greater opportunities for small to medium enterprises (SMEs) which often have fewer resources to market their products and services. This will also enable government to procure solutions directly from SMEs rather than predominantly via systems integrators and will contribute to a fairer and more competitive ICT marketplace.
 - Consider introducing an outcome based procurement and contract process that provides greater flexibility and increases responsiveness to fast changing markets. This means not being locked into a single supplier for long periods of time and maintaining competitive tension in the procurement process.
 - Develop contract frameworks that are appropriate to ICT projects. Characteristics of these frameworks include: a mix of contract durations; standard contracts; the vesting of intellectual property in suppliers by default; and appropriate insurance levels to encourage SMEs.
 - Provide information about different software methodologies, their advantages and disadvantages, and how their use influences the way the project progresses. Encourage consideration of agile methodologies which can reduce waste, be more responsive to changing requirements and, when managed appropriately, reduce the risk of project failure.
- 5.46 Vendor Relations - Guidelines can facilitate better vendor relations by providing strategies for:

- Ensuring open channels of communication;
- Both supporting and challenging the vendor;
- Creating a partnership approach and working collaboratively to find solutions to problems; and
- Developing a good understanding of the ICT/business interface and sharing a common language with the vendor.

General Strategies at the AoG Level

5.47 In addition to the development of guidelines, there are a number of actions that other jurisdictions have undertaken to improve the outcomes of ICT-enabled projects and which could also be useful in the Northern Territory. One key area in this respect is the development of stronger ties, and better relationships, with the ICT industry. In seeking to develop local industry capability a useful first step would be to undertake an assessment of the capacity of local industry to deliver government ICT projects and to use this information as a starting point to develop specific strategies.

5.48 Examples of initiatives from other jurisdictions are included in Table 4 below:

Table 4: Initiatives Implemented in Other Jurisdictions

Initiative	Jurisdiction
Provide government wide advice on selection and use of project methodologies.	Victoria
ICT governance education program for Project Sponsors and members of project boards.	Victoria
Establish a public facing ICT-enabled project status dashboard to increase accountability and transparency.	Victoria
Register of ICT assets to facilitate sharing and reuse.	Victoria, NSW
A fully operational, online Applications Store to enable the reuse of business applications and components across the public sector.	UK
The APS, in partnership with industry and other stakeholders, will use technology demonstrator hubs to build and trial innovative services and processes to address complex service delivery challenges.	Australian Government
Promote agency-based innovation communities of practice so that new technologies and ideas can be deployed rapidly and assessed for their business use.	Australian Government, UK

Initiative	Jurisdiction
Dedicated ICT website to disseminate information and resources in relation to ICT related projects.	NSW, Victoria, Australian Government, UK
Development of a Government Procurement Code of Good Practice which sets out the core values and behaviour for both government and suppliers, and the Intellect IT Supplier Code of Good Practice; these Codes were developed jointly between industry and government.	UK
Increasing collaboration with industry, for example, members of the Chief Information Officer Council joined CIO Connect, a network of the Chief Information Officers representing most of the top 300 companies in Britain.	UK
Developing partnerships such as working with professions with the same agenda, including Information Management, Information Security and Information Assurance, Communications, Procurement, Programme and Project Management.	UK

RECOMMENDATIONS ON GOVERNANCE

Recommendation 1

The Committee recommends the prompt implementation of the All-of-Government ICT Governance Framework.

Recommendation 2

The Committee recommends that membership provisions for the ICT Governance Board, ICT Leadership Group and Ministerial ICT Advisory Council, require that at least one member has ICT qualifications and expertise in the development and management of ICT-enabled projects.

Recommendation 3

The Committee recommends that the ICT Governance Board consider the appointment of a government chief information officer and delegating authority for coordination of Framework activities to this position.

Recommendation 4

That the ICT Governance Board initiate the development of mechanisms for the collation and dissemination of lessons learned from all ICT-enabled projects undertaken by NTG agencies.

Recommendation 5

The Committee recommends that the ICT Governance Board develop a specific strategy, separate from the ICT Strategy currently under development, to:

- a) Inform agencies of changes to ICT governance arising from the new Framework;**
- b) Ensure reforms proposed by the new Framework are implemented at agency level and not operationalized only in relation to projects classified as major/critical; and**
- c) Support agencies to implement continuous improvement in relation to their delivery of ICT-enabled projects.**

Recommendation 6

The Committee recommends that the all-of-Government ICT Governance Framework be amended:

- a) To ensure clarity of terminology, particularly regarding ‘major/critical’ and ‘major’ projects.**
- b) To include a mandatory requirement for major/critical projects to be subject to a staged Gateway Review system unless there are exceptional circumstances, defined in the Framework, which negate the need for a review.**

Recommendation 7

The Committee recommends that the ICT Governance Board consider the adoption of open ICT standards in line with practices of other jurisdictions.

Recommendation 8

The Committee recommends that the role of Project Sponsor be:

- a) Clearly defined in the Project Plan as part of the ‘Governance Arrangements’;**
- b) Appointed at a senior level; and**
- c) Realistically resourced in terms of the proportion of FTE allocated to this position.**

Recommendation 9

The Committee recommends that agencies identify responsible executives and senior project staff in project business cases and that their personal performance agreements reflect their accountability for successful project delivery.

Recommendation 10

The Committee recommends that the ICT Governance Board initiate the development of a contract framework more suited to ICT-enabled projects and which takes into account factors that have a strong influence on the contract management of these projects such as intellectual property rights, insurance levels which encourage small to medium enterprises and the benefits of standard contracts. In this respect, the NSW Government's new contract framework, *Procure IT version 3*, which was negotiated with industry, provides a useful resource.

Recommendation 11

The Committee recommends that the ICT Governance Board initiate the development of Guidelines to assist agencies in the procurement and management of ICT-enabled projects, taking note of those recently developed by the Victorian Government, specifically, the *ICT Projects technical guidance 'Business Case Development'* and *'Procure and Deliver'*, and including:

- a) The need for agencies to assess their capacity to deliver the project in the early planning stages and develop plans to address any gaps;
- b) Clear pathways for accessing advice on ICT-enabled project delivery;
- c) An ICT Governance Education Program for Project Sponsors and members of project boards, with a view to providing a forum where executives can learn what to expect when taking responsibility for an ICT-enabled project or program and how to lead an ICT-enabled project to ensure the best result for the organisation;
- d) Incorporating internal ICT governance controls within their existing corporate governance model that are appropriate to their organisational requirements and consistent with the NT ICT Governance Framework;
- e) Advice on costing of ICT projects; and
- f) Guidance on implementing adequate scrutiny and contract management arrangements.

All-of-Government ICT Capability Strategy

5.49 The significant gaps in public sector knowledge and expertise in relation to project management, particularly with regard to ICT-enabled projects, have had a major impact on all aspects of the projects reviewed in this Inquiry. Strengthening public sector capability in this area would improve a range of ICT project management practices such as stakeholder engagement, change management, business analysis and vendor management. Lack of capability in these areas significantly reduces the chance of project success and has, in some projects, resulted in the client agency attempting to devolve responsibility

for the project onto the software developer. As one submission to the Committee noted:

They start to develop things and the project starts meandering because there is never any clear cut analysis, never a systematic or professional based analysis of the problem or the solution they are after. Because they are simply hiring developers, and developers will simply do the best they can.²⁷⁰

- 5.50 The current Northern Territory Public Sector capability framework is generic in nature and does not encompass specific capabilities that have direct relevance for work in ICT related areas. In addition, there is no clearly defined pathway for training in ICT related project management.
- 5.51 Although the lack of public sector capability is not unique to the Northern Territory, the Territory does face distinct challenges due to its small mobile population and its relative isolation. All jurisdictions reviewed in this Inquiry have either developed an ICT Public Sector Capability Framework or are in the process of developing one.
- 5.52 In developing their frameworks, the UK, Victorian, NSW and Australian Governments have all drawn on the *Skills Framework for the Information Age* (SFIA), an internationally recognised ICT capability model. In general, there is a strong focus on developing distinct ICT career pathways in government but also on developing ICT expertise in existing staff through professional development programmes. Each jurisdiction's capability frameworks are summarised below.
- 5.53 The Australian Government launched a whole-of-government strategic ICT Workforce Plan in 2010. The Plan was developed by the Australian Public Service Commission in partnership with the Department of Finance and Deregulation and provides a high level overview of issues affecting the ICT workforce and strategies for addressing future human capital needs. The goal of the Workforce Plan is to:
- ... support agencies to better plan, develop and manage a qualified, satisfied and flexible ICT workforce, while providing an attractive career path for ICT professionals in the APS. This plan will also contribute to the aim of reducing the total number of ICT contractors across the APS and increasing the number of qualified APS ICT staff. (p6)
- 5.54 Agencies are required to develop their own ICT workforce plan and to submit it annually to the Australian Public Service Commission. The SFIA ICT Capability Framework underpins both the Workforce Plan and the whole-of-government ICT Career Structure.
- 5.55 In NSW, ICT capability is being developed under the skills and capability initiative which sits within the NSW Government ICT Strategy 2012. This is led by the Public Service Commission in partnership with the Department of Finance and Services. Under this initiative, the '... NSW Public Sector Capability Framework and the SFIA will be used together to develop the tools

²⁷⁰ Radical Systems, *Submission*, p.6.

necessary to strengthen the capabilities of the sector's ICT workforce and provide a common language for IT professionals across the sector'.²⁷¹

5.56 The UK Government has released an ICT Capability Strategy as a sub-strategy of its Government ICT Strategy. The strategy:²⁷²

- Puts career development and progression structures in place for the whole of the ICT profession;
- Aligns the ICT profession with external industry practice and with internal civil service strategies for learning and development; and
- Aims to attract people into the profession, from high calibre fast stream graduates to existing non-ICT public sector workers, in recognition of the need to invest in existing staff.

5.57 The Victorian Government has also developed a Public Service ICT capability framework. Although details of the Framework are not currently available some of the key capabilities to be included are:²⁷³

- Project and program management;
- Change management;
- Procurement, vendor management and commercial engagement;
- Business analysis and engagement;
- ICT architecture;
- Problem solving, including problem identification.

5.58 Enhancing ICT capability is an essential step in improving how ICT-enabled projects are conceptualised, managed and delivered in the Northern Territory, however, filling the gaps in public sector ICT capability will take time. As a first step, the Committee considers it essential that the ICT Governance Committee Board collaborate with the Office for the Commission of Public Employment (OCPE) in the development of strategies to address gaps in both ICT, and project management, skills and competencies. Although it will be essential to develop long term strategies, there is also a need to develop short term strategies for the interim. Long term strategies that should be considered include:

- The development of an ICT capability framework that complements existing public sector capability frameworks;
- The introduction of a special graduate entry scheme in ICT project management;

²⁷¹ New South Wales Government, Public Service Commission, *ICT Professionals*, available at: <http://www.psc.nsw.gov.au/Sector-Support/Capability-Framework/Occupation-Specific-Capability-Sets/ICT>

²⁷² UK Cabinet Office and Efficiency and Reform Group, *Government ICT Capability Strategy*, p.3.

²⁷³ Victorian Information and Communications Technology Advisory Committee, *Victorian Government ICT Strategy 2013 to 2013*, Victorian Government, 2013, p.24, Available at: <http://www.digital.vic.gov.au/ict-strategy/>

- Mechanisms to provide staff with ongoing professional development; and
 - Development of an accreditation system for ICT professionals.
- 5.59 In the short term, some options for meeting capability gaps include:
- Develop professional development courses for existing staff;
 - Develop mentoring schemes so that more experienced project managers can pass on their experience and knowledge;
 - Establish a register of accredited individuals and consultants from which personnel experienced in ICT related project management can be engaged on a contract basis; and
 - Develop mechanisms for ICT staff to engage with industry professionals.
- 5.60 Central to increasing ICT capability is the development of a cohort of public sector ICT professionals. The skills of an ICT professional go beyond technical skills and encompass a range of competencies related to ICT-enabled project management. It is this 'marriage' of skills that will help the public sector to become an 'intelligent client' and that will help to create the common language that is so essential to good communication between vendors and their public sector clients. This is clearly the approach taken in the development of SFIA which can be embedded into pre-existing public sector capability frameworks and is already used in the UK and in several Australian jurisdictions.
- 5.61 The Committee notes that it will also be important to collaborate with local industry, as one witness commented:
- ... project management skills should be developed and nurtured, and the NT government should be looking at programs where project management skills are developed both internally in government and within local industry.²⁷⁴

As noted earlier in the report, there are clear benefits to be gained from working more closely with local ICT firms and these can only be enhanced by supporting increased capability through the development of collaborative training programmes.

RECOMMENDATIONS ON CAPACITY

Recommendation 12

The Committee recommends that the ICT Governance Board collaborate with the OCPE:

- a) **In the development of an ICT Capability Framework for the NTG and consider the SFIA Framework as the basis for the development of that framework.**

²⁷⁴ PAC Public Hearing, 7 March 2014, Mr Redman, p.22.

- b) **In the short term, to identify staff capability gaps in relation to ICT Project Management and develop strategies, such as professional development seminars, to address these gaps.**

Recommendation 13

The Committee recommends that the ICT Governance Board:

- a) **Liaise with the OCPE regarding the development of strategies to attract and retain staff with skills in ICT-enabled project management;**
- b) **Collaborate with industry in the development of strategies to increase private sector capacity to expand the pool of ICT consultants and contractors available to the public sector; and**
- c) **Compile and maintain a list of NTG staff with particular ICT-based skills. This will facilitate appropriate secondments to ICT-enabled projects and provide a basis for developing mentoring arrangements.**

Recommendation 14

The Committee recommends that the ICT Governance Board initiate an ongoing register of ICT consultants and contractors used by the NTG which includes details of NTG projects they have worked on and key performance indicators.

All-of-Government Project Management Framework

5.62 A project management methodology ‘... identifies the common processes, deliverables and activities required for all projects, independent of their unique outputs’.²⁷⁵ The consistent use of a project management methodology builds capacity and expertise in project management, facilitates continuity in the face of staff turnover, and streamlines and improves the execution, delivery and management of ICT-enabled projects. It makes project management more efficient because the practices and procedures of running a project are well known and routine, and more effective, because reporting and analysis is more consistent; risk is reduced; change is monitored and controlled; and governance processes and structures are clearly defined, leading to better decision making and earlier identification of problems. As one witness noted:

Capability comes from following or building a discipline, and then doing it repetitively, and educating your people, feeding your lessons learnt back in, so you can develop that capability further.²⁷⁶

²⁷⁵ Victorian Government CIO Council, Guideline: Selecting a Project Management Methodology, Victorian Government, 2013, p.2, available at: <http://www.digital.vic.gov.au/policies-standards-guidelines/ict-projects/>

²⁷⁶ PAC Public Hearing, 7 March 2014, Mr Koulakis, p.17.

- 5.63 Currently, the NTG does not have any AoG guidelines, policies, procedures or training programmes in relation to the selection or use of project management methodologies. This is associated with a range of issues, including:
- Inconsistent management of multiple projects within the same agency;
 - Ineffective management of ICT-enabled projects;
 - A failure to enforce adherence to due process and standards – even where a project management office has been established;
 - The absence of a mechanism to collate and disseminate lessons learned;
 - A lack of capacity in project management and the absence of mechanisms to build capacity; and
 - The absence of appropriate supports for staff managing ICT-enabled projects.
- 5.64 Compared with many small to medium NTG agencies, the NTG Department of Corporate and Information Services (DCIS) has good project management resources. It runs its own project management office, uses consistent project management procedures and policies, and provides in-house training programmes and mentoring for staff. Although there are currently no mechanisms for either standardising these practices across agencies, or providing other agencies with relevant support and information, DCIS notes that this will be remedied through the Treasurer's Directions and other information that will be developed through the new ICT Governance Board.²⁷⁷
- 5.65 The Committee considers it essential that an AoG project management framework be developed. This will provide a basis from which agencies can establish a project methodology, or a set of methodologies, that meet core government requirements and which facilitate effective project delivery.
- 5.66 Faced with similar issues to those outlined above, the Victorian Government has developed a guideline, *Selecting a project management methodology*, which provides Victorian Government agencies with advice on selecting and tailoring a project methodology suitable to their requirements. This provides useful information on key aspects of project management methodologies including weblinks to core project methodologies.
- 5.67 Core components of a project management methodology include:
- A framework which defines the philosophy of the methodology;
 - A definition of the steps to be followed, including the minimum set of expected deliverables, the key decision points, and the information required at those decision points;
 - Definition of roles and responsibilities, including escalation processes and thresholds;

²⁷⁷ PAC Public Hearing, 7 March 2014, Ms Robinson, p.46.

- A core set of templates;
- Training materials, including induction kits, workshop training material and on line self-training courses;
- Definition of minimum training and certification requirements for Board Members, Project Managers and team members; and
- Access to case studies and lessons learned from previous projects.

Choosing a Project Management Methodology

- 5.68 There are a wide range of methodologies available, such as the Project Management Body of Knowledge (PMBoK), PRINCE2, the IT Infrastructure Library (ITIL), and Systems Development Lifecycle (SDLC) methodologies, such as Agile and Waterfall. Strictly speaking, PMBoK is more a standard than a project management methodology.
- 5.69 Although most project management methodologies are designed to be modified to suit projects of differing scale and complexity, it is unlikely that one methodology will work across all projects. This has several key implications. First, it means that the development of an AoG Project Management Framework will need to incorporate a set of standards that can accommodate more than one methodology. Second, it indicates the importance of requiring some higher-level supervisors to have a strong background in project management and experience of several methodologies. This is critical to ensuring that the best methodology is chosen for specific projects. Third, as the size and complexity of projects differs widely, both within and across agencies, it will be critical to ensure that key staff have an understanding of the underlying discipline of project management to enable them to ‘... make the right decision as to how much of that discipline applies to a specific project’.²⁷⁸
- 5.70 A major factor to be considered when choosing a methodology, or set of methodologies, is the purpose of the methodology, with some designed to guide projects in which something new is being built such as PRINCE2 and others designed for projects primarily concerned with operations and maintenance such as ITIL.²⁷⁹
- 5.71 A good project methodology will be:
- Easy to use and understand;
 - Able to provide early warning of problems;
 - Scaleable – can be adapted to projects of different size and complexity;
 - Customisable – can be aligned with other organisation processes, such as planning and budget cycles, risk management frameworks, procurement processes, and so on;

²⁷⁸ PAC Public Hearing, 7 March 2014, Mr Koulakis, p.13.

²⁷⁹ PAC Public Hearing, 7 March 2014, Mr Potter, p.26.

- Measurable – should have key performance indicators and include methodology metrics such as compliance rates, certification and training rates, measures of organisational maturity and so on;
 - Improvable – lessons learned from past projects should be used to improve the methodology; and
 - Adequately resourced – training and support should be available.
- 5.72 Selecting and establishing a project methodology, or set of project methodologies, appropriate to an agency's needs should not be undertaken lightly. It should be driven from the top levels of management and should draw on the expertise of an experienced and accredited project manager. Equally, it should be developed within the context of an AoG Project Management Framework to ensure that consistent standards are met across agencies.
- 5.73 Adoption of a clear AoG Project Management Framework will, over time, build the NTG's capacity to deliver ICT-enabled projects effectively. The development of a clear framework will also enhance the resources available to the government through the private sector as it will:
- ... give the private sector a clear message that we need to invest in skills and get our people certified. The Northern Territory government can then start using certified professional project managers to deliver its projects. I can guarantee you will start to see a change and results.²⁸⁰

RECOMMENDATIONS ON PROJECT MANAGEMENT METHODOLOGY

Recommendation 15

The Committee recommends that the ICT Leadership Group:

- a) **Develop a project management methodology framework to provide an AoG context within which agencies can select project management methodologies suitable to their needs; and**
- b) **Review the Victorian Government Guideline, *Selecting a project management methodology*, with a view to developing a comparable guideline to assist NTG agencies to select appropriate project management methodologies for ICT-enabled projects.**

²⁸⁰ PAC Public Hearing, 7 March 2014, Mr Koulakis, p.17.

6 Conclusion

- 6.1 ICT plays an integral role in facilitating the effective operation of everyday business for contemporary governments and this role will only increase in the future. Consequently, facilitating the efficient management of ICT-enabled projects is essential if governments are to deliver integrated and effective services at an affordable cost.
- 6.2 The Committee's review of the AMS, GMS and AMC shows that there is scope for significant improvement in the way the NTG manages these projects. At a broad level there is a need to increase the level of project management maturity across the NTG so that agencies can become what the National Audit Office in the UK calls an 'Intelligent Client'. This will not be achieved by any one measure but will require an integrated approach that tackles the problems on a range of fronts.
- 6.3 The new ICT Governance Framework is an important first step because it provides the necessary foundation from which to develop a strategic plan of action. However, if the positive potential of the Framework is to be realised it will be necessary to ensure that it is effectively embedded at agency level. It is essential that the Framework be accompanied by the development of both an ICT Capability Framework and a Project Management Methodology Framework, as these will enhance the NTG's capacity to manage and deliver ICT-enabled projects effectively.
- 6.4 In addition to this three pronged approach it will be important to foster strong relationships with local ICT enterprises and professional bodies. This can be accomplished through a variety of strategies such as: working with local industry to simplify and improve the procurement process to make it more accessible for small to medium companies; developing standard contracts appropriate to the ICT industry; developing collaborative programmes to increase project management capacity both internally in government and within local industry; and developing strong networks between private and public sector ICT professionals.
- 6.5 Building local industry capacity has indirect benefits for the Territory economy and direct benefits for government's delivery of ICT projects. Increasing the capacity of local vendors will benefit the NTG by increasing the availability of ICT consultants who are familiar with the NTG context and who have a vested interest in developing a positive relationship with the NTG. In addition, it will reduce reliance on international vendors and lower costs accordingly.
- 6.6 The problems confronting the NTG in its delivery of ICT-enabled projects are not unique, however, the Territory is fortunate in that it is in a position to learn from the documented experiences of other jurisdictions and to draw on the significant array of resources that have already been developed to improve the governance, procurement and management of government ICT-enabled projects.

Appendix 1: Submissions Received

1. Mr David Chatterton, Managing Director, Radical Systems
2. Mr Jeffrey Moffet, Chief Executive, Department of Health
3. Mr John Baskerville, Managing Director, Power and Water Corporation
4. Mr John McRoberts, Commissioner for Police, Chief Executive for Fire and Emergency Services
5. Mr Greg Shanahan, Chief Executive, Department of the Attorney-General and Justice
6. Mr Brett Walker, Regional Manager – Darwin, Living Planit Pty Ltd
7. Mr George Koulakis, Northern Territory Branch Chair, Australian Computer Society
8. Ms Kezia Purick, the Speaker, Legislative Assembly of the Northern Territory
9. Mr David Chatterton, Managing Director,
10. Mr Chris Hosking, Acting Chief Executive, Department of Corporate and Information Services
11. Mr Trevor Oliver, Chairman, ICT Industry Association of the Northern Territory
12. Mr Ken Davies, Chief Executive, Department of Education
13. Mr David Ovington, Senior Project Manager, ICS Multimedia
14. Mr Jeff Edge, NT Manager, Fujitsu

Appendix 2: Hearings

Public Hearing - Darwin – 9 December 2013

- Department of Corporate and Information Services (Submission No 9)
- Department of Infrastructure
- Department of Housing
- Department of Treasury and Finance
- Power and Water Corporation
- Department of Health

Public Hearing – Darwin – 7 March 2014

- Radical Systems
- Australian Computer Society
- Information and Communications Technology Industry Association of the Northern Territory
- Australian Institute of Project Management
- Northern Territory Police, Fire and Emergency Services
- Department of Corporate and Information Services
- Under Treasurer
- ICS Multimedia

Public Hearing – Darwin – 28 April 2014

- Department of Corporate and Information Services

Appendix 3: Weblinks to ICT Frameworks and Strategies in Other Jurisdictions

Federal Government

1. Australian Public Service ICT Strategy 2012 – 2015
http://www.finance.gov.au/policy-guides-procurement/ict_strategy_2012_2015/
2. ICT Investment Framework
<http://www.finance.gov.au/policy-guides-procurement/ict-investment-framework/>
3. Whole-of-government ICT strategic workforce plan 2010-2013
<http://www.apsc.gov.au/publications-and-media/current-publications/ict-workforce>
4. Agency ICT workforce planning self assessment guide
<http://www.apsc.gov.au/publications-and-media/current-publications/ict-workforce/self-assessment-guide>
5. ICT Reform Agency Capability Initiative
<http://www.finance.gov.au/policy-guides-procurement/ict-investment-framework/>

Victorian Government

6. ICT Governance Framework
<http://www.digital.vic.gov.au/resources/ict-governance/>
7. Victorian Government ICT Strategy 2013-2014
<http://www.digital.vic.gov.au/ict-strategy/>
8. Enterprise Architecture and Inter-operability Frameworks
<http://www.digital.vic.gov.au/resources/enterprise-architecture-and-interoperability-frameworks/>
9. Project management methodology selection guideline – July 2013
<http://www.digital.vic.gov.au/resources/ict-projects/>
10. Victorian Public Service ICT Capability Framework – completed but not yet publicly available.
11. ICT Governance Education Programme – for Project Sponsors and Project Board members
<http://www.ssa.vic.gov.au/leadership-aamp-management/ict-governance-education-program.html>

12. Conceptualise, ICT Projects Technical Guidance, Business Case Development, *Investment Lifecycle and High Value/High Risk Guidelines*

<http://www.dtf.vic.gov.au/Investment-Planning-and-Evaluation/Understanding-investment-planning-and-review/What-are-the-investment-lifecycle-and-high-value-high-risk-guidelines/Stage-1-Conceptualise>

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