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Government of  
South Australia

# Common Causes for Failure in Major ICT-enabled Programs and Projects

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Approver's name: Bryan King  
Title: Director, Strategy and  
Innovation

Signature:

Date approved:

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Author(s)	Function / role
Sascha Mueller-Jacobs	Project Coordinator

Contributor(s)	Function / role
Leigh Tuckwell	Project Officer

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## **1. DOCUMENT DESCRIPTION**

### **1.1 Purpose of the document**

The purpose of this document is to identify insights relating to common causes of failure in ICT-enabled programs and projects.

ICT-enabled programs and projects are those that seek to use Information and Communication Technology [**ICT**] to transform business and services, not simply to replace ICT equipment. For the purpose of this document, information technology [**IT**] and ICT are taken to mean the same thing.

Programs and projects have failed if they do not deliver agreed results and quality within the estimated time and budget.

### **1.2 Audience**

On 13 February 2012, the Chief Executive of the Department of the Premier and Cabinet wrote to the Minister for the Public Sector, informing him of the Victorian Ombudsman's parliamentary report on major ICT-enabled projects in the Victorian Public Sector, and that the Office of the Chief Information Officer intended to conduct an analysis of this and similar reports for insights that are relevant to the South Australian Government.

The audience for this document is the Minister for the Public Sector and all decision makers who have an interest or stake in the management of ICT-enabled programs and projects.

### **1.3 Exclusions**

Although this paper does not provide recommendations or suggestions for the South Australian Government, it identifies common causes for failure and highlights better practices.

### **1.4 Approach**

A significant literature review was undertaken. This included electronic journals, online articles, books and other sources.

In particular, focus was given to audit reports from government jurisdictions. These included recent reports from:

- The Victorian Ombudsman
- The Audit Office of New South Wales
- The Auditor-General of Queensland
- The Western Australian Economic Regulation Authority
- The Australian National Audit Office

The Victorian Ombudsman identified five common areas for concern; these areas were used to frame this report, the five areas are:

- Leadership, Accountability and Governance
- Planning
- Funding
- Probity and Procurement
- Project Management

## 2. EXECUTIVE SUMMARY

ICT is integral to any contemporary organisation. In 2011, a report released by Oxford University in the UK found that large ICT projects were twenty times more likely to ‘run out of control’ than other large infrastructure projects<sup>1</sup>. One in six projects reported an average cost overrun of 200% and a time overrun of almost 70%<sup>2</sup>. Clearly there is a problem with ICT projects.

Auditor General Reports around Australia also show Government ICT projects fail to meet expectations and run over budget. The 2011 Victorian Ombudsman report identified ten such projects that have so far cost the government \$1.44 billion more than was originally budgeted<sup>3</sup>.

This discussion paper identifies common causes of ICT project failure and provides better practices for each. The table below summarises these:

Common causes of failure	Better Practice
ICT projects are never killed off, they are only ever re-scoped	Processes should be put in place to review all projects, and under-performers should be closed
Calling them ‘ICT Projects’ gives everyone the idea that it is all just about ICT	Stop calling them ‘ICT’ projects and make Chief Executives and other senior staff accountable
Governance isn’t working as it should, projects are not being governed	Ignorance is not bliss – staff at all levels need to better understand and apply better practice governance
Big projects = big risk = bigger likelihood of failure	Stop commissioning large projects, instead have clearer strategies and plans and use smaller projects to deliver on strategy.
Business cases are rarely looked at after the project is approved	Business cases should be kept ‘live’ throughout the lifecycle of the project and business cases should lead directly to benefits realisation plans
Governments prefer to announce ‘big ticket’ initiatives, but experience tells us incremental improvements work better	Project funding should be provided in instalments based on successful performance
Public servants typically don’t have enough commercial experience and consequently they often fail when it comes to probity and contract management	Get people with the right skills and experience to manage commercial relationships
Public servants lack project, program and portfolio management skills and experience	‘Learning on the job’ is ok in many circumstances, but not when you are responsible for managing complex projects – it is essential to have the right skills and experience

<sup>1</sup> University of Oxford, Aug 2011, One in six IT projects ends up ‘out of control’, Oxford Media News

<sup>2</sup> Budzier, A. & Flyvbjerg, B. 2011, *Double Whammy – How ICT Projects are Fooled by Randomness and Screwed by Political Intent*, BT Centre for Major Programme Management, Saïd Business School, University of Oxford

<sup>3</sup> Brouwer, G. & Pearson D, Nov 2011, *Own motion investigation into ICT-enabled projects (‘Vic Ombudsman Report’)*

### 3. BACKGROUND

In 2011, a number of audit reports (and associated news articles) reported the failure of ICT-enabled programs and projects in at least five Australian jurisdictions. All of these reports cited similar causes for the failures, and each jurisdiction reported a significant wastage of time and money. For example, the Victorian Ombudsman, in consultation with the Victorian Auditor-General, wrote a report on ten major ICT-enabled projects, all of which failed to meet expectations and ran over budget. Original budgets for these projects totalled \$1.3 billion. The latest estimated cost of these projects was \$2.74 billion – an additional \$1.44 billion cost to government<sup>4</sup>.

Similar failures are being experienced by governments around the world. In March 2011, the UK National Audit Office found that a program to share IT, personnel and procurement functions between departments had overspent by £500 million<sup>5</sup>. In 2007 the Dutch Government reported severe difficulties in managing ICT projects. They reported, €2.1 billion was spent on ICT investment by the public sector and estimated that more than half of the projects involved were over budget, late, or of poor quality<sup>6</sup>. In the United States, serious ICT failures led to the adoption of the *Clinger-Cohen Act*, which required changes to the way budgets are managed<sup>7</sup>.

The public sector is not alone in experiencing difficulties in managing major ICT-enabled projects. This trend is also reported in the private sector. In September 2011, Oxford University's Saïd Business School released a report that found that large ICT projects were twenty times more likely to fail than other projects<sup>8</sup>. The research was the largest global study of ICT change initiatives, assessing 1500 projects worth a total of \$245 billion. One in six of the projects reported an average cost overrun of 200% and a time overrun of almost 70%.

This current situation is also not new – it was recognised in 1995 by Martin Cobb who, while working for the Government of Canada, coined the phrase now known as Cobb's Paradox: '*We know why projects fail; we know how to prevent their failure - so why do they still fail?*'<sup>9</sup> The Standish group surveys American companies every two years on the success of their software projects. Since 1996, the success rate has remained around the 30% mark. This trend is likely to continue unless the lessons learned are put into practice.

#### CASE STUDY LEVI STRAUSS

Project: SAP Rollout  
Consultants: Deloitte

In 2003, Levi Strauss decided to convert the multiple systems of their global corporation into one single enterprise system. The budget was less than \$5 million, but by 2008 the company had taken **a loss of almost \$200 million** on the project.

During the change over to the new system, the company was unable to fill orders and had to close three US distribution centres for a week. Levi's Chief Information Officer, David Bergen, was forced to resign.

<sup>4</sup> Vic Ombudsman Report, 2011

<sup>5</sup> BBC News, *Whitehall Department Savings Scheme Overspent By £500m, Says Report*, 7 March 2012

<sup>6</sup> Leydesdorff E & Wijsman T, *Lessons Learned from Government ICT Projects Part A*, Netherlands Court of Audit, Nov 2007, pages 7-8

<sup>7</sup> US Government Accountability Office, *Information Technology – Critical Factors Underlying Successful Major Acquisitions*, October 2011

<sup>8</sup> Budzier, A. & Flyvbjerg, B. 2011, *Double Whammy – How ICT Projects are Fooled by Randomness and Screwed by Political Intent*, BT Centre for Major Programme Management, Saïd Business School, University of Oxford

<sup>9</sup> Kennedys Law Firm, *Learning from the mistakes of others*, 10 January 2012

## 4. LEADERSHIP, ACCOUNTABILITY AND GOVERNANCE

*'Every government IT program has a broad set of stakeholders, including agency leaders, business-process owners, and the IT, acquisition, finance, security and legal functions. Many large IT programs run into difficulty because **stakeholders are not fully aligned** on the desired outcomes or the approaches to meet those outcomes. Furthermore, there is typically **no well-defined set of accountabilities and decision rights**, and no disciplined approach for gathering and considering stakeholder input and thinking through the implications. Program managers sometimes receive conflicting direction from multiple oversight organisations, stakeholders sometimes make decisions outside the program that nonetheless can have a material impact on the program's execution.'*<sup>10</sup>

### 4.1 Lack of strong leadership, and reluctance to make tough decisions

Research has shown that those accountable for programs and projects are often reluctant to make critical decisions about them, such as placing them on hold or terminating them when they are no longer viable. Often, making the decision to terminate a project is not perceived to be politically desirable, and the lack of a clear and agreed-upon exit strategy often leads to projects continuing even when the project is no longer justified by a valid business case.

The Victorian Ombudsman reported that when a project is no longer viable, desirable or achievable, leaders need to step up and make tough decisions such as cancelling the project<sup>11</sup>. The report stated that *'...agencies are reluctant to face the consequences of cancelling a project and make every endeavour to source additional funds'*<sup>12</sup>, to avoid closing an unsuccessful project.

The Western Australian Economic Regulation Authority's review of the Shared Corporate Services concurred with these observations saying that *'...given current information, [shared services] should have decommissioned following the 2007 review. Additionally, this decision would have saved the costs incurred between 2007 and 2011'*<sup>13</sup>.

Paul Williams, chair of the Information Systems Audit and Control Association [ISACA] has also previously noted that organisations are reluctant to terminate a project. *'No one wants to preside over a failure, but canning a project can be a sign of good governance and project management'*<sup>14</sup>.

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<sup>10</sup> McKinsey & Company, McKinsey on Government, Autumn 2011 'Seven imperatives for success in IT megaprojects' K. Nichols, S. Sharma, R. Spires pg 32 (emphasis added) (*McKinsey Report Autumn 2011*)

<sup>11</sup> Vic Ombudsman Report, 2011, p17

<sup>12</sup> Vic Ombudsman Report, 2011, p30

<sup>13</sup> Economic Regulation Authority – Western Australia, June 2011, Inquiry into the Benefits and Costs Associated with the Provision of Shared Corporate Services in the Public Sector – Final Report, pIX

<sup>14</sup> M Gareth, 'Study reveals extent of IT project failure', IT Week, 26 May 2008, p6

## 4.2 Ambiguous responsibilities, accountabilities, outcomes, and approaches

Today there are few projects in an organisation, if any, that don't have an underlying ICT component. Yet 'ICT projects' are still viewed as an ICT department responsibility as opposed to an organisational one. ICT projects are business change initiatives which are often complex and have multiple stakeholders. These projects require accountability at the very top level. Viewing ICT projects as an ICT department responsibility, contributes to the misalignment and misunderstanding of roles, responsibilities, approaches and outcomes between the various stakeholders.

The Victorian Ombudsman's investigation into ICT-enabled projects found that roles and responsibilities are often not clearly defined, acknowledged or accepted<sup>15</sup>. The report stated that often responsibilities and accountabilities were so diffused (among steering committees, etc.) that no one individual could be, or was, held to account. Without individuals who have a strong vested interest in seeing a project through to completion, project delays and overruns can occur with few consequences for those responsible<sup>16</sup>.

The Queensland Auditor-General reported a lack of clear accountability in regard to the delivery of outcomes and benefits. He found that there is *'no clearly identified business owner for the programs'*, in spite of the fact that *'a business owner...needs to be appointed...to ensure that the systems are kept updated and benefits continue to flow from these investments'*<sup>17</sup>.

A McKinsey report on IT mega-projects stated that *'many large IT programs run into difficulty because...there is typically no well-defined set of accountabilities or decision rights, and no disciplined approach for gathering and considering stakeholder input...'*<sup>18</sup>. The report also highlighted that a primary contributor to the failure of large IT government programs is a lack of alignment among stakeholders on the desired outcomes or the approaches to meet those outcomes<sup>19</sup>.

### Case Study

#### Victoria, Australia

Property and Laboratory Management [PALM] program

In 2008, two major Victorian Police projects were merged to form the PALM program, which aimed to deliver a single ICT system to store case and laboratory notes, reports, and other related information.

As a result of the merger, the governance structure of the PALM program was unclear and inefficient. Lack of agreement by the project management team on core issues caused delays, and the steering committee failed to provide adequate guidance to project managers.

The Victorian Ombudsman found that Victoria Police did not fully consider the implications of merging the two projects.

The PALM program is currently 18 months behind schedule, and has resulted in increased project costs of \$5 million.

<sup>15</sup> Vic Ombudsman Report, 2011, p16

<sup>16</sup> Vic Ombudsman Report, 2011, p17

<sup>17</sup> Poole G. June 2011, Financial and Assurance audit – Report to Parliament No. 4 for 2011, Information systems governance and security, Auditor-General of Queensland ('QLD Auditor General Report, 2011')

<sup>18</sup> McKinsey Report, Autumn 2011, p30

<sup>19</sup> McKinsey Report, Autumn 2011, p30

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In 2009, an ISACA survey of 500 IT professionals indicated that there was a lack of alignment between the business and IT. Only 33.7% of respondents said that a shared understanding of the value of IT projects existed between their departments. The Vice President of ISACA has also noted that *'the business is delegating ownership of value to IT, when generally accepted IT governance guidance recommends that it should remain with the business'*<sup>20</sup>.

### 4.3 Ineffective governance arrangements

Weak or poor governance is often cited as a reason for project failure. However the opposite is also true. The Ontario Government in Canada states that while good governance is necessary, a project with too much governance can get too big and *'will be lucky to succeed'*<sup>21</sup>. An increase in governance can mean that approvals take longer. The more 'gates' that a project must pass through forces more and more unrealistic commitments to satisfy the many 'gatekeepers'.

The Victorian Ombudsman states that having a well-functioning steering committee is integral to the success of a project and should include a chair person who is ultimately responsible for the project<sup>22</sup>. Mark Toomey, a respected commentator and author on IT governance, stated that *'The bottom line in the Ombudsman's report is that the Victorian Government agencies have weak governance of IT – a condition also identified by Sir Peter Gershon at the federal level when he delivered his report on the Australian Government's use of IT in 2008'*<sup>23</sup>.

In December 2011, the Australian National Audit Office reported on governance issues within Australian Defence Force initiatives. The report stated that *'...the absence of fully effective governance arrangements means that the Defence ICT initiatives continue to be developed in the absence of processes to clearly identify and resolve competing priorities, properly identify interdependent initiatives, or provide a clear view of resources'*<sup>24</sup>.

A report by the Butler Group cites poor IT governance as one of the key causes of failure in big business transformation projects. The report found IT governance initiatives were usually deployed only within the IT department, leading to a lack of co-ordination between the IT-led elements of projects and the wider management of business transformation initiatives<sup>25</sup>.

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<sup>20</sup> Press release: ISACA Survey: 25 Percent of Companies Increasing IT Investments Despite Volatile Economy, 29 April 2009

<sup>21</sup> Government of Ontario, Report of Ontario's Special Task Force on the Management of Large-Scale Information & Information Technology Projects, July 2005, p12

<sup>22</sup> Vic Ombudsman Report, 2011, p18

<sup>23</sup> Toomey, M., November 2011 Edition, The Infonomics Letter – Plain Language about Leadership and (Corporate) Governance of Information Technology

<sup>24</sup> Australian National Audit Office, Dec 2011, Oversight and Management of Defence's Information and Communication Technology, p18

<sup>25</sup> The Butler Group, IT Governance – Managing Portfolios, Projects, Processes & People, April 1 2007

McKinsey also cites weak governance as a primary contributor to failure in large IT government programs, with program managers sometimes receiving conflicting direction from multiple oversight organisations<sup>26</sup>. A Gartner survey of government Chief Information Officers and IT leaders reported poorly-functioning governance as the second most cited reason for IT project failure, behind undisciplined project management practices<sup>27</sup>.

#### 4.4 Better practices for leadership, accountability and governance

##### 4.4.1 *Viewing ICT programs and projects as 'business change initiatives'*

ICT-enabled programs and projects often fail because they are treated as ICT initiatives, rather than complex business transformations. Calling such failures ICT problems '*obscures the fact that organisations may misunderstand the changes that are being made to their business*'<sup>28</sup>. Agreement is needed among all stakeholders, particularly senior management, that ICT-enabled programs and projects are fundamentally about a change to the business to achieve business objectives.

##### 4.4.2 *Utilising the international standard for governance of ICT*

The most recent standard developed for the corporate governance of ICT (ISO/IEC 38500:2010) recommends a model of governance that incorporates both the governance of ICT operations and the governance of ICT projects<sup>29</sup>. With this holistic approach, ICT projects can utilise the existing governance structure and ensure that those who govern the business and the operation of ICT can evaluate the project. Appropriate training in the use of the standard can be provided for all senior level executives and relevant stakeholders to ensure that the importance of proper governance is understood.

##### 4.4.3 *Defining accountability, responsibility, outcomes and approaches*

From the outset, project documentation should clearly define who is responsible for getting the project done and who is ultimately accountable for the success (or failure) of a project. Distinctions should be made between accountable and responsible parties, and between the governance and management of a program or project. Common terminology should also be defined to distinguish between commonly confused parties and roles (e.g. define the Senior Responsible Officer and the Business Owner).

Documentation should address roles and responsibilities, and the intended outcomes of the project and the approach being taken to achieve those outcomes. This should be signed off by the Chief Executive and communicated to, and agreed to by, all involved. Personal performance agreements can be used to reflect senior executives' accountability for successful project delivery.

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<sup>26</sup> McKinsey Report, Autumn 2011, p28

<sup>27</sup> McClure D., *From the CIO Trenches: Why Some Projects Fail and Others Succeed*, Gartner Industry Research, 26 September 2007, p6

<sup>28</sup> Government of Ontario, Report of Ontario's Special Task Force on the Management of Large-Scale Information & Information Technology Projects, July 2005, p11

<sup>29</sup> Standards Australia, AS/NZS ISO/IEC 38500:2010 Corporate governance of information technology p3

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### 4.4.4 *Maintaining an exit strategy for every program and project*

Research suggests that it is harder to stop a project than it is to start one. In government, politics is often cited as a key influencing factor in promoting this attitude. Often, promises have been made to the public that Ministers are reluctant to rescind. Projects benefit from having an exit strategy which includes multiple, logical 'break-points' where they may be terminated. Exit strategies clearly articulate the conditions under which a project should be stopped, how this will be achieved, and by whom.

### 4.4.5 *Ensuring governance bodies have the right membership*

All projects should have a governance body, such as a steering committee, that includes members with the relevant expertise and experience. The Victorian Ombudsman has recommended '*business owners, senior officers, users and independent members with specialist expertise*<sup>30</sup>. McKinsey also recommends including members from procurement and finance sections to promote a partnership model that no one department dominates. Those that use the end product should be represented in the decision making. The steering committee should include those with purview over all aspects of the organisation that will be affected by the change. The Terms of Reference for the committee should also document roles, responsibilities and the function of the body.

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<sup>30</sup> Vic Ombudsman Report, 2011, page 46

## 5. PLANNING

‘...government ICT projects are often **too ambitious and too complex** because of the combination of the political, organisational and technical factors. A project that is too complex lacks balance between the ambitions and the available human, financial and time resources. In theory, the solutions to reduce complexity are relatively simple, if not obvious. The motto is: **start small and proceed in small steps**.<sup>31</sup>

‘The Authority considers that **the original 2003 business case was fundamentally flawed**. The proposed benefits were overly optimistic, the true cost of the project was underestimated and the proposed roll-in schedule was not realistic. This, together with decisions made regarding customisation of the IT system during the initial stages of the project, has caused problems that are still influencing the service delivery of the DTFSSC today.<sup>32</sup>

### 5.1 Large, complex, and ambitious programs and projects

There is increasing evidence to suggest that large, complex and ambitious programs and projects are at a higher risk of failure. There are many aspects that can determine a project’s complexity, including:

- details – number of variables and interfaces
- ambiguity – lack of awareness of events and causality
- uncertainty – inability to pre-evaluate actions
- unpredictability – the inability to know what will happen
- dynamics – rapid rate of change
- social structure – numbers and types of interactions
- interrelationships – many interdependencies and interconnections exist<sup>33</sup>.

The Victorian Ombudsman noted that ‘agencies feel the need to create ‘big vision’ projects to capture the government’s attention, which increased complexity and risk<sup>34</sup> of ICT projects.

In the Dutch Government report *Lessons Learned from Government ICT Projects*, Leydesdorff and Wijsman document that the root cause of ICT project failure is the complexity caused by **competing organisational, political and technical** factors, which leads to projects that are too ambitious and too complex.

**Organisational complexity** can come from involving more than one organisation that would usually operate autonomously. This is often the case when governments attempt to implement shared service arrangements to reduce cost. According to the Western Australian Economic Regulation Authority [ERA], in a report reviewing its own shared services arrangements, many of these implementations throughout Australian jurisdictions have not been a success.

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<sup>31</sup> Leydesdorff, E. & Wijsman, T. 2007, Why government ICT projects run into problems, *intoIT Journal of the INTOSAI Working Group on IT Audit*, p14-15 (emphasis added)

<sup>32</sup> Economic Regulation Authority – Western Australia, June 2011, *Inquiry into the Benefits and Costs Associated with the Provision of Shared Corporate Services in the Public Sector – Final Report*, pxiii (emphasis added)

<sup>33</sup> Mulenburg J. 2008, *What does Complexity Have to Do With It? Complexity and the Management of Projects*, p1

<sup>34</sup> Vic Ombudsman Report, 2011, p6

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The ERA states, *'while there is some evidence of successes in the corporate sector, there has not been one fully successful implementation of a shared services arrangement in the public sector of any Australian jurisdiction'*. The ERA goes on to say that *'attempting to service multiple agencies with differing needs by using a single system is very costly, fraught with challenges, and potentially unachievable'*<sup>35</sup>.

The Queensland Auditor-General also cites issues with whole-of-government programs. *'The management of IT programs designed to provide benefits across all or a number of departments is currently not fully effective'*<sup>36</sup>.

**Political complexity** causes problems for ICT projects in a number of ways. This is often borne from a misunderstanding of ICT and what it can and cannot do. In some jurisdictions, political statements on timing or budget are made before business cases have been developed. The Victorian Ombudsman noted that in the case of the Victoria Link Project, *'public announcements of major project funding decisions prior to business case development resulted in business cases being rushed and projects being shoe-horned into the published funding ceiling'*<sup>37</sup>.

ICT programs and projects are inherently **technically complex**. Changes often have to fit with pre-existing systems and data conversion problems are often underestimated. There are also misconceptions that because ICT programs and projects are not subject to the same laws of physics as, say, a civil engineering project, that they can be anything and do everything. ICT programs and projects do have constraints, but they are multidimensional and abstract in nature.<sup>38</sup> The Royal Academy of Engineering and the British Computer Society have written that *'Both customers and suppliers are susceptible to forgetting or simply not understanding the limitations of IT, resulting in unrealistic expectations and over-ambitious projects'*<sup>39</sup>.

### CASE STUDY

#### Department of Health, UK

Consultants: CSC, BT, Fujitsu

Project: National Programme for Information Technology [NPfIT], renamed to Connecting for Health [CfH].

The programme was ambitious from the start, with the original intent to procure, develop and implement modern, integrated IT infrastructure and systems for all of the National Health Service [NHS]. However, it quickly became all-encompassing, promising to deliver six products, including electronic health records, digital radiographic images and electronic transmission of prescriptions. Senior health officials blamed politicians for a 'top-down' IT system and politicians blamed senior public servants for 'keeping them in the dark'.

Originally started in 2002, the project was to cost only £2.3 billion over three years but in September 2011 the new UK Government announced it would 'scrap' the then **£12.7 billion** scheme.

<sup>35</sup> Economic Regulation Authority – Western Australia, June 2011, Inquiry into the Benefits and Costs Associated with the Provision of Shared Corporate Services in the Public Sector – Final Report p xiii

<sup>36</sup> QLD Auditor General Report, 2011, p16

<sup>37</sup> Vic Ombudsman Report, 2011, p6

<sup>38</sup> Royal Academy of Engineering & The British Computer Society, 2004 The Challenges of Complex IT Projects p 13

<sup>39</sup> Royal Academy of Engineering & The British Computer Society, 2004 The Challenges of Complex IT Projects p 13

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Increasingly, decision makers are recognising that large, complex projects often fail. In September 2011, Australian Defence Force Chief Information Officer, Greg Farr, predicted the end of Defence projects costing more than \$1 million. He said, *'I want lots of little projects delivered frequently and evolutionarily'*<sup>40</sup>.

### 5.2 Optimism bias and sunk cost fallacy

Many factors can affect how decisions are made, and these decisions can directly affect whether a large project will be a success. Optimism bias is the tendency for people to be overly optimistic about the outcome of planned actions. The UK Government explicitly acknowledged that optimism bias is a problem in planning and budgeting and has developed measures for dealing with it<sup>41</sup>. The so-called 'sunk-cost fallacy' leads people to continue spending money on a failing project so that the money that has already been spent is not seen as a waste.

### 5.3 Poor business case development

A good business case is critical to the success of a project, yet research shows that business cases are usually poorly put-together. The Victorian Ombudsman's report considers sound business case development as vital to the success of a project. The report states:

*'A business case provides the government with the information required to make a fully informed decision whether to fund a new investment. It also should provide a compelling, evidence-based argument for the preferred option as well as discussing the viability of other options. It is the vehicle for the agency to articulate all elements of a project – options, timeframes, costs, objectives, milestones, risks and resources. It is the roadmap for the project'*<sup>42</sup>.

The Victorian Ombudsman noted that there was insufficient or inadequate resource allocation for the development of business cases and, in some instances, they were not done at all. They were not updated during the life of the project and were not read by key people. The report said *'...the importance of a sound business case was not well understood. Business cases appear to have been viewed only as a mechanism to obtain funding and some agencies have approached them with a 'tick-the-box' mentality'*<sup>43</sup>.

The Queensland Auditor-General also reported that business cases were not maintained after a project was approved and, in the case of the Land Tenure Ledger redevelopment project, *'...the original business case was developed in 2007, a year after the project was initiated'*<sup>44</sup>.

The NSW Auditor-General also reported that the business case for the Learning Management and Business Reform project did not fully reflect departmental needs, which resulted in lost time, additional effort and cost because manual workarounds had to be implemented<sup>45</sup>.

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<sup>40</sup> Hilvert, J, Defence CIO flags end of enterprise IT, IT News, Sep 28 2011

<sup>41</sup> UK Government, HM Treasury, Optimism Bias  
[http://www.hm-treasury.gov.uk/green\\_book\\_guidance\\_optimism\\_bias.htm](http://www.hm-treasury.gov.uk/green_book_guidance_optimism_bias.htm)

<sup>42</sup> Vic Ombudsman Report, 2011, p22

<sup>43</sup> Vic Ombudsman Report, 2011, p22

<sup>44</sup> QLD Auditor General Report, 2011, p22

<sup>45</sup> Audit Office of NSW, Dec 2011, New South Wales Auditor-General's Report Financial Audit, Volume Nine 2011 – Focusing on Education and Communities, p44

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The Ontario Government, in its report on Large-Scale Information & Information Technology Projects, noted that ‘...a business case in which project benefits are often overstated and unrealistic leads to problems in the long run, including unsatisfactory and strained vendor relations’<sup>46</sup>.

### 5.4 Better practices for planning

#### 5.4.1 *Understanding the capacity for large, ICT-enabled programs and projects*

Recent research shows that large ICT-enabled business projects frequently go over budget by as much as 400%<sup>47</sup>. Organisations should take the possibility of a significant budget increase into account when planning to undertake large ICT-enabled business projects. They should determine their capacity to adequately implement such a program or project, including the impact on all aspects of their capacity – people, processes and technology.

#### 5.4.2 *Breaking ICT-enabled programs and projects into manageable modules*

Breaking down a large ‘big vision’ program or project into a staged approach with achievable, short-term deliverables will reduce complexity and allow greater adaptability to changing circumstances. It also allows for greater focus on reviews after each module to ensure that objectives are being achieved and projects remain on track. This view aligns with the Organisation for Economic Cooperation and Development’s recommendations from their 2001 public management brief, which called for smaller projects<sup>48</sup>, ideally no longer than twelve months in length. The Dutch Government’s recommendation is to ‘start small and proceed in small steps’<sup>49</sup>. If projects are to be managed this way, greater emphasis should be given to system architecture (fitting all the modules together).

#### 5.4.3 *Delaying public announcements until proper analysis is performed*

Project management disciplines are often rejected in favour of political expediency. It takes time and money to undertake a proper analysis of available options for a program or project to get an accurate assessment of costs, benefits and timeframes. In the rush to get approval or to make an announcement, the requisite time may not be spent.

Public announcements should not be made on the basis of preliminary project proposals. They should only occur following the development of a sound business case that provides evidence for a particular option and articulates all aspects of the project, including options, timeframes, costs, objectives, milestones, risks and resources. Pre-empting such a business case can force projects to be rushed to avoid the public embarrassment of missing deadlines or targets. However, any political points that are gained by such announcements are irretrievably lost when the projects fail.

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<sup>46</sup> Government of Ontario, Report of Ontario’s Special Task Force on the Management of Large-Scale Information & Information Technology Projects, July 2005, p13

<sup>47</sup> University of Oxford, Aug 2011, *One in six IT projects ends up ‘out of control’*, University of Oxford Media News p 2

<sup>48</sup> Organisation for Economic Co-operation and Development, *The Hidden Threat to E-Government Avoiding large government IT failures*, Public Management Policy Brief, March 2001 p 2

<sup>49</sup> Leydesdorff, E. & Wijsman, T. 2007, *Why government ICT projects run into problems*, intoIT Journal of the INTOSAI Working Group on IT Audit p14-15

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### 5.4.4 *Establishing appropriate project metrics to determine overall risk*

Establishing a set of metrics before commencing a project will assist the assessment of potential risks. Tools are available to help assess a program or project's size and complexity to determine the overall risk involved with undertaking such an initiative. For example, a recent document from the Standish Group<sup>50</sup> features a Size/Complexity Matrix, which provides guidance for rating the size and complexity of a project. These ratings are used to assess the risk and effort required so senior executives can get a better understanding of what they are considering and can then make appropriate decisions around their capabilities.

### 5.4.5 *Developing sound business cases early*

The Commonwealth Government requires a 'two pass' review process for ICT-enabled programs and projects of \$30 million or more<sup>51</sup>. The first step in the process is for agencies to produce an outline proposal that includes a request for funding to write a full business case. The second step is to write the full business case. This could include baselining, together with identification of who is going to be held accountable for realising benefits, how that realisation will occur, and how and when those benefits will be measured<sup>52</sup>. A similar process could be adapted to suit smaller ICT-enabled projects with consideration given to ensuring that the process does not become too onerous. While business cases should be developed early, they should become living documents that are routinely updated throughout the life of a project.

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<sup>50</sup> The Standish Group, Chaos Manifesto 2011 Press Release

<sup>51</sup> Department of Finance and Deregulation – ICT Two Pass Review

<sup>52</sup> New Zealand State Services Commission, Gateway Reviews Lessons Learned Report July 2011 p4

## 6. FUNDING

*'Large-scale public IT programs suffer from protracted **funding cycles, budget uncertainties and other challenges not often found in the private sector.** With regard to funding approval, IT leaders must often articulate program budget requests and technology needs years in advance – an upfront time lag that contributes to technology obsolescence. Also teams often compensate for inefficiencies in the budget process by front loading their budget requests. When a program manager is projecting budgets five to seven years out, the **budget requests are almost always inaccurate.** Once the program has the money, other issues arise. Funds are typically appropriated only for a given fiscal year. Teams have limited ability to move portions of current –year funding to the next year or to reallocate money among programs in the same portfolio – even when changes in the technology landscape or in business needs require a reallocation'<sup>53</sup>*

### 6.1 Complex budgeting processes

Government faces the challenge of managing a complex budgeting process that can, at times, inhibit the employment of good project management principles. Whilst this challenge is anecdotally well-known by those working in government, it is rarely formally acknowledged. Single year budgeting cycles can distort the budgeting of multi-year projects, and a combination of rising costs over time and changing political priorities can leave projects at risk of failure.

The Victorian Ombudsman is one of the few to have highlighted the impact that a complex budgeting process can have on ICT projects. Below are some of the issues raised in the report.

1. *'Belief that total funding should be sought up-front: otherwise agencies feel they run the risk that subsequent funding will not be received following changes to government priorities, leaving them with a partially completed project.'*<sup>54</sup>
2. The necessary negotiation in preparation for the annual Cabinet budgeting process can disrupt projects and cause timing issues.
3. As a result of the above issues, agencies choose to fully commit to a project, rather than take a staged approach designed to mitigate some of the risk associated with large ICT projects.
4. Competition for funding increases the need to create 'big vision' projects to receive funding.
5. Difficulties seeking funding to replace old systems.
6. Partial funding for projects contributes to poor outcomes.
7. Funding announcements that are made prematurely and without sufficient background knowledge lead to poor planning<sup>55</sup>.

A March 2012 report by the UK National Audit Office found that delays in project delivery were a result of several factors, including project phases being artificially tied to the financial year, in order to keep within funding limits.<sup>56</sup>

<sup>53</sup> McKinsey & Company, McKinsey on Government Autumn 2011 'Seven imperatives for success in IT megaprojects' K. Nichols, S. Sharma, R. Spires pg 32 (emphasis added)

<sup>54</sup> Vic Ombudsman Report, 2011 p 28

<sup>55</sup> Vic Ombudsman Report, 2011 p 28

<sup>56</sup> Hitchcock, G March 2 2012, HMRC tax fraud IT project 'missed virtually all delivery dates', The Guardian, UK

**6.2 Better practices for funding**

6.2.1 Approving funding that is consistent with modular implementation of projects.

*'Projects broken down into smaller, more manageable sub-projects (e.g. no longer than one year in length) are generally successful, especially when an organisation must demonstrate achievement of deliverables in each sub-project before obtaining approval and funding for the next phase of the project'<sup>57</sup>. Funding requests should be consistent with the better practice of smaller, more modular, implementation of projects.*

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<sup>57</sup> Government of Ontario, Report of Ontario's Special Task Force on the Management of Large-Scale Information & Information Technology Projects, July 2005 p11

## 7. PROBITY AND PROCUREMENT

*'The failure to conduct proper value for money assessments results in agencies not knowing whether they are getting value for money. This was borne out by findings I made in my February 2012 report titled 'Managing IT services contracts', where **agencies failed to effectively manage the contracts including performance of contractors.** My findings of the IT services contract management arrangements at RTA serve to reinforce some of the recommendations I made in that report for improvements in the way that agencies manage and demonstrate value for money in such contracts.'*<sup>58</sup>

### 7.1 Lack of focus on probity

In some, but not all Australian jurisdictions, probity plans are mandatory for large, complex, and/or potentially controversial projects. Dealing with probity issues early can ensure that project objectives are met, and, ultimately, that a project is successful.

The Victorian Ombudsman<sup>59</sup> highlighted a number of concerns regarding the probity of the projects investigated, including that:

- not all projects had probity practitioners assigned to them
- agencies failed to recognise the necessity and benefit of engaging a probity advisor, which reflects a 'tick-the-box' mentality towards probity
- probity advisors and auditors were often the same, resulting in a conflict of interest
- probity reports failed to provide sufficient information
- perceived 'conflicts of interest' were not adequately managed.

The Western Australian Auditor General in his report on Public Sector Performance also found that some agencies had failed to recognise or address potential conflicts of interest, including the proper recording and management of gifts given to agency procurement personnel.<sup>60</sup>

#### Case Study

New York State  
Office For Technology

Audit of the Office of Technology's procurement and contracting practices by the New York State Office of the State Comptroller

#### The Audit found:

Millions of dollars were lost under the previous CIO, Melodie Mayberry-Stewart, and the Deputy CIO, Rico Singleton.

Singleton had used his official position (in apparent violation of the Public Officers' Law) to pursue jobs with antivirus software provider McAfee for himself and his girlfriend – while negotiating a contract with the same company for the State.

The audit also alleged that Singleton accepted improper travel benefits from McAfee during negotiations.

The audit found, amongst other impropriety, that \$1.5 million was wasted on the McAfee contract when the state was unable to recoup licensing fees from agencies. The three-year, \$5.7 million contract was cancelled after one year.

Singleton, who went on to work as the CIO for Baltimore, resigned as a result of the audit, as did Mayberry-Stewart from her job as CEO of Tri Group Holdings.

<sup>58</sup> New South Wales Auditor-General's Report, Financial Audit Volume One 2012 - Focusing on themes from 2011, p39 (emphasis added)

<sup>59</sup> Vic Ombudsman Report, 2011 p 34

<sup>60</sup> Western Australian Auditor-General's Report, Second Public Sector Performance Report 2011, September 2011, p4 & 7

## 7.2 Poor procurement and contract management practices

ICT projects often fail as a result of poor procurement processes. Often, ICT procurement is undertaken either by ICT staff not versed in the rules of procurement or by procurement staff with little to no knowledge of the business or of ICT. Staff struggle to translate ICT-specific technical requirements into non-ICT procurement language. This creates an *'opportunity for vendors to exploit the contracting team's lack of IT expertise to their advantage'*<sup>61</sup>.

The Victorian Ombudsman states that *'large vendors are well-versed and experienced in contract negotiations and government is generally at a disadvantage for that very reason'*<sup>62</sup>.

The Western Australian Auditor-General's 2011 Report into public sector performance finds that *'ICT procurement is expensive and often does not deliver intended outcomes on time or on budget'*<sup>63</sup>.

According to Bernard Jenkin, Chairman of the Commons Public Administration Select Committee in the UK Government, *'civil servants are buying IT systems they don't understand and negotiating long-term contracts which leave them locked into systems with suppliers with few options for innovation'*<sup>64</sup>.

## 7.3 Better practices for probity and procurement

### 7.3.1 Engaging a probity advisor and probity auditor

Australian governments are required to observe the highest standard of probity in all their commercial dealings. In 1989, the New South Government established an *'Independent Commission Against Corruption [ICAC] in response to growing community concern about the integrity of public administration in NSW'*<sup>65</sup>. The ICAC identifies 15 criteria for agencies to use when considering engaging a probity advisor. The New South Wales Government requires all state agencies to submit a probity plan to Treasury for all projects valued at \$10 million and/ or classified as high risk. The ICAC also suggests that probity considerations should be a part of normal project planning.

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<sup>61</sup> McKinsey & Company, McKinsey on Government Autumn 2011 'Seven imperatives for success in IT megaprojects' K. Nichols, S. Sharma, R. Spires p30

<sup>62</sup> The Vic Ombudsman Report, 2011 p 34

<sup>63</sup> Western Australian Auditor-General's Report , Second Public Sector Performance Report 2011, September 2011, p9

<sup>64</sup> Sherman J , Whitehall waste: the £31bn cost of failure, The Times

<sup>65</sup> Independent Commission Against Corruption website <http://www.icac.nsw.gov.au/about-the-icac/overview>

**7.3.2** *Ensuring specialists do all ICT procurement*

According to McKinsey, '*Best practice organisations hire and train ICT procurement specialists*'<sup>66</sup>. McKinsey states that ICT procurement specialists should have cross-functional skills in procurement, ICT and the business.<sup>67</sup> This particular skill set enables the translation of business and technical requirements into effective procurement. Building on current procurement capability to include these cross functional requirements, will ensure greater value for money procurements and reduce the risk of contractual complications.

For agencies not large enough to warrant a specialist ICT procurement group, a shared service arrangement or large department could offer ICT procurement on a fee for service. In the US, the Bureau of Public Debt and Veteran's Affairs have specialist groups that charge fees for ICT procurement Services.<sup>68</sup>

**7.3.3** *Creating a specialist ICT Contract Management team*

Often, at the close of a project, staff leave, and first-hand knowledge of the project is lost. The project's contracts, however, remain, and significant time and money can be saved by managing these contracts effectively. As with the better practice of having ICT procurement specialists, ICT contract management specialists can provide greater oversight and management and ensure visibility of outstanding services due or available unclaimed rebates.

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<sup>66</sup> McKinsey & Company, McKinsey on Government Autumn 2011 'Seven imperatives for success in IT megaprojects' K. Nichols, S. Sharma, R. Spires p32

<sup>67</sup> McKinsey & Company, McKinsey on Government Autumn 2011 'Seven imperatives for success in IT megaprojects' K. Nichols, S. Sharma, R. Spires p32

<sup>68</sup> McKinsey & Company, McKinsey on Government Autumn 2011 'Seven imperatives for success in IT megaprojects' K. Nichols, S. Sharma, R. Spires p32

## 8. PORTFOLIO, PROGRAM AND PROJECT MANAGEMENT

*'There is a **shortage of skilled senior project managers** with relevant ICT experience in government. To compensate, agencies often appoint expensive contractors or inexperienced public sector staff<sup>69</sup>.*

*'Measurement of project **benefits realisation by agencies is also weak**, despite evidence that many of them have adopted formalised project management methodologies. Of the 193 agency projects detailed, **only 5% of projects reported actual measurement of benefits** and compared anticipated benefits with actual benefits realised.'<sup>70</sup>*

### 8.1 Lack of expertise and experience

The success of ICT projects, programs and portfolios relies on the appointment of suitably qualified and experienced personnel. Across the industry – and particularly in government – there is a shortage of these skills. This shortage has led some agencies to rely on external contractors (a more expensive alternative) and when unable to source contractors, agencies have resorted to engaging inexperienced and unqualified staff to manage complex projects.

This skills shortage has been an ongoing challenge for government, with Gershon back in 2008 reporting a shortage in the Australian Public Service of around 1000 (mainly highly skilled) ICT staff<sup>71</sup>. More recently, the Victorian Ombudsman<sup>72</sup> and the Australian National Audit Office's report on the ICT of the Australian Defence Force<sup>73</sup> have also documented similar shortages.

Research undertaken by the Office of the Chief Information Officer shows that the South Australian Government's ICT workforce is skewed towards the inexperienced end of the classification structure. The graph on the next page shows a predominance of staff in lower level classifications and relatively fewer in higher classifications.

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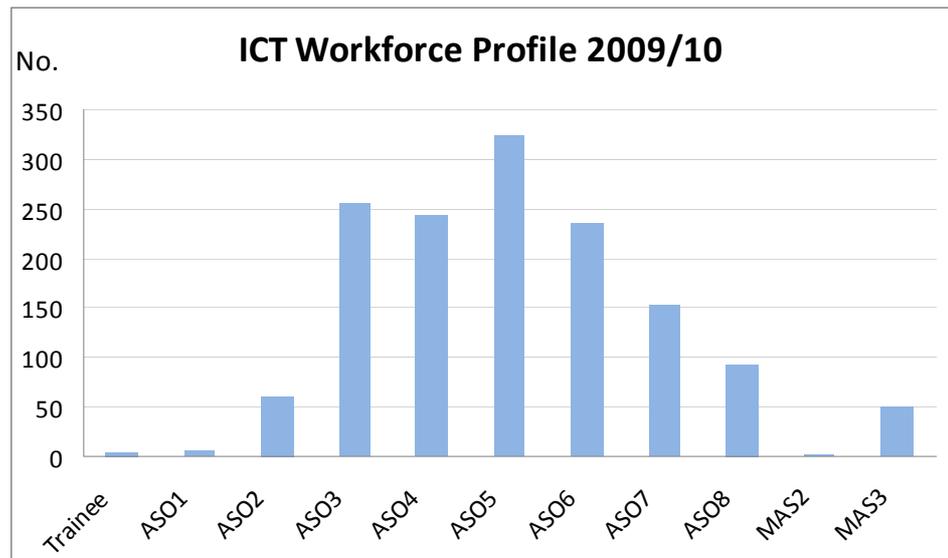
<sup>69</sup> Vic Ombudsman Report, 2011 pg 40-43 (emphasis added)

<sup>70</sup> Gershon, P, Review of the Australian Governments Use of Information and Communication Technology 2008 p 57 (emphasis added) ('Gershon Report. 2008')

<sup>71</sup> Gershon Report, 2008 p 59

<sup>72</sup> Vic Ombudsman Report, 2011 p 40

<sup>73</sup> Australian National Audit Office, Dec 2011, ANAO Audit Report No.19 Oversight and Management of Defence's Information and Communication Technology 2011-12 p20



The Skills Framework for the Information Age [SFIA] is ‘a model for describing and managing competencies for ICT professionals for the 21st century, and is intended to help match the skills of the workforce to the needs of the business’<sup>74</sup>. The SFIA framework maps project, program and portfolio management as capabilities with a higher level of responsibility, a level that would commonly be associated with the higher ASO7 – 8 classification structure. The data highlights that the Government of South Australia is not employing as many people at those higher classification levels, levels which are required for managing complex ICT projects.

The Victorian Ombudsman highlighted that the use of inexperienced staff to manage large and complex projects results in ‘.. disastrous consequences. Victoria Police in particular, have appointed staff with limited project management experience and almost no relevant ICT experience to manage large complex ICT projects such as replacing the LEAP database’<sup>75</sup>.

The Victorian Ombudsman has also noted that ‘..agencies are struggling to attract and retain high quality project managers of their own’ and that ‘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’.

## 8.2 Lack of focus on benefits realisation

A benefit is the ‘measurable improvement resulting from an outcome perceived as an advantage by one or more stakeholders’<sup>76</sup>. Project success is not only delivering outputs on time and within budget, but also ensuring that the expected benefits of a project are realised. Put another way; is the expenditure on ICT providing an adequate rate of return on investment?

The Gateway Review Process, is ‘a project assurance methodology developed by the United Kingdom’s Office of Government Commerce (OGC) to improve the delivery of major projects. It involves short, sharp and confidential reviews (also known as Gates) at critical points

<sup>74</sup> SFIA Foundation - <http://www.sfia.org.uk/cgi-bin/wms.pl/927>

<sup>75</sup> Vic Ombudsman Report, 2011 p 41

<sup>76</sup> Office of Government Commerce, Managing Successful Programmes

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*throughout a project's life, conducted by reviewers not associated with the project.*<sup>77</sup> One of these gates involves benefits realisation, a review focussed on measuring the project's success in achieving its objectives.

The Victorian Ombudsman reported a lack of focus on benefits realisation. Representatives interviewed by the Ombudsman did not place enough emphasis on the Gateway Review that focused on benefits realisation (Gate Six). This occurred because many stakeholders believe that opportunities to influence the project have passed. *'Post implementation reviews are important to measure whether the project has achieved its benefits and to identify learnings for the agency and government regarding project successes and failures.'*<sup>78</sup>

The Queensland Auditor General also cited a lack of focus on benefits realisation. In relation to the New Queensland Drivers Licence Project and the Land Tenure Ledger Redevelopment Project *'Benefits realisation frameworks and plans were not in place for these projects and consequently, benefits have not been clearly identified, measured and monitored.'*<sup>79</sup>

In 2008, the Gershon Report also noted that the *'...measurement of project benefits realisation by agencies is ... weak, despite evidence that many of them have adopted formalised project management methodologies. Of the 193 agency projects detailed, only 5% of projects reported actual measurement of benefits and compared anticipated benefits with actual benefits realised'*<sup>80</sup>.

### 8.3 Better practices for portfolio, program and project management

#### 8.3.1 Introducing competency expectations for ICT professionals

Ensuring that people have the right skills and experience is critical to a project's success. Frameworks, like the Skills Framework for the Information Age provide a reference model for the skills needed and related competency standards. Competency expectations for ICT professionals in project, program and portfolio management ensures that only those with the right skills and experience will be employed into these positions.

#### Case Study New York City

##### Contractors:

Gartner, HP, Horthrop Grumman and Motorola

##### Program:

'911 Upgrade'  
(Emergency Communications Transformation Program)

The project started in 2004 with an estimated cost of \$1.3 billion and a three year time frame.

The proposal was to integrate all city agencies' antiquated police, fire and emergency management call-taking and dispatch functions into the one system. The plan was to have two state of the art call centres, with one being a back up in case of disaster.

In January 2012 the first call centre opened, but the second is not scheduled for completion until 2015.

In an audit from City Comptroller, released 21 March 2012, the project is now **\$1 billion over budget** and **seven years behind schedule**.

The Comptroller blamed the cost overruns on inadequate project management within the city.

<sup>77</sup> Australian National Audit Office, Feb 2012, Administration of the Gateway Review Process p 13

<sup>78</sup> Vic Ombudsman Report, 2011 p 21

<sup>79</sup> QLD Auditor General Report, 2011, p2

<sup>80</sup> Gershon Report, 2008 p 57

**8.3.2 *Building project, program, and portfolio management capabilities***

Training in ICT project, program and portfolio management demonstrates an organisation's commitment to project success and to improving the skill level of the ICT workforce. Providing on-the-job learning, job shadowing and mentorship programs for less experienced ICT program managers increases this skill in a 'safe' environment. The Canadian province of Quebec, for example, requires third party validation of work done by public sector employees.

The United States Government runs an *Intergovernmental Personnel Act Mobility Program*, which enables employees to rotate through federal, state and local governments, colleges and universities, federally-funded research centres and other eligible organisations. This model supports the personal development of project, program, and portfolio managers, and builds relationships with private industry and the non-government sector.

*'Other organisations have used a pool of dedicated project managers as a way to supply projects with adequate resources to perform gateway reviews (UK Office of Government Commerce), to intervene and assist with project problems (Washington state), or to act as mentors to department or agency staff (Washington state, Alberta, and the UK Office of Government Commerce).'<sup>81</sup>*

Project, portfolio, and program managers require appropriate knowledge management systems and access to shared process descriptions, templates and other tools. Fostering communities of practice in ICT project management will also provide support and advice.

**8.3.3 *Adopting proven methodologies for Project, Program and Portfolio Management***

The adoption of standardised and consistent project, program and portfolio management methodologies builds capability of the ICT workforce. The UK Government's Office of Government Commerce, now part of the Cabinet Office, is internationally recognised as a leader in creating frameworks, methodologies and guidelines including:

PRINCE2	Project Management
MSP	Program Management
MoP	Portfolio Management
P3M3	Portfolio, Programme and Project Management Maturity Model.

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<sup>81</sup> Government of Ontario, Report of Ontario's Special Task Force on the Management of Large-Scale Information & Information Technology Projects, July 2005 p11

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While PRINCE2 is a well-known project management methodology, program and portfolio management approaches are not as commonly understood. Effective portfolio management is critical for departments to balance organisational change with business as usual operations. Portfolio management enables key decisions to be made about prioritisation of investments across departmental projects and programs. It also ensures more efficient resource allocation and greater realisation of benefits. Leading jurisdictions have found portfolio management techniques useful to not only manage multiple projects and programs, but also to strengthen executive sponsorship of priority initiatives.

### **8.3.4 *Focusing on Benefits Realisation***

For a project or program to be deemed successful, the intended benefits must be realised. Rather than focusing on deliverables (such as an ICT system), success should be measured against anticipated benefits. For this shift in focus to occur (output to outcome) ICT projects (as discussed in 4.4.1) must be viewed as business change initiatives and benefits must be 'owned' by the business. Benefits should be identified, tracked and reported on throughout the life of a project.

## 9. SUMMARY

The below tables provide a summary of the failures and better practices discussed in the document. The better practices are not designed to be prescriptive but rather as topics for further consideration and thought.

### Leadership, Accountability and Governance

Common Causes of Failure	<ul style="list-style-type: none"> <li>• Lack of strong leadership, and reluctance to make tough decisions</li> <li>• Ambiguous responsibilities, accountabilities, outcomes and approaches</li> <li>• Ineffective governance arrangements</li> </ul>
Better Practice	<ul style="list-style-type: none"> <li>• Viewing ICT programs and projects as ‘business change initiatives’</li> <li>• Utilising the international standard for governance of ICT</li> <li>• Defining accountability, responsibility, outcomes and approaches</li> <li>• Maintaining an exit strategy for every program and project</li> <li>• Ensuring governance bodies have the right membership</li> </ul>

### Planning

Common Causes of Failure	<ul style="list-style-type: none"> <li>• Large, complex and ambitious projects</li> <li>• Poor business case development</li> </ul>
Better Practice	<ul style="list-style-type: none"> <li>• Understanding organisational capacity for large, ICT-enabled programs and projects</li> <li>• Breaking ICT-enabled programs and projects into manageable modules</li> <li>• Delaying public announcements until proper analysis is performed</li> <li>• Establishing appropriate project metrics to determine overall risk</li> <li>• Developing sound business cases early</li> </ul>

### Funding

Common Causes of Failure	<ul style="list-style-type: none"> <li>• Complex budgeting processes, e.g. protracted funding cycles, budget uncertainties</li> </ul>
Better Practice	<ul style="list-style-type: none"> <li>• Approving funding that is consistent with modular implementation of projects</li> </ul>

### Probity and Procurement

Common Causes of Failure	<ul style="list-style-type: none"> <li>• Lack of focus on probity</li> <li>• Poor procurement and contract management practices</li> </ul>
Better Practice	<ul style="list-style-type: none"> <li>• Engaging a probity advisor and probity auditor</li> <li>• Ensuring specialists do all ICT procurement</li> <li>• Creating a specialist ICT contract management team</li> </ul>

### Portfolio, Program and Project Management

Common Causes of Failure	<ul style="list-style-type: none"> <li>• Lack of expertise and experience</li> <li>• Lack of focus on benefits realisation</li> </ul>
Better Practice	<ul style="list-style-type: none"> <li>• Introducing competency expectations for ICT professionals</li> <li>• Building project, program, and portfolio management capabilities</li> <li>• Adopting proven methodologies for Project, Program and Portfolio Management</li> <li>• Focusing on Benefits Realisation</li> </ul>

10. APPENDIX A – SUMMARIES OF RECENT AUDIT REPORTS

**VICTORIA**

**Report Creator:** Victorian Ombudsman in consultation with the Victorian Auditor-General

**Report Title:** Own motion investigation into ICT-enabled projects

**Date of Report:** November 2011

**Scope of report:** Ten major ICT projects across a range of Departments and Agencies in the Victorian Government

**Report URL:**

[http://www.ombudsman.vic.gov.au/resources/documents/Investigation\\_into\\_ICT\\_enabled\\_projects\\_Nov\\_2011.pdf](http://www.ombudsman.vic.gov.au/resources/documents/Investigation_into_ICT_enabled_projects_Nov_2011.pdf)

The report, 'Own motion investigation into ICT enabled projects' looked at the following ten major ICT enabled projects across the Victorian public sector:

1. Link, Victoria Police
2. HealthSMART, Department of Health
3. myki, Transport Ticketing Authority
4. Registration and Licensing – RandL, VicRoads
5. Client Relationship Information System – CRIS, Department of Human Services
6. Ultranet, Department of Education and Early Childhood Development
7. Integrated Courts Management System – ICMS, Department of Justice
8. Property and Laboratory Management – PALM, Victoria Police
9. HRAssist, Victoria Police
10. Housing Integrated Information Program – HIIP, Office of Housing

The report noted that agencies were repeating mistakes that have been observed and reported on for some years. The investigation identified a number of common mistakes and problems with how ICT-enabled projects were managed. These common mistakes were grouped around five themes 1) Leadership, accountability and governance, 2) Planning, 3) Funding, 4) Probity and procurement, and 5) Project Management. Forty-two recommendations were made resulting from these five themes.

Each of the 10 projects examined failed to meet expectations and ran over budget. The original budget for these projects totalled \$1.3 billion. The latest estimated cost is \$2.74 billion – an extra \$1.44 billion cost to government.

The Ombudsman recommended that significant ICT-enabled projects should be treated as a special case until the 'government bureaucracy is of sufficient maturity to handle these projects well'. He recommended that the framework (42 recommendations around 5 themes) be applied to all ICT projects with an estimated value of \$20 million or more.

The Secretary for the Department of Treasury and Finance rejected the threshold of \$20 million and is of the view that central oversight should be based on the risk profile of projects, rather than an 'arbitrarily low financial threshold'. The Secretary has responded to thirty-four of the broader (non-project specific) recommendations. Some were accepted unconditionally, others were accepted on a limited or qualified basis, and the remaining were specifically rejected.

## PUBLIC

### QUEENSLAND

**Report Creator:** Auditor General of Queensland

**Report Title:** Financial and Assurance Audit, Report to Parliament No. 4 for 2011 - Information systems governance and security

**Date of Report:** June 2011

**Scope of Report:**

- To evaluate the effectiveness of the management arrangements that were established to address the Queensland Government's ICT Strategy: *Toward Q2 through ICT 2009-2014*
- Brisbane City Council and 13 Queensland Government entities, 3 major programs & 2 significant ICT Projects were audited
- The status of previous audit recommendations from IT network security audits were also followed up.

**Report URL:**

[http://www.qao.qld.gov.au/downloadables/publications/auditor\\_general\\_reports/2011\\_Report\\_No.4.pdf](http://www.qao.qld.gov.au/downloadables/publications/auditor_general_reports/2011_Report_No.4.pdf)

'The cost to the Queensland Government for Information and Communication Technology has been estimated at \$1.5b per year, representing approximately five per cent of the State Budget.'

The Auditor General made the following key findings:

- Management of whole-of-government and agency IT could be improved
- IT programs and projects could be more effectively managed
- Information security within agencies could be improved
- Information technology disaster recovery plans are at various stages of maturity.

The report audited three major programs:

1. ICT Consolidation Program
2. Identity, Directory and Email Services Program
3. Corporate Solutions Program

The Auditor General found that whole-of-government programs experienced lengthy delays and did not realise the expected benefits. The business owner, who 'ensures that the systems are kept updated and benefits continue to flow from these investments', was not clearly identified for each program. This resulted in 'a lack of overall commitment in the implementation of the technology being produced' and a failure to realise potential program benefits. There was also a lack of accountability for the delivery of outcomes.

Two major projects, the New Queensland Drivers Licence Project and the Land Tenure Ledger Redevelopment Project, were audited and two other projects, the Queensland Health payroll project and the Department of Education and Training OneSchool project, were also reviewed.

The Auditor General found there was inadequate project planning and that key project documentation was not in place nor updated, i.e. the business case was not updated throughout the life of the project. Again, as with the whole-of-government programs, projects suffered a lack of benefits realisation framework and planning. This resulted in benefits not been clearly identified, measured or monitored.

**WESTERN AUSTRALIA**

**Report Creator:** Economic Regulation Authority

**Report Title:** Inquiry into the Benefits and Costs Associated with the Provision of Shared Corporate Services in the Public Sector - Final Report

**Date of Report:** 10 June 2011

**Scope of Report:** Review of the Office of Shared Services

**Report URL:**

<http://www.erawa.com.au/cproot/9709/2/20110707%20Inquiry%20into%20the%20Benefits%20and%20CA%20with%20the%20Provision%20of%20SCS%20in%20the%20PS%20-%20Final%20Report.PDF>

This report outlined the analysis, findings and recommendations of the Economic Regulation Authority [ERA] into the inquiry on whether the Office of Shared Services provided benefit to the Government of Western Australia.

As a result of this report the Western Australian Government decommissioned the Office of Shared Services.

The ERA found that there were no net savings to government from establishing Department of Treasury and Finance Shared Services Centre [DTFSSC], nor were there likely to be future savings from rolling-in additional agencies.

Up until 30 June 2011, the DTFSSC was expected to have cost the Government (in nominal terms) \$189 million in capital costs, \$254 million in operating costs and had only received \$43 million in revenue from agencies. Only 58 of the expected 80 agencies were rolled-in.

In contrast, the original estimate to build the business system and roll-in agencies for the entire Shared Services project was \$68.5 million in capital expenditure in 2003-04. Additionally, the DTFSSC was to be self-funding and generating \$40.7 million per year in net savings within the first five years of implementation. All agencies were to be rolled-in by early 2007.

The ERA considered that 'the original 2003 business case was fundamentally flawed. The proposed benefits were overly optimistic, the true cost of the project was underestimated and the proposed roll-in schedule was not realistic. This, together with decisions made regarding customisation of the IT system during the initial stages of the project, had caused problems that were still influencing the service delivery of the DTFSSC in June 2011.'

The ERA concluded that the 'current structure of the DTFSSC was problematic. It was a monopoly provider, with a mandated client base and a lack of meaningful service level agreements. This meant that there were minimal incentives for DTFSSC to improve service delivery and few ways in which client agencies could hold DTFSSC accountable for the service provided, or DTFSSC could hold client agencies accountable for meeting their obligations.'

## PUBLIC

### New South Wales

**Report Creator:** Audit Office of New South Wales

**Report Title:** New South Wales Auditor-General's Report - Financial Audit Volume Nine 2011 - Focusing on Education and Communities

**Date of Report:** 7 December 2011

**Scope of Report:** Financial, HR and Asset Management audit on the Education and Community Sectors.

**Report URL:**

[http://www.audit.nsw.gov.au/ArticleDocuments/229/01\\_Volume\\_Nine\\_2011\\_Full\\_Report2.pdf.aspx?Embed=Y](http://www.audit.nsw.gov.au/ArticleDocuments/229/01_Volume_Nine_2011_Full_Report2.pdf.aspx?Embed=Y)

Of note in this report was the audit of the Department of Education and Communities [DEC] Planned Computer Systems Replacement Project. In 2006, the DEC commenced its Learning Management and Business Reform [LMBR] program to replace the finance, human resources and payroll systems, and the student administration systems with a suite of software from SAP, the world's largest inter-enterprise software company. The scope of the project included TAFE NSW, State schools and other regional offices operated by the DEC.

The original program was to be delivered in two phases over an eight year period, at a cost of \$153 million for phase one and \$218 million for phase two. The New South Wales Auditor-General found that the project was falling behind in its delivery objectives, and had cost an additional \$29 million, but was yet to be completed.

The intention was to have the first phase completed by late 2010, but the audit found that as at 7 December 2011 the roll-out of SAP Finance was yet to be deployed in State schools, as was the roll-out of SAP Human Resources and Payroll to TAFE NSW.

The Auditor-General found that the system failed to meet key business needs for the users that it was deployed to.

'The implementation of SAP Finance at State and Regional Office locations in March 2010 did not provide all expected benefits to the business.

- The finance system did not fully meet the department's needs, and users had to build some manual workarounds, which resulted in lost time and additional effort and costs, not included in the original business case.
- System users had some difficulty obtaining accurate and/or relevant and timely information.
- The Shared Service Centre did not have the required skills, resources and knowledge to fully support the system
- System users did not have sufficient knowledge of the new system and its functionality.'

The department has subsequently revised its deployment schedule for the system, and budgetary and training requirements, and has deferred the project to ensure it will meet future business requirements.

## PUBLIC

### Commonwealth of Australia – Australian Defence Force

**Report Creator:** Australian National Audit Office  
**Report Title:** Oversight and management of Defence's Information and Communication Technology  
**Date of Report:** 20 December 2011  
**Scope of Report:** Audit on the progress of the ICT component of the broader Strategic Reform Process

**Report URL:**

<http://www.anao.gov.au/~media/Uploads/Audit%20Reports/2011%2012/201112%20Audit%20Report%20No19.pdf>

The objective of the Australian National Audit Office's [ANAO] audit of the Australian Defence Force was to assess the development of Defence's oversight and management of its portfolio of ICT investments and projects. In particular the audit examined Defence's:

- governance, strategic processes and decision-making structures that set out, prioritise and coordinate the integrated ICT reform portfolio and programs
- ICT risk management and capacity to identify and plan to achieve the benefits of its Strategic Reform Program [SRP] ICT stream reforms (including methodologies to measure the realisation of savings and non-savings benefits)
- level of portfolio and program management maturity
- ability to deliver the ICT services capacity required to support the SRP.

The Defence Information Environment [DIE] is one of the largest ICT networks in Australia. At an estimated annual cost of \$1.2 billion in 2010-11, the DIE connects over 500 Defence sites within Australia and overseas.

The audit found that the Chief Information Officer Group [CIOG] lacked supervision over some \$300 million (around 25%) of the department's ICT activities in 2011. The ANAO therefore made the following recommendations to the Australian Defence Force, which have subsequently been agreed to:

- to address emerging risks in the delivery of ICT support to Defence business, Defence need to
  - clarify the role of the CIOG as an ICT Service provider and coordinating capability manager of Defence ICT
  - ensure that Defence program managers adopt a full partnership model with CIOG to deliver relevant Defence portfolio initiatives.
- to improve the portfolio-level view of Defence's enterprise needs and to support the achievement of the challenging goal of managing Defence as a single entity, Defence need to
  - establish an enterprise-wide benefits realisation framework
  - ensure it has in place appropriate financial systems to support the effective planning and monitoring of ICT investments
  - develop a consistent, portfolio-wide approach to escalating and treating ICT program and project risks.

The report also warned that Defence was understaffed by approximately 350 people but was putting in measures to mitigate the effect this was having on its ability to calculate and reduce risk.

11. APPENDIX B – BIBLIOGRAPHY

Al-Ahmad, W., Al-Fagih K, Khanfar, K., Alsamara, K. Abuleil, S. Abu-Salem, H. 2009 *A Taxonomy of an IT Project Failure: Root Causes*, International Management Review Vol. 5 No.1

AtTask, 2011, *Six Common Mistakes that Plague IT Projects and Three Keys to Avoid Them*, <https://www.attask.com>

Audit Office of NSW, Dec 2011, *New South Wales Auditor-General's Report Financial Audit, Volume Nine 2011 – Focusing on Education and Communities*

Australian Computer Society, 29 Nov 2011, *ACS Applauds Victorian Ombudsman on the 'Own motion investigation into ICT-enabled projects' report*, <http://www.acs.org.au>

Australian National Audit Office, Feb 2012, *Administration of the Gateway Review Process*

Australian National Audit Office, Dec 2011, *Oversight and Management of Defence's Information and Communication Technology*

Banks, L. Nov 21 2011, *Victorian Ombudsman slams Labor government for failed ICT projects*, <http://www.computerworld.com.au>

BBC News, *Whitehall department savings scheme overspent by £500m, says report*, 7 March 2012

The Butler Group, *The Political Gateways – Failures of Public Sector IT Projects*, 2006, <http://www.butlergroup.com>

The Butler Group, *IT Governance – Managing Portfolios, Projects, Processes & People*, April 1 2007

Brouwer, G. & Pearson D, Nov 2011, *Own motion investigation into ICT-enabled projects*, Victorian Ombudsman in consultation with the Victorian Auditor-General

Budzier, A. & Flyvbjerg, B. 2011, *Double Whammy – How ICT Projects are Fooled by Randomness and Screwed by Political Intent*, BT Centre for Major Programme Management, Saïd Business School, University of Oxford

Chirgwin, R. Nov 24 2011, *Victorian Ombudsman whacks state's IT spending*, <http://www.theregister.co.uk>

Department of Finance and Deregulation – ICT Two Pass Review <http://www.finance.gov.au/budget/ict-investment-framework/two-pass-review.html>

Economic Regulation Authority – Western Australia, June 2011, *Inquiry into the Benefits and Costs Associated with the Provision of Shared Corporate Services in the Public Sector – Final Report*

Flinders, K. September 2011, *Just say 'no': How to save your IT project – and career – from failure*, <http://www.computerweekly.com>

Flinders, K September 2011, *The NHS IT project is dead, but why do large IT projects so often fail? Part 2*, Computer Weekly

## PUBLIC

Flyvbjerg, B. & Budzier, A. Sep 2011, *Why your IT Project may be Riskier Than You Think*, Harvard Business Review

M Gareth, 'Study reveals extent of IT project failure', IT Week, 26 May 2008

Gichoya, D., 2005, *Factors Affecting the Successful Implementation of ICT Projects in Government*, The Electronic Journal of e-Government Volume 3 Issue 4, p175-184, <http://www.ejeg.com>

Government of Ontario, *Report of Ontario's Special Task Force on the Management of Large-Scale Information & Information Technology Projects*, July 2005

Glaser, J. Jan 2005, *more on management's role in IT project failures*, healthcare financial management

Gulla, J. August 2011, *Seven Reasons Why Information Technology Projects Fail*, IBM Corporation

Hilvert, J, *Defence CIO flags end of enterprise IT*, IT News, 28 Sep 2011

Hilvert J., Dec 20 2011, *Defence ICT management under fire*, <http://www.itnews.com.au>

Hitchcock, G 2 March 2012, *HMRC tax fraud IT project 'missed virtually all delivery dates'*, The Guardian, UK  
<http://www.guardian.co.uk/government-computing-network/2012/mar/02/hmrc-tax-nao-report-compliance?CMP>

Hoebler, J. & Harpreet, N., *7 Ways IT Projects Come Off The Rails (And How To Avoid Them)*, Forbes.com

Hopewell, L. Dec 7, 2011, *NSW govt in SAP project blowout*, <http://www.zdnet.com.au>

Huber, N. 2003, *Hitting targets? The state of UK IT project management*, <http://www.computerweekly.com>

ISACA Survey: 25 Percent of Companies Increasing IT Investments Despite Volatile Economy, 29 April 2009  
<http://www.isaca.org/About-ISACA/Press-room/News-Releases/2009/Pages/ISACA-Survey-andnbsp-andnbsp-25-Percent-of-Companies-Increasing-IT-Investments-Despite-Volatile-Econ.aspx>

Kennedys Law Firm, *Learning from the mistakes of others*, 10 January 2012

Krigsman, M. 2009, *Senate Introduces important IT watchdog bill*, <http://www.zdnet.com>

LeMay, R. Dec 20 2011, *High risk that Defence ICT will go off the rails*, <http://delimiter.com.au>

Leydesdorff, E. & Wijsman, T. 2007, *Why government ICT projects run into problems*, intoIT Journal of the INTOSAI Working Group on IT Audit p14-15  
[http://www.intosaiitaudit.org/intoit\\_articles/27\\_p14top17.pdf](http://www.intosaiitaudit.org/intoit_articles/27_p14top17.pdf)

## PUBLIC

## PUBLIC

Leydesdorff E & Wijsman T, *Lessons Learned from Government ICT Projects Part A*, Netherlands Court of Audit, Nov 2007

[http://www.rekenkamer.nl/9282000/d/p425\\_report.pdf](http://www.rekenkamer.nl/9282000/d/p425_report.pdf)

McClure D., *From the CIO Trenches: Why Some Projects Fail and Others Succeed*, Gartner Industry Research, 26 September 2007

McKinsey & Company, McKinsey on Government, Autumn 2011, 'Seven imperatives for success in IT megaprojects' K. Nichols, S. Sharma, R. Spiers

Morgan, G., 2008, *Study reveals extent of IT project failure*, IT Week

Mulenburg J., 2008, *What does Complexity Have to Do With It? Complexity and the Management of Projects*. From the proceedings of the 2008 NASA Project Management Challenge Conference as cited in

<http://www.projecttimes.com/articles/introducing-the-new-project-complexity-model-part-i.html>

New Zealand State Services Commission, *Gateway Reviews – Lessons Learned Report*, July 2011

NSW Commission of Audit Interim Report, Jan 2012, *Public Sector Management*

Organisation for Economic Co-operation and Development, *The Hidden Threat to E-Government Avoiding large government IT failures*, Public Management Policy Brief, March 2001

Osman, H. July 8 2011, *WA Government disbands Shared Services*,

<http://www.arnet.com.au>

Patty, A. Dec 8, 2011, *Schools IT scheme a 'stuff up'*, <http://www.theage.com.au>

Poole G. June 2011, *Financial and Assurance audit – Report to Parliament No. 4 for 2011, Information systems governance and security*, Auditor-General of Queensland

Royal Academy of Engineering & The British Computer Society, 2004 *The Challenges of Complex IT Projects*

Sauer, C. Oct 2011, *The tell-tale signs of an IT project at risk of failure*,

<http://www.computerweekly.com>

Sexton, R. Nov 23 2011, *Ombudsman lashes inept myki, police database projects*, <http://www.theage.com.au>

Shauchenka, U. 2011, *Why Projects Fail : How to Make Your Next Project Successful*, <http://www.whyprojectsfailbook.com>

Simon, P. 2011, *Why new systems fail: An insider's guide to successful IT projects*, Course Technology, Cengage Learning, United States of America

Simons, M. , Sep 2011, *Government to scrap NPfIT HHS IT programme today*, Computer World UK, <http://www.computerworlduk.com>

Standards Australia, AS/NZS ISO/IEC 38500:2010 Corporate Governance of Information Technology

## PUBLIC

Taylor, J. 21 June, 2011, *Qld govt email will fail to deliver: report*,  
<http://www.zdnet.com.au>

Tindal, S. 20 Dec 2011, *Failed IT could ruin Defence reform*,  
<http://www.zdnet.com.au>

The British Computer Society September 2005, *Why are complex IT projects different?*, ITNOW, Oxford University Press/ UK

The Standish Group, Chaos Manifesto 2011 Press Release  
[http://www.standishgroup.com/newsroom/chaos\\_manifesto\\_2011.php](http://www.standishgroup.com/newsroom/chaos_manifesto_2011.php)

Thomas, D. 2004, *Report exposes failure of IT project management*, Computer Weekly

Titchy, L. March 2008, *The Business End of IT Project Failure*, Mortgage Banking

Toomey, M., January 2012 Edition, *The Infonomics Letter – Plain Language about Leadership and (Corporate) Governance of Information Technology*

Toomey, M., November 2011 Edition, *The Infonomics Letter – Plain Language about Leadership and (Corporate) Governance of Information Technology*

Wailgum, T, *Surviving IT Project Failures*, Computerworld Hong Kong, Sep 2009

Western Australian Auditor General's Report , *Second Public Sector Performance Report 2011*, September 2011

Williams, L. 2007, *Leadership flaws add to IT Project Failures*, Computing

Williams, M 2012, *New York Officials Promise Reforms After Scathing IT Audit*, Government Technology, <http://www.govtech.com/policy-management/New-York-Officials-Promise-Reforms-After-Scathing-IT-Audit.html>

UK Government, HM Treasury, *Optimism Bias*  
[http://www.hm-treasury.gov.uk/green\\_book\\_guidance\\_optimism\\_bias.htm](http://www.hm-treasury.gov.uk/green_book_guidance_optimism_bias.htm)

University of Oxford, Aug 2011, *One in six IT projects ends up 'out of control'*, University of Oxford Media News

US Government Accountability Office, *Information Technology – Critical Factors Underlying Successful Major Acquisitions*, October 2011